SofTrack

Enterprise Software Audit and Control Platform

for Microsoft Windows

Administrator's Guide

INTEGRITY Software

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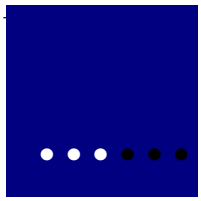


Chapter 1 Welcome to SofTrack

Welcome to the most advanced enterprise software audit and control platform for Windows networks. With SofTrack you can audit and control software usage on all your Windows desktops, thin clients (including Citrix desktops).

SofTrack employs two main components, the SofTrack Server Agent (SSA) and the SofTrack Local Workstation Agent (LWA). Together, these agents plus the SofTrack Inventory module give you control over how software is used in your environment.

SofTrack Features

The most significant features of SofTrack for Windows include:

- Identifying the number of workstations where software is installed and is not used
- Receiving Timekeeping records that include pre-defined codes, user-entered codes or other identification codes. You can now bill back use per application usage instance.
- Tracking each local workstation logon/logout including lock/unlock including terminal server sessions
- Discovering every application launched
- Auditing every page requested by any Browser (IE, Firefox, Chrome, etc.)
- Auditing every file opened
- Auditing of every file created and file copy operations, including the requesting process
- Management of Applications using customizable data definitions
- Prohibiting unauthorized application installations by denying creation and/or modification of `*.EXE` and `*.COM` files
- Software Metering, including:
  - Controlling concurrent access to any application, custom or commercial
  - Controlling concurrent usage of EXE and DLL files – both 32bit and 64bit
  - Controlling concurrent usage on an hourly basis such as required by Bentley's Systems SELECT Open Access license – to help control Trust License Usage

- Controlling use of software suites, regardless of how many "individual" applications are contained within the suite
- Ability to share licenses between any two profiles.
- Assigning software licenses to various departments based on group membership
- Tracking use of Windows-based applications launched from any device, local or remote, including Linux hosts, SAN/NAS, floppy drives, memory sticks, CD-ROMs, and so on
- Tracking use of any Terminal Services Client
- Discovering applications that are used at each desktop
- Sharing software licenses between other Windows servers hosting the SSA
- Excluding specific users, such as those performing backups, from metering
- Allowing your users to view who is using software licenses with SofTrack's STUSER Console
- Blocking use of applications. Now, you can STOP users from running `SETUP.EXE` and installing applications without your permission.
- Warning users who are tying up licenses with Inactivity Idle Warnings. At your direction, SofTrack can optionally terminate the idle application.
- Disallowing multiple launches of the same application per desktop. Now, you can control use of sensitive applications that cannot be used multiple times on the same desktop.
- Receiving detailed reports that include the "who, where, and when" of software license use
- Receiving alert notifications when license use is reaching critical levels, such as 90%, or 100% of the defined maximum. SofTrack's STALERT Console keeps you in touch with each SSA and its current alerts.

System Requirements – Platforms Supported

SofTrack Server Agent Requirements

- The SofTrack Server Agent (SSA) for Windows can be used on networks using the following server systems and will operate properly, regardless of the specific server's role. The SSA can be used on the following:
  - Clustered Windows Servers (any version 2008 and later)
  - Windows 2003 64bit
  - Windows 2008/2008R2 (32bit and 64bit)
  - Windows SBS (any version)
  - Windows 2012/2012R2
  - Windows 2016, 2019, 2022
  - Windows Workstation O/S including Win7, Win8, Win10, Win11 (only use Workstation O/S when licensed for 10 or fewer workstations)
  - Any virtualization on the above including Hyper-V and VMware

- Minimum of 6 MB of RAM, plus approximately 20 bytes per license seat defined. For example, if a License Profile were defined with 1,000 maximum users, an additional 20 KB of RAM would be required (i.e., 20 bytes x 1,000 seats).
- Additionally, minimum memory of 3MB per workstation agent connection, for example, 700 workstations will require at least 2.1GB of RAM.
- Important note: If the cumulative memory 'commit size' of all active processes exceeds the amount of installed physical RAM (or on a virtual system, the amount of RAM configured) then system performance will be negatively impacted. The only solution is to ensure the amount of physical RAM exceeds the expected commit size, and we recommend an additional 20% extra RAM as a buffer.
- SofTrack tracks up to 9,000 Windows workstations (64bit host for SofTrack Server Agent) and 700-1000 Windows Workstations (32bit host for SofTrack Server Agent), 4,000 Terminal Services per SSA (same for 64bit and 32bit).
- The SSA operates on multi-core CPU servers with no restrictions.
- The SSA in **clustered environments** does not require any special options or installation. The SSA operates beneath the server clustering.
- When using Managed Assets, Microsoft's SQL Server (free Express edition or licensed edition) is required.
- When SSA installed on a Windows Workstation O/S, we recommend a maximum of 10 workstations connecting via the LWA.

SofTrack Administrator System Requirements

- Windows 2000 or later
- Minimum of 8 MB of RAM

SofTrack User System Requirements

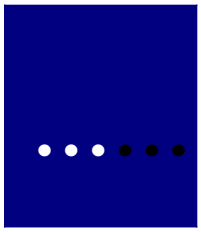
SofTrack for Windows can be used to control software use on any of the following operating systems:

- Windows Terminal Services Clients hosted by any version of Windows
- Windows XP
- Windows 2003 64bit
- Windows 7 (32bit and 64bit)
- Windows 8
- Windows 2008, 2008R2, 2012, 2012R2, 2016, 2019, 2022
- Windows 10, 11
- Any virtualization software, including Hyper-V, App-V and VMware
- Any of the above on up to 256 processors. Contact Integrity Software if you require support on user workstations with more than 256 processors.

Contacting Integrity Software, Inc.

Help resources for SofTrack include:

- This manual
- E-mail: support@softwaremetering.com
- Telephone: (512) 372-8991, ext 2 (available Monday through Friday, between 4:00 a.m. and 6:00 p.m. U.S. Central Time (GMT-6))



Chapter 2 Installing the SofTrack Server Agent for Windows®

Overview

SofTrack's Server Agent (SSA) directs SofTrack's operations on your network. You control this direction via the `SOFTRACK_CONSOLE.EXE` interface. You can install licensed SSAs on as many different Windows servers and/or workstations as you require. SSAs do not share data. Each SSA installed performs the following duties:

- Receives and serves as the repository for all data acquired[1]
  - Audit
  - Metering
  - Logon Tracking
  - Timekeeping
  - Inventory
  - Managed Applications
- Manages all metering activity
  - Denies software use where appropriate
  - Tracks software use where defined
  - Acts as the repository for all metering definitions
- Interacts with and controls SofTrack Local Workstation Agents
- Responds to Administrator and user inquiries

Installation Steps

The remainder of this chapter contains a step-by-step discussion of SofTrack's Server Agent installation, including:

- Installing or upgrading a fully licensed version of SofTrack
- SofTrack's use of the Registry

See Chapter 3 for information about installing SofTrack's Local Workstation Agent (LWA).

Installing or Upgrading a Fully Licensed Version of SofTrack

This section describes the procedure for installing a fully licensed version of SofTrack. The procedure is the same whether you are upgrading from a current, an earlier, or an expired version of SofTrack for Windows.

[1] The SSA does not need to be active to create reports from data it has acquired.

Obtaining the Current Version of SofTrack

The current version of SofTrack is always available from:

http:// www.softwaremetering.com/outgoing/softrack_full.zip

This download and the TOKEN file that you received upon purchase are all that is required for a fully licensed version of SofTrack. This download is internally date-stamped. This date stamp is checked by the TOKEN, which is described in the subsequent section.

NOTE: If your TOKEN's maintenance has expired, you will need to renew your maintenance (signified by receipt of a new TOKEN) before you can actively use SofTrack for any purpose other than reporting previously obtained data.

Determining Your Last Date of SofTrack Maintenance

The TOKEN file contains several details regarding your purchase, including your Company Name, Contact Name, Phone Number, and the end of SofTrack maintenance date. The SofTrack product is internally date-stamped with a "Build Date". For the SofTrack product to recognize the TOKEN, this "Build Date" must be before the end-of-maintenance date within the TOKEN. The end of SofTrack maintenance date is usually one year from date of purchase. To determine the "Build Date" of the SofTrack product, view the `BUILD.DAT` file included in the download. To determine the end-of-maintenance date within your TOKEN file, open the `xxxxx.tkn` file with any text viewer, such as `NOTEPAD.EXE`.

IMPORTANT: Unless you are using a SofTrack SUBSCRIPTION TOKEN, your right to use the SofTrack product never expires—only your right to receive and use the latest maintenance. You can use the SofTrack product perpetually as long as the "Build Date" of your SofTrack product is before the end-of-maintenance date of your TOKEN. Remember, the end-of-maintenance date of the TOKEN only indicates which releases of SofTrack you are entitled to install and use.

NOTE: You *must* install the TOKEN on every server that hosts an SSA.

Installation: SofTrack Server Agent (SSA)

To install the SofTrack Server Agent on your Windows server, perform the following procedure:

1. From a remotely connected workstation or directly at the server, log in with permissions equal to that of the **Administrators Group**. For purposes of installing SofTrack, the account you use must have full access to the Registry of the server to which you install.
2. Run `SOFTRACK_CONSOLE.EXE`

3 Click the Install Server icon from on the Home tab:

4 On the resulting screen (Figure 2-1) Fill in the **Name of the Server for SofTrack Installation** and Name of Share fields; use the Path Assistance button to fill in both fields. This example uses **STLOG** as the share path. Click **Next**.

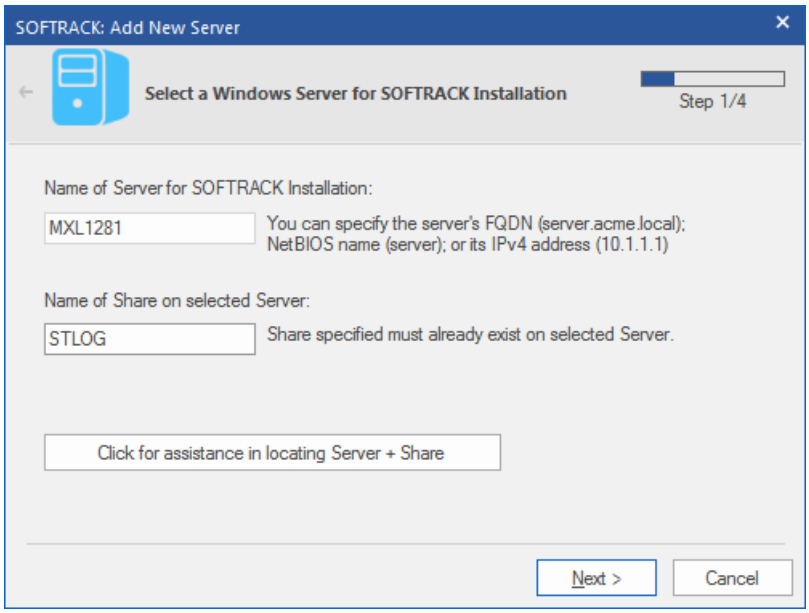


Figure 2-1

5 On the resulting screen (Figure 2-2) Use the **Locate Installation License** button to complete the **Filename of SOFTRACK License File to Install** field. Click **Next**

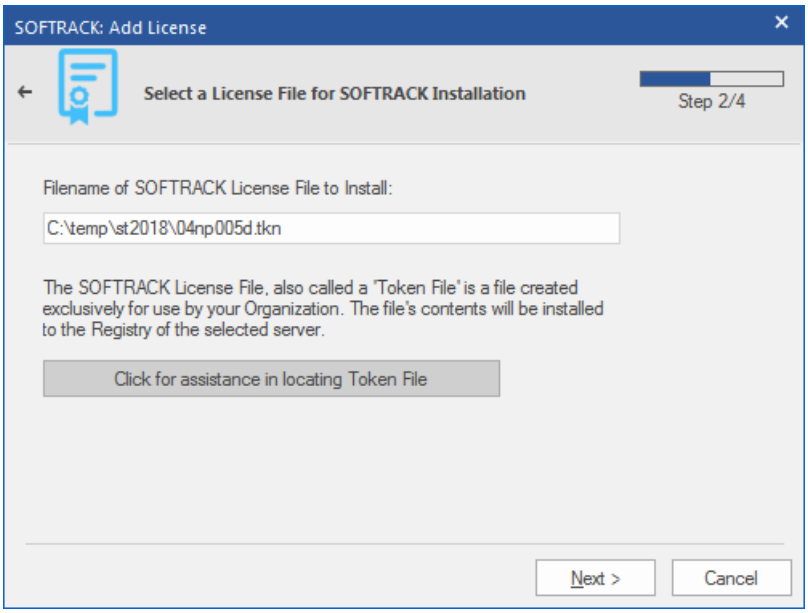


Figure 2-2

6 On the resulting screen (Figure 2-3) confirm the desired installation option. Click **Next**

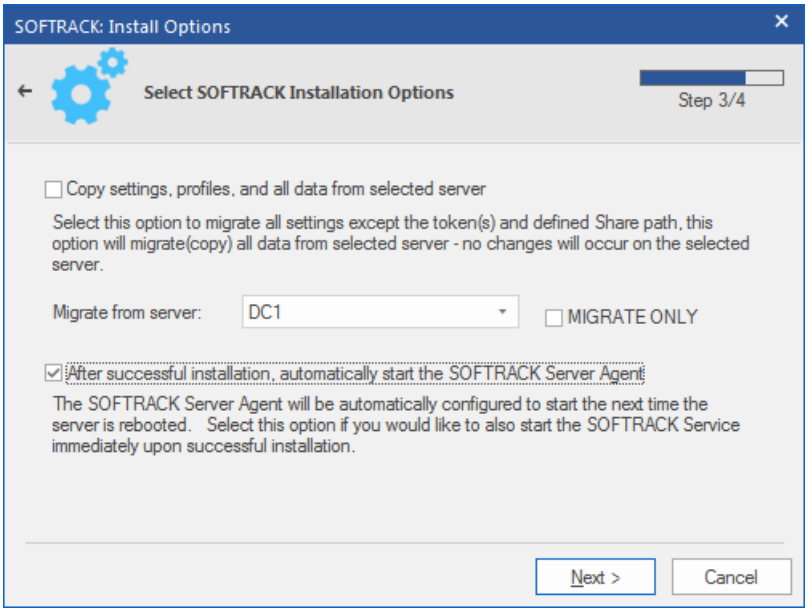


Figure 2-3

7 On the resulting screen (Figure 2-4) verify installation details. Click **Install**

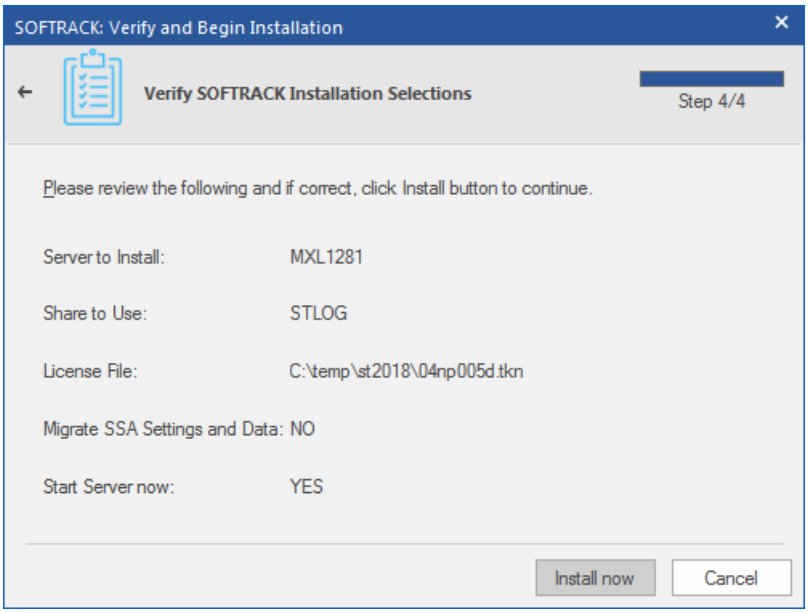
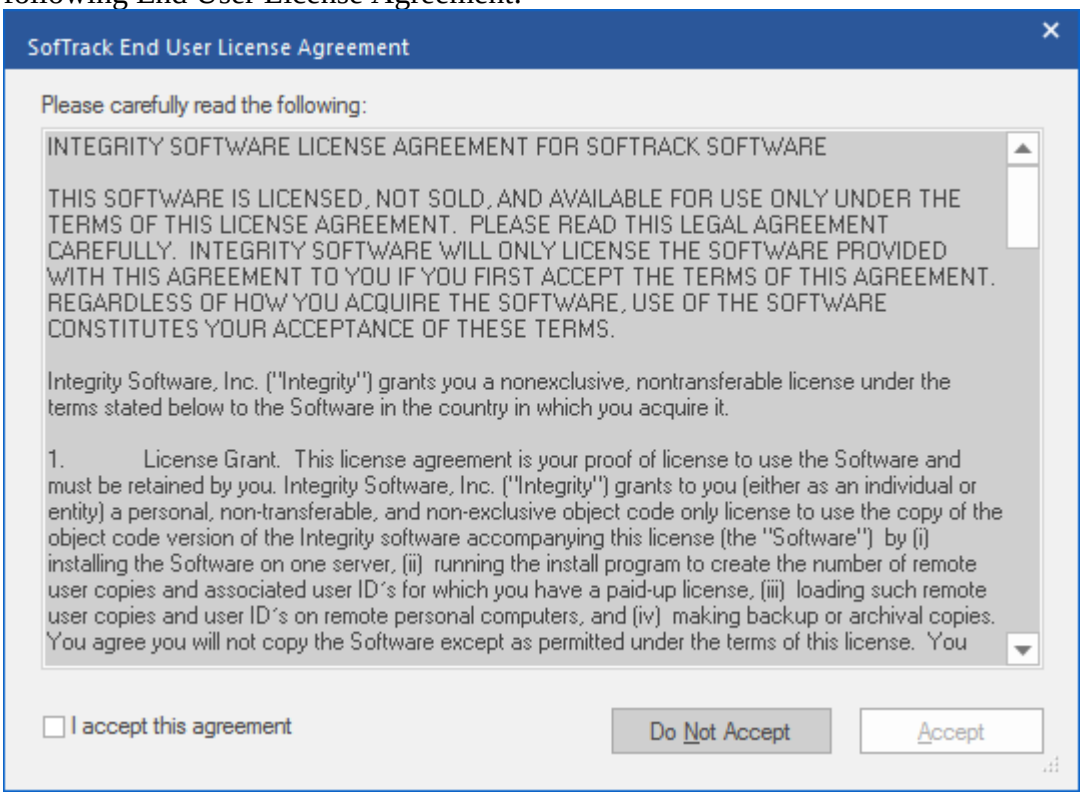


Figure 2-4

If this is the first time SofTrack has been installed, you will be presented with the following End User License Agreement:



Once accepted a progress window such as the one shown in Figure 2-5 will appear:

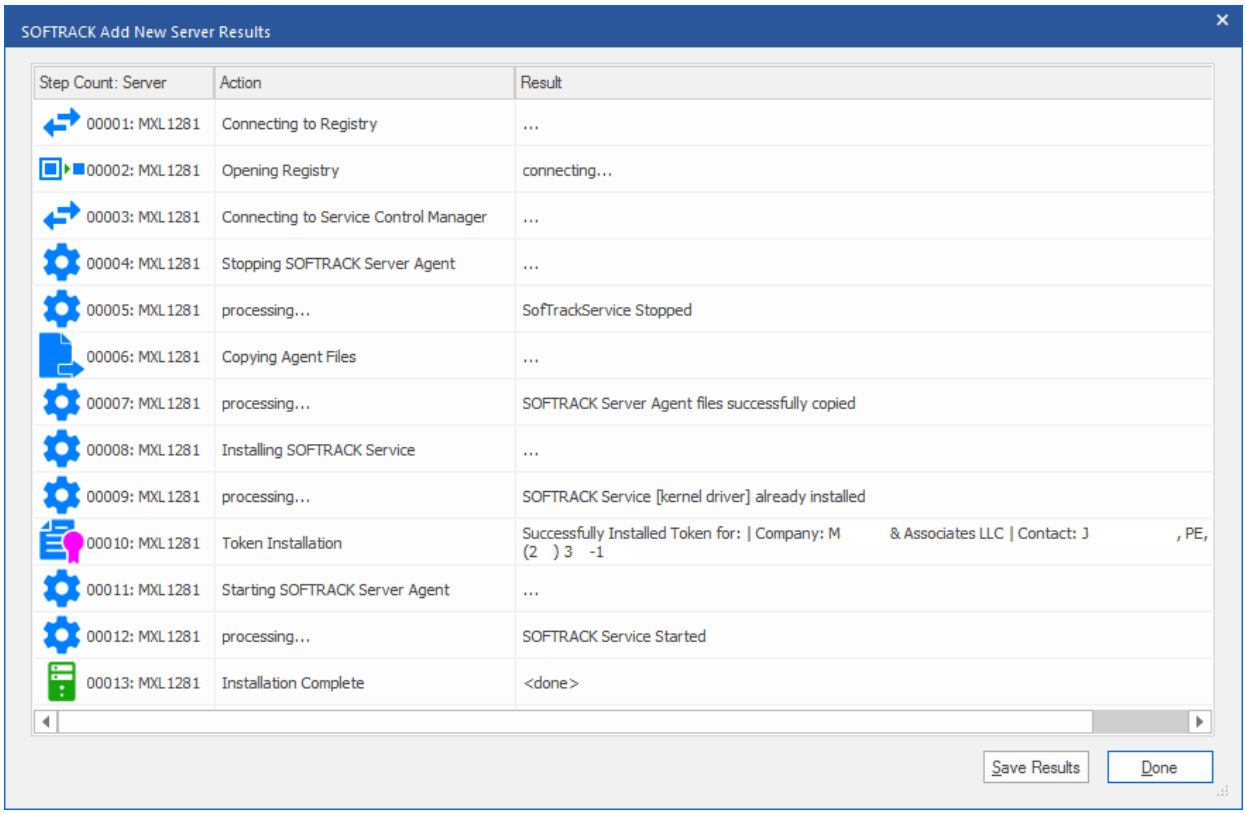


Figure 2-5

Note: The SofTrack Service files are copied to the **%SystemRoot%\System32\Drivers** directory and on 64bit systems the EXE and DLL files are copied to **%SystemRoot%\SysWow64** directory.

When ready, click the "Done" button.

The installed server will now appear in the Home console window (Figure 2-6).

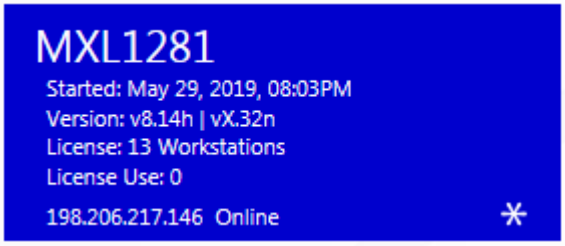
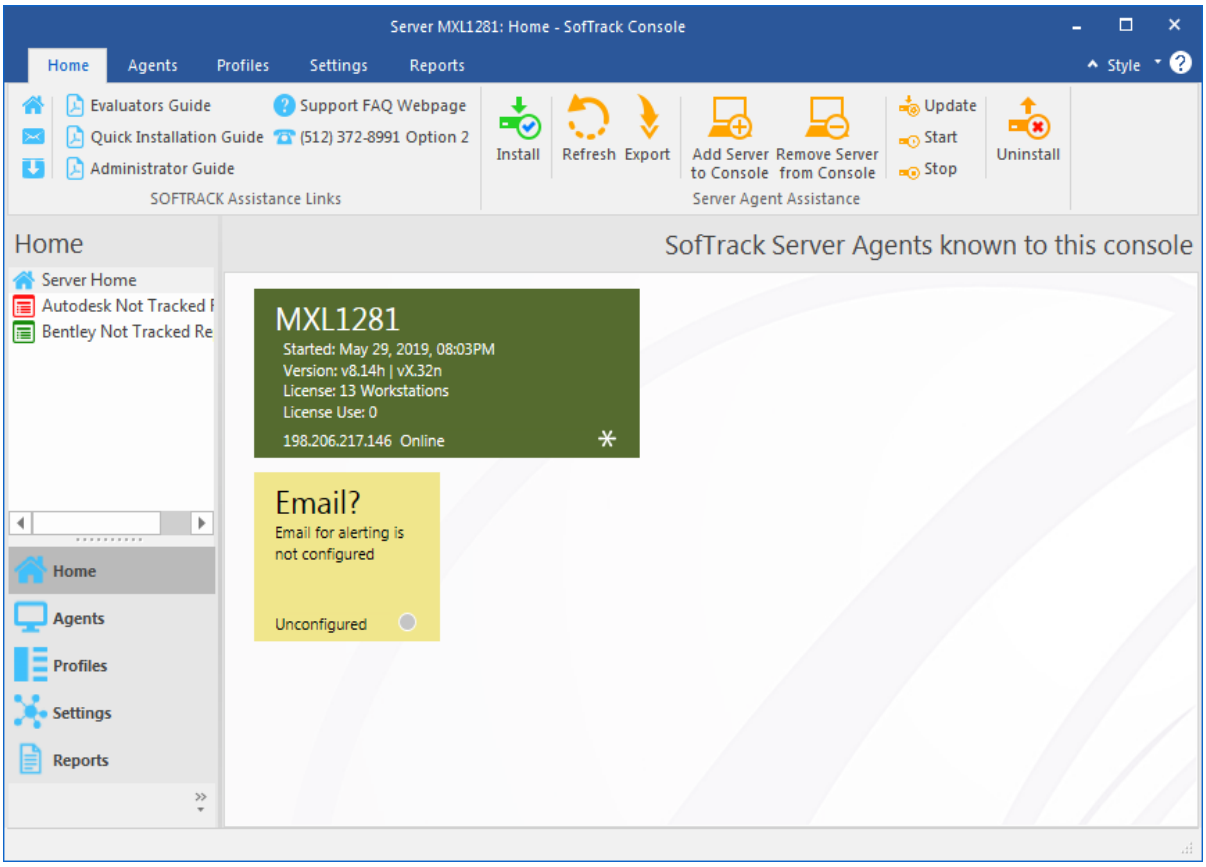


Figure 2-6

If you ever see the same tile in Green (image below) this indicates the named machine is the current machine and was automatically shown because there are no servers added to the console. The list of servers shown is local to your PC where the SofTrack Console is run.



Manually Updating the SofTrack Server Agent and Console

The SofTrack Console includes the ability to directly update the SofTrack Server Agent. Before updating the SofTrack Server Agent, please consider the current users being metered and monitored. *It is recommended the SofTrack Server Agent be updated at a time of low or zero user activity*. If updated while users are actively being monitored and metered there can be loss of data and active license control during the period the SofTrack Server Agent is inactive.

1. Select the Home page and Server to update
2. Click Update SofTrack Server Agent (SSA)" button as shown in Figure 2-7

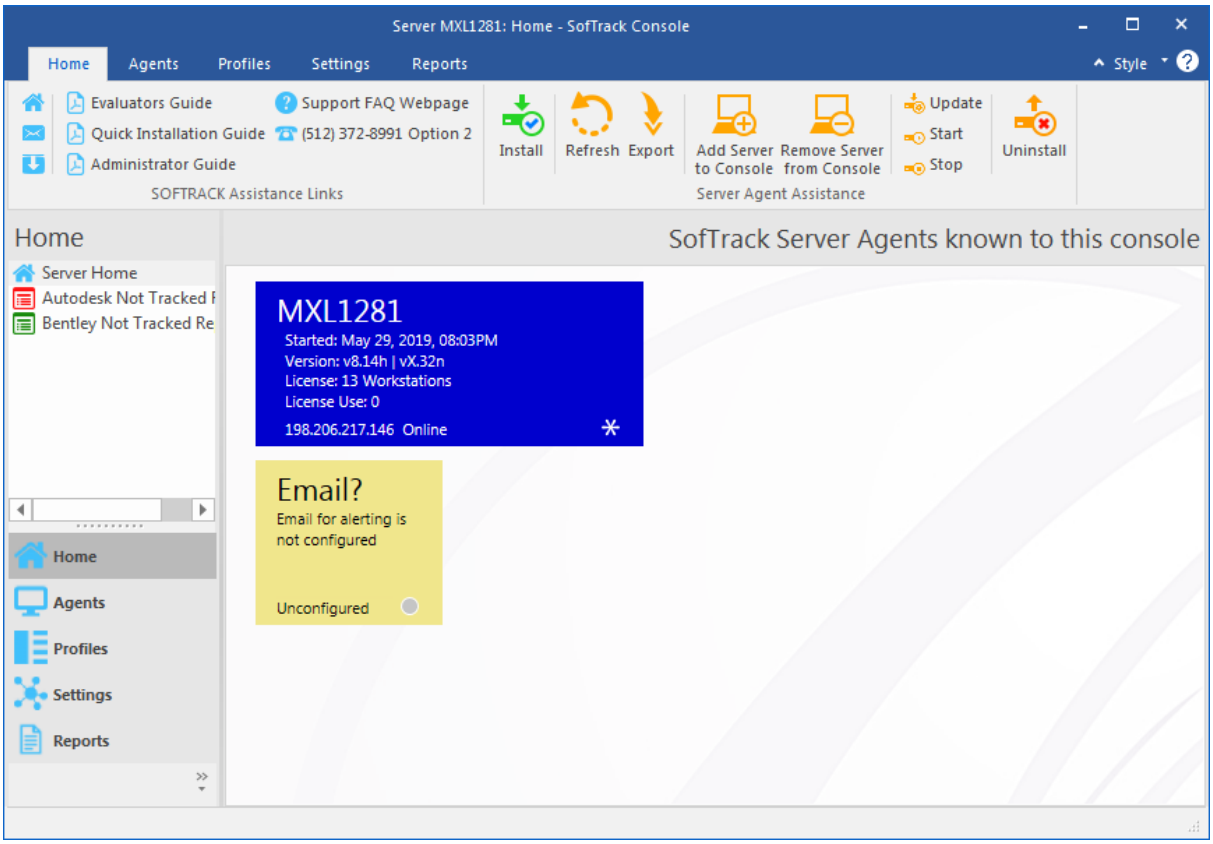


Figure 2-7

3 On the resulting screen (Figure 2-8) select the desired option, click UPDATE.

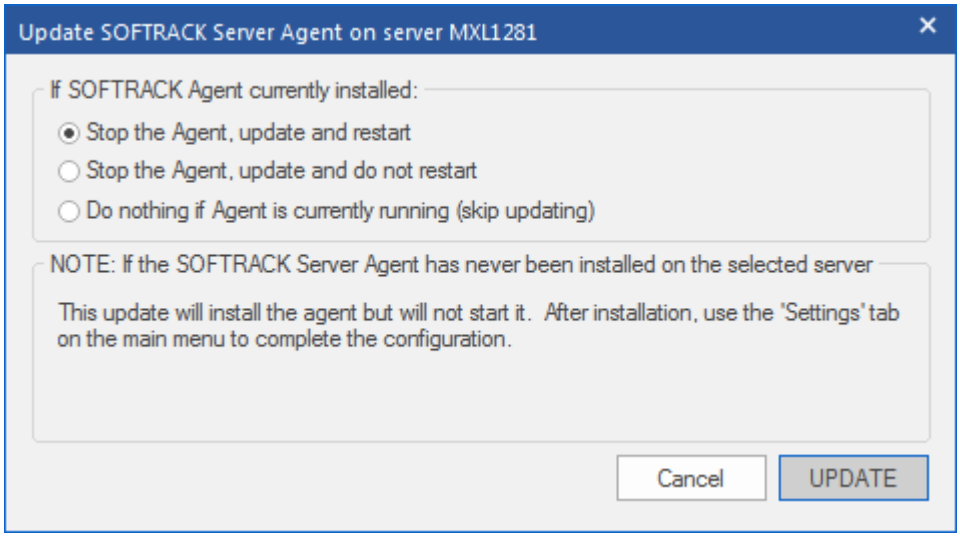
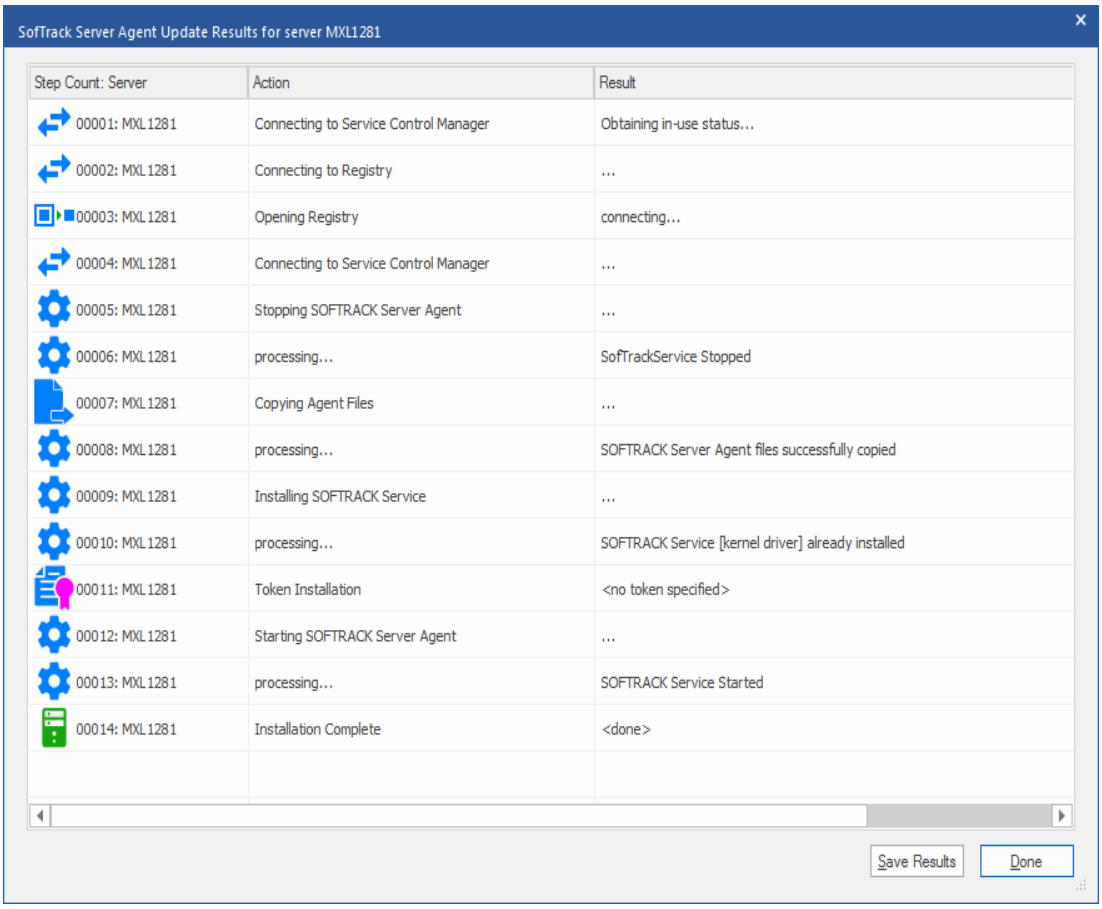


Figure 2-8

4 A progress window will appear:



5 Optionally, once the update is complete you can click on the Start SSA button as shown in Figure 2-9:

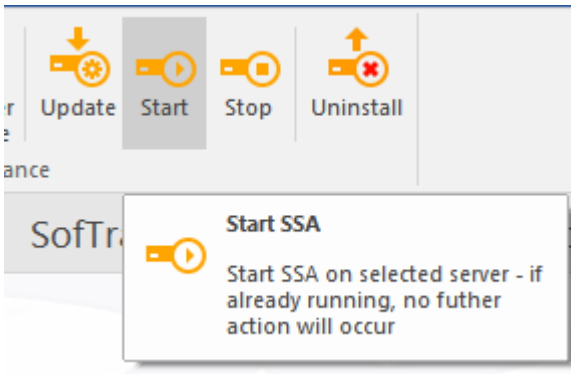


Figure 2-9

SofTrack for Windows installation is complete. The remainder of the SofTrack Administrator's Guide has in-depth instructions on using SofTrack for Windows.

You are now ready to begin defining your software licenses. See Chapter 4, "Defining a License Profile".

SofTrack's Use of the Registry on a Windows Server

This section describes how SofTrack uses the Registry on a Windows server.

When `SOFTRACK_CONSOLE.EXE` connects to a Windows server, it attempts to create the following Registry Key:

```
HKEY_LOCAL_MACHINE\Software\Integrity Software,Inc.
```

Inside this Registry Key, a SofTrack key is created. Subordinate to the SofTrack key, the following keys are created:

Administration

Licenses

Saved Reports

WProfiles (only when creating a Workstation Reporting Profile used in Logon Reports)

Under the Administration key, there several other keys. Three of interest are the **Computers** and **LWA** and **Users** keys. These keys contain data regarding the Computers (i.e., Workstations) and Users that the SofTrack Service has detected.

- For each Computer, data are maintained that SofTrack uses to track activity.
- For each Computer (LWA) with the SofTrack Local Workstation Agent loaded you will find data related to tracking the agent's activity.
- For each User, there is a unique ID generated that is used in the `METER.LOG` (an activity tracking file maintained by the SofTrack Service) to track user activity. If you delete the Users key or any of the values within you may lose the ability to track individual users in License Details reports.

Installation: Backing up your SofTrack configuration and data

To backup your SofTrack Configuration requires two steps:

1. Backup all files located in the STLOG or other Share you defined at the server hosting the SofTrack Server Agent as the **Log File Path (Share)** as shown on the Settings tab when you run the SOFTRACK_CONSOLE application.

2. Run REGEDIT at the server hosting the SofTrack Server Agent and export the following key:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Integrity Software, Inc.
```

Together, those two items will complete the backup of your SofTrack Server Agent configuration and data.

SofTrack and Window 64bit Firewall settings

This section describes how SofTrack modifies the Windows Firewall on a Windows 2008 (or later) 64bit server.

When the SofTrack Service starts and it detects it is running on a Windows 2008 64bit server (or later) it will automatically add two monitoring rules to the Windows Firewall:

SOFTRACK64_TCP
SOFTRACK64_UDP

These rules open SofTrack Port 3884 to all traffic. This port is used by many components of SofTrack and if not open will prevent SofTrack from properly functioning.

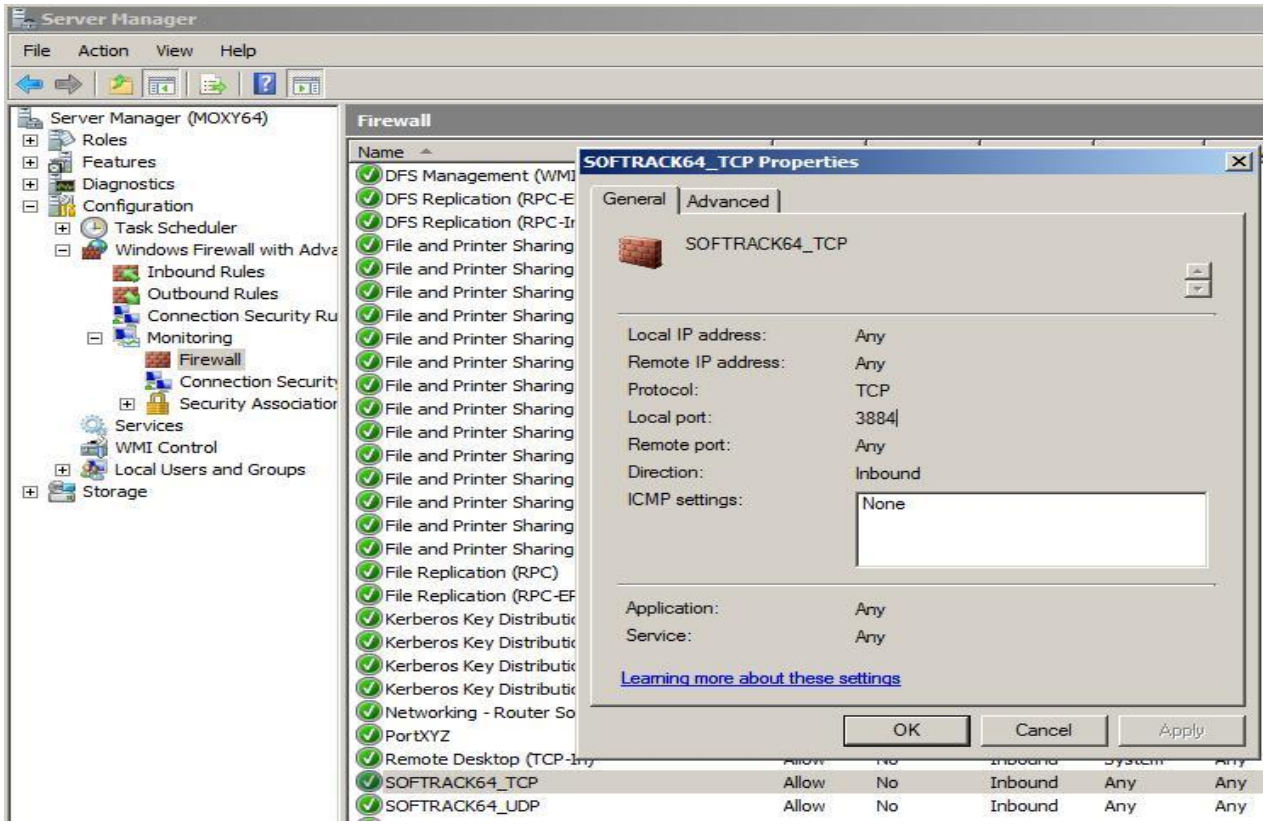


Figure 2-10

WAN Accelerators

If your network includes WAN Accelerators such as those by Riverbed Systems, it critical that "pass through" rules be created for each end of the WAN for IP Port 3884. The SofTrack Server Agent acts as both "server" and "client" so the pass through rules must not cache any TCP/IP packets where the source or destination IP Port is 3884.

All SofTrack Server Agent TCP/IP communications occur on port 3884.

Please note that the SofTrack Server Agent has been permanently assigned TCP/IP port 3884 (a decimal number) by the Internet Assigned Numbers Authority, see this link:

http://www.iana.org/assignments/port-numbers

SofTrack on Windows Server 2003 64-bit

If you will be installing the SofTrack Server Agent on a Windows 2003 x64 server, you must first apply this patch from Microsoft:

http://support.microsoft.com/kb/942589

This patch is required because it enables the SYSNATIVE internal file system redirector to function for 32-bit applications and without this patch none will be able to access the **`SystemRoot\system32`** folder on a computer that is running a 64-bit version of Windows Server 2003. No patch is required for Windows Server 2008 or later.

Note: The SofTrack Local Workstation Agent does not support Windows 2003 64-bit.

SofTrack Administrator (SOFTRACK_CONSOLE.EXE)

1. Unzip the download (usually `softrack_full.zip`) with directories included. Unzip to a new directory so none of the old files are included.
2. The SofTrack Administrator's files are contained in the root of the directory you selected for unzipping.

   You can copy these files anywhere you like, however, the exact directory structure must be retained.
3. The file "softrack.exe" is ***actually a sub-launch file*** that will automatically run either "softrack_console.exe" or "softrack_classic.exe". If the workstation being used has the Novell NetWare Client loaded, that is, the Novell Client is detected, then "softrack_classic.exe" is used. Note that the "softrack_classic.exe" interface is very different and is documented in the SofTrack for NetWare Administrators Guide found on this link:

   www.softwaremetering.com/outgoing/stnw_manual.pdf

Guidance: SofTrack Server Agent for Windows Large Installations

The following sections review technical details and suggestions for a successful SofTrack Server Agent (SSA) installation in large environments where more than **300** workstations will be connecting to the SSA and requiring real-time services.

Background:
Without a capable network and server hosting infrastructure you may find that SofTrack's workstation performance is satisfactory up to a certain number of active workstations and beyond problems begin. When SofTrack's workstation agent is operating in an "online mode", most applications a user launches will require a "round trip" from the workstation to the SSA to confirm that application's status including whether it will be allowed to be launched, it is critical that the network infrastructure be capable of providing low-latency performance so the user experience is not degraded or impaired. When any infrastructure component is overcommitted response times will be slowed and the user experience negatively affected.

In many customer installations using a *virtualized* SSA host this performance balance typically begins to degrade when 600 or more concurrent workstations are active. However, when the SSA host is virtualized we have seen degradation starting with more than 350 workstations though most are satisfactory until 600 workstations.

In comparison, we have experience with customer stand-alone (*non-virtualized*) server hosting environments with more than 1000 active workstations without degradation and only using a server level single-port 1GbE network adapter. We do recommend using a 10GbE network adapter in all cases when more than 600 workstations will be simultaneously active, the cost difference is minimal and the performance increase is substantial.

Virtualized server hosts incur additional complications due to the natural of a virtualized host, namely, to house several virtual servers and share hardware including network adapters. In a following section there are further details regarding configuration recommendations for both VMware and Hyper-V environments.

SofTrack Packet Activity

SofTrack's data transfers are typically small, under 20KB and most individual packets are under the size of single Ethernet Frame (1522 bytes). SofTrack uses TCP/IP streams for communication, which requires set up, and tear down sequences, a single transfer usually requires 9 packets and total transfer size is under 2500 bytes. There are larger transfers, for instance, quick inventory data and workstation audit records. The latter are transferred once per minute and depending on audit options (file activity and browser activity) the once-per-minute transfers can exceed 100KB. Logon / logoff activity is transferred on demand as the events occur and typically less than 2000 bytes total transfer size.

Further, most SSA reply buffers are small, however, when an LWA first connects, and if SofTrack's *Offline Mode* is configured, a larger transfer can occur from the SSA to the LWA, up to 100KB.

Predominately data is transferred "upstream" from the LWAs to the SSA, so the SSA host must be able to handle the potential load (samples below) the SSA host configuration must enable the SSA host to sufficiently participate in the bandwidth availability of the physical network adapter(s).

Sample SofTrack Packet dimensions
Once per minute the LWA will poll the SSA host: 1265 bytes, total once a minute poll {9 packets} If 800 workstations LWAs are communicating with the SSA host that would be about 1MB of traffic per minute, 7,200 packets
Each application launch monitored by the LWA is transferred to the SSA to request metering instructions. 2095 bytes (approx.) for each launch {9 packets} If 800 workstations, presuming a busy PC that can have 10 or more application launches per minute would be about 17MB of traffic per minute, 72,000 packets
Workstation Audit logging of file activity and/or browser activity could average 50KB per minute, if 800 workstations are engaged in workstation auditing, that would be approx. 40MB of traffic each minute, about 50,000 packets
Quick Inventory data is sent as configured, default is each time the LWA first starts and average data size transferred is 100KB, range typically is from 30KB to 500KB, if 800 workstations rebooted at the same time that would result in approx. 80MB of traffic, about 500,000 packets over a period of a few minutes

Physical host recommendations

Whether the SofTrack Server Agent is hosted on a stand-alone or virtual server there are several characteristics to review:

- Network Adapter(s)
  - Must be server-level capable, such as the Intel X710 dual or quad port 10GbE adapters. Such adapters may also be labeled data-center capable.
  - For each 600 workstations a single port is recommended. Thus for servicing 800 connections a dual port 10GbE adapter is recommended. It is possible to use a 1GbE adapter but there are substantial improvements in addition to bandwidth when using a more advanced specification.
- Utilize highest performance motherboard and devices
  - Use a motherboard with PCI-X 133MHz slots
  - Only plug in 133MHz devices, otherwise, the slowest device will dictate the bus speed, for instance, pluggin a 66MHz device into a 133MHz bus will slow all devices in that bus to 66MHz
  - Utilize 64bit Network Adapters to maximize transfer rates
- NIC Teaming
  - Review: https://docs.microsoft.com/en-us/windows-server/networking/technologies/nic-teaming/nic-teaming
  - Configure the NIC team as load-balancing so a single IPv4 address is presented to the connecting workstations using the SofTrack workstation agent.

- Switch
  - The Ethernet switch the SSA host's Network Adapters are connected to must be able to completely provide functionality that supports the adapters configuration.
  - Recommended switch will provide:
    - Managed Switch
    - Quality of Service (QoS)
    - 10G support
    - Flow control support
    - Low Latency (< 800microseconds)

Windows Server host recommendations

These settings are performed either in the System BIOS or within Windows. Further configurations for VMware and Hyper-V will be included in the following sections.

Network Adapter settings

Using the Windows Device Manager at the SSA host, edit Properties / Advanced for each physical network adapter and set Receive Buffers and Transmit Buffers to the maximum possible value.

How to do this at the SSA host:

Click Start > Control Panel > Device Manager

Right-click on the network adapter the SSA is using and click Properties, Advanced Tab

If your host is stand-alone, not virtualized:

Adjust the Receive Buffers and Transmit Buffers to their respective Maximum Values. These maximum values are dependant on the physical hardware network adapter(s) being used.

If your host is using VMware, only use the VMXNET3 adapter and set the following:

Small RX Buffers to use maximum (8192)
RX Ring #1 to use maximum (4096)
Receive Buffers to use maximum (2048)

Enable Static Offloads, for example, UDP Checksums, TCP Checksums, and Send Large Offload (LSO).

Enable RSS (Receive Side Scaling).

Disable the Interrupt Moderation setting for network card drivers. This can use more CPU time and it represents a tradeoff, if CPU utilization is significant, additional core(s) will be beneficial.

Handle network adapter interrupts and DPCs on a core processor that shares CPU cache with the core that is being used by the program (user thread) that is handling the packet.

CPU affinity tuning can be used to direct a process to certain logical processors in conjunction with RSS configuration to accomplish this. Using the same core for the interrupt, DPC, and user mode thread exhibits worse performance as load increases because the ISR, DPC, and thread contend for the use of the core.

IF ANY 3rd Windows Filtering Platform applications are installed:

The Windows Filtering Platform (WFP) that was introduced in Windows Vista and Windows Server 2008 provides APIs to non-Microsoft independent software vendors (ISVs) to create packet processing filters. Examples include firewall and antivirus software.

A poorly written WFP filter can significantly decrease a server's networking performance. Please review any 3rd party tools in-use on the SSA host and if any include a WFP filter and you are experiencing decreased network performance, try uninstalling that tool and if performance noticeably improves request a new version from that product's vendor that does not decrease network performance.

Additional recommendations found here:

https://docs.microsoft.com/en-us/windows-server/networking/technologies/network-subsystem/net-sub-performance-tuning-nics

The following Powerscript command can provide a quick summary of settings:

Open Powershell at the server host and enter the command:

Get-NetAdapterAdvancedProperty

This command will show each network adapter's settings.

It is also possible to use the following command to adjust settings:

Set-NetAdapterAdvancedProperty

Further details here:

https://blogs.technet.microsoft.com/wincat/2012/08/27/using-powershell-for-nic-configuration-tasks/

BIOS Settings

Set the computer's BIOS to High Performance, with C-states disabled. However, note that this is system and BIOS dependent, and some systems will provide higher performance if the operating system controls power management. You can check and adjust your power management settings from Settings or by using the powercfg command.

For more information, see Powercfg Command-Line Options
https://technet.microsoft.com/library/cc748940.aspx

Otherwise, set the "Windows Power Plan" to Maximum or High-Performance. Note, see above, this will not work properly if the system BIOS has been set to disable operating system control of power management.

Many hardware systems use System Management Interrupts (SMI) for a variety of maintenance functions, including reporting of error correction code (ECC) memory errors, legacy USB compatibility, fan control, and BIOS controlled power management.

The SMI is the highest priority interrupt on the system and places the CPU in a management mode, which preempts all other activity while it runs an interrupt service routine, typically contained in BIOS.

Unfortunately, this can result in latency spikes of 100 microseconds or more.

To achieve the lowest latency, please request a BIOS version from your hardware provider that reduces SMIs to the lowest degree possible. These are frequently referred to as “low latency BIOS” or “SMI free BIOS.” In some cases, it is not possible for a hardware platform to eliminate SMI activity altogether because it is used to control essential functions (for example, cooling fans).

Note:
The operating system can exert no control over SMIs because the logical processor is running in a special maintenance mode, which prevents operating system intervention.

TCP/IP settings

To ensure sufficient TCP/IP “ports” are available for the SofTrack Local Workstation Agents to use for connectivity, perform the following:

[A]
Logon to the server hosting the SofTrack Server Agent and open a CMD.EXE window and run the following command (please cut and paste this text):

```
netsh int ipv4 set dynamicportrange tcp startport=10010 numberofports=55000
```

This command will define up to 55,000 ports to be available.

[B]
Logon to the server hosting the SofTrack Server Agent and open REGEDIT. Add the value **"KeepAliveTime**" DWORD to the following key:

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters]

"**KeepAliveTime**"=dword:120000 (this is a decimal value = 2 minutes)

[C]
For these two updates to take effect, the server will require a reboot.

Hosting in a stand-alone environment

For supporting large installations, it is preferred to use a stand-alone server to host the SSA, on that is not virtualized in any way. The following are prerequisites to assist performance, many are also applicable in virtualized hosts:

From this link:

https://docs.microsoft.com/en-us/windows-server/networking/technologies/network-subsystem/net-sub-performance-tuning-nics

Enabling Offload Features

Turning on network adapter offload features is usually beneficial. Sometimes, however, the network adapter is not powerful enough to handle the offload capabilities with high throughput.

Important:
Do not use the offload features IPsec Task Offload or TCP Chimney Offload. These technologies are deprecated in Windows Server 2016, and might adversely affect server and networking performance. In addition, these technologies might not be supported by Microsoft in the future.

For example, enabling segmentation offload can reduce the maximum sustainable throughput on some network adapters because of limited hardware resources. However, if the reduced throughput is not expected to be a limitation, you should enable offload capabilities, even for this type of network adapter.

Note:
Some network adapters require offload features to be independently enabled for send and receive paths.

Enabling Receive Side Scaling (RSS) for Web Servers

Please note that SofTrack's Server Agent is not websserver but has equivalent requirements.

RSS can improve web scalability and performance when there are fewer network adapters than logical processors on the server. When all the web traffic is going through the RSS-capable network adapters, incoming web requests from different connections can be simultaneously processed across different CPUs.

It is important to note that due to the logic in RSS and Hypertext Transfer Protocol (HTTP) for load distribution, performance might be severely degraded if a non-RSS-capable network adapter accepts web traffic on a server that has one or more RSS-capable network adapters. In this circumstance, you should use RSS-capable network adapters or disable RSS on the network adapter properties Advanced Properties tab. To determine whether a network adapter is RSS-capable, you can view the RSS information on the network adapter properties Advanced Properties tab.

Increasing Network Adapter Resources

For network adapters that allow manual configuration of resources, such as receive and send buffers, you should increase the allocated resources.

Some network adapters set their receive buffers low to conserve allocated memory from the host. The low value results in dropped packets and decreased performance. Therefore, for receive-intensive scenarios, we recommend that you increase the *receive buffer* value to the maximum.

Note:
If a network adapter does not expose manual resource configuration, it either dynamically configures the resources, or the resources are set to a fixed value that cannot be changed.

Enabling Interrupt Moderation

To control interrupt moderation, some network adapters expose different interrupt moderation levels, buffer coalescing parameters (sometimes separately for send and receive buffers), or both.

You should consider interrupt moderation for CPU-bound workloads (which includes the SSA when processing hundreds or thousands of connections), and consider the trade-off between the host CPU savings and latency versus the increased host CPU savings because of more interrupts and less latency. If the network adapter does not perform interrupt moderation, but it does expose buffer coalescing, increasing the number of coalesced buffers allows more buffers per send or receive, which improves performance.

Hosting in a VMware environment

In addition to the recommendations found in above, if using the SSA on a VMware host, your configuration you may need to dedicate physical network adapter(s) to the SSA host to ensure it has the bandwidth it requires.

For configurations with more than 300 workstations being connected to the SSA and the SSA is hosted within a VMware configuration, we strongly recommend adhering to the recommendations in this document:

https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/techpaper/vmw-tuning-latency-sensitive-workloads-white-paper.pdf

And on this following link:

https://docs.microsoft.com/en-us/windows-server/networking/technologies/network-subsystem/net-sub-performance-tuning-nics

Futher improvements include:

- Utilizing Solid State Drives versus spindle disk drives. SSD drives provide significant performance benefits.
- Dedicating physical CPUs to the SSA host, or maintain a virtual CPU to physical CPU ratio of no more than 2:1 to ensure CPU availability for receiving and processing of network packets. Do not count hyperthreaded CPUs in the ratio as they are not equivalent to an entire CPU core. For instance, if your hardware includes 2 sockets (2 physical CPUs) with 12 cores each, that is a total of 24 CPUs. If you have enabled hyperthreading it will then appear to be 48 CPUs, for purposes of the 2:1 ratio only count actual CPU cores not those resulting from enabling hyperthreading.
- Ensure RAM allocated to the VMware guest VM hosting the SSA is not overcommitted by the VMware hypervisor (over sharing of RAM between active guest VMs).
- Ensure RAM within the VM is not overcommitted where "committed bytes" exceeds amount of physical RAM, you can verify this using Windows TaskManager, Performance Tab, Memory section.

Best Practices for Oversubscription of CPU, Memory and Storage in vSphere Virtual Environments:

https://communities.vmware.com/servlet/JiveServlet/previewBody/21181-102-1-28328/vsphee-oversubscription-best-practices[1].pdf

Hosting in a Hyper-V environment

In addition to the recommendations found in above, if using the SSA on a Hyper-V host, your configuration may need to dedicate physical netork adapter(s) to the SSA host to ensure it has the bandwidth it requires.

For configurations with more than 300 workstations being connected to the SSA and the SSA is hosted within a Hyper-V configuration, we strongly recommend adhering to the recommendations in this document:

Please review this link for minimizing potential problems:

https://docs.microsoft.com/en-us/windows-server/administration/performance-tuning/role/hyper-v-server/detecting-virtualized-environment-bottlenecks

This tutorial includes many valuable insights and recommendations:

Hyper V » Tutorials » 6 Hardware Tweaks that will Skyrocket your Hyper-V Performance
6 Hardware Tweaks that will Skyrocket your Hyper-V Performance
https://www.altaro.com/hyper-v/hardware-tweaks-hyper-v-performance/

SofTrack Server Agent connectivity troubleshooting

Reviewing SSA host network communication faults

The following is based on this link:

https://docs.microsoft.com/en-us/windows-server/networking/technologies/network-subsystem/net-sub-performance-counters

The following performance counters are relevant to potential network problems.

Network Interface(*), Network Adapter(*)
Packets Received Discarded
Packets Received Errors
Packets Outbound Discarded
Packets Outbound Errors

WFPv4, WFPv6
Packets Discarded/sec

UDPv4, UDPv6
Datagrams Received Errors

TCPv4, TCPv6
Connection Failures
Connections Reset

Network QoS Policy
Packets dropped
Packets dropped/sec

Per Processor Network Interface Card Activity
Low Resource Receive Indications/sec
Low Resource Received Packets/sec

Microsoft Winsock BSP
Dropped Datagrams
Dropped Datagrams/sec
Rejected Connections
Rejected Connections/sec

Receive Side Coalescing (RSC) performance
The following performance counters are relevant to RSC performance.
Network Adapter(*)
TCP Active RSC Connections
TCP RSC Average Packet Size
TCP RSC Coalesced Packets/sec
TCP RSC Exceptions/sec

https://docs.microsoft.com/en-us/windows-server/networking/technologies/network-subsystem/net-sub-performance-top

The above statistics can be viewed in Windows PERFMON but it can be cumbersome to configure. The following powershell script can assist in gathering these statistics:

https://gallery.technet.microsoft.com/Get-Perfmon-Counter-c6ca9070

Description:
The script located on the link above was initially created to analyse the Packets Received Discarded on multiple Exchange servers. This is due to experiencing multiple performance issues and one KPI of the underlying issue was the number of discarded packets.

The script will get a collection of NICs from the specified server, and then loop through them and remove the non-physical ones.

For example it will remove the Teredo, ISATAP or 6to4 interfaces. For the purposes of this script we are concerned with the physical ones, and that includes the "physical" NICs that are made visible in virtual guest Operating Systems.

NIC names are not hardcoded into the script else it would not be portable across physical server types and hypervisors.

Packets Received Discarded is the performance counter reported to Windows by the NIC which states how many packets were sucessfully received, i.e. not corrupt or failed checksum that were discarded before the NIC could push them up the stack. This has been documented as a known issue with certain hypervisors when the virtual NIC buffer is not set high enough or there are other issues on the hypervisor host such as a configuration or performance issue.

Script will report to the screen the number of discarded packets. This script includes output to CSV using standard methods. In the CSV file there will be one line per selected interface on each server queried. Thus if a server has two physical NICs then there will be two lines for that particular server. See note above stating that logical interfaces will be filtered out.

Using Telnet to verify communication

If TCP/IP ports are exhausted, the workstation agents will not be able to connect to the SSA. If you ever think this is occurring you can run the following command from a CMD.EXE window on the workstation:

telnet nnn.nnn.nnn.nnn 3884

replacing nnn.nnn.nnn.nnn with the TCP/IP address of your SSA server host.

If the message “Connection to host lost” appears that indicates the workstation was successfully able to open TCP/IP port 3884 at the SSA host. The “connection lost” appears because port 3884 at the SSA does not respond to telnet commands so the telnet client aborts.

If any other message appears, for instance:

Could not open connection to the host, on port 3884: Connect failed

then that workstation is unable to connect with the SSA via TCP/IP. Either the SSA is inactive, the server hosting the SSA is out of ports, Reverse IP Lookup is disabled or there is a firewall blocking port 3884.

If your workstation does not have telnet.exe available you can enable it by doing the following:

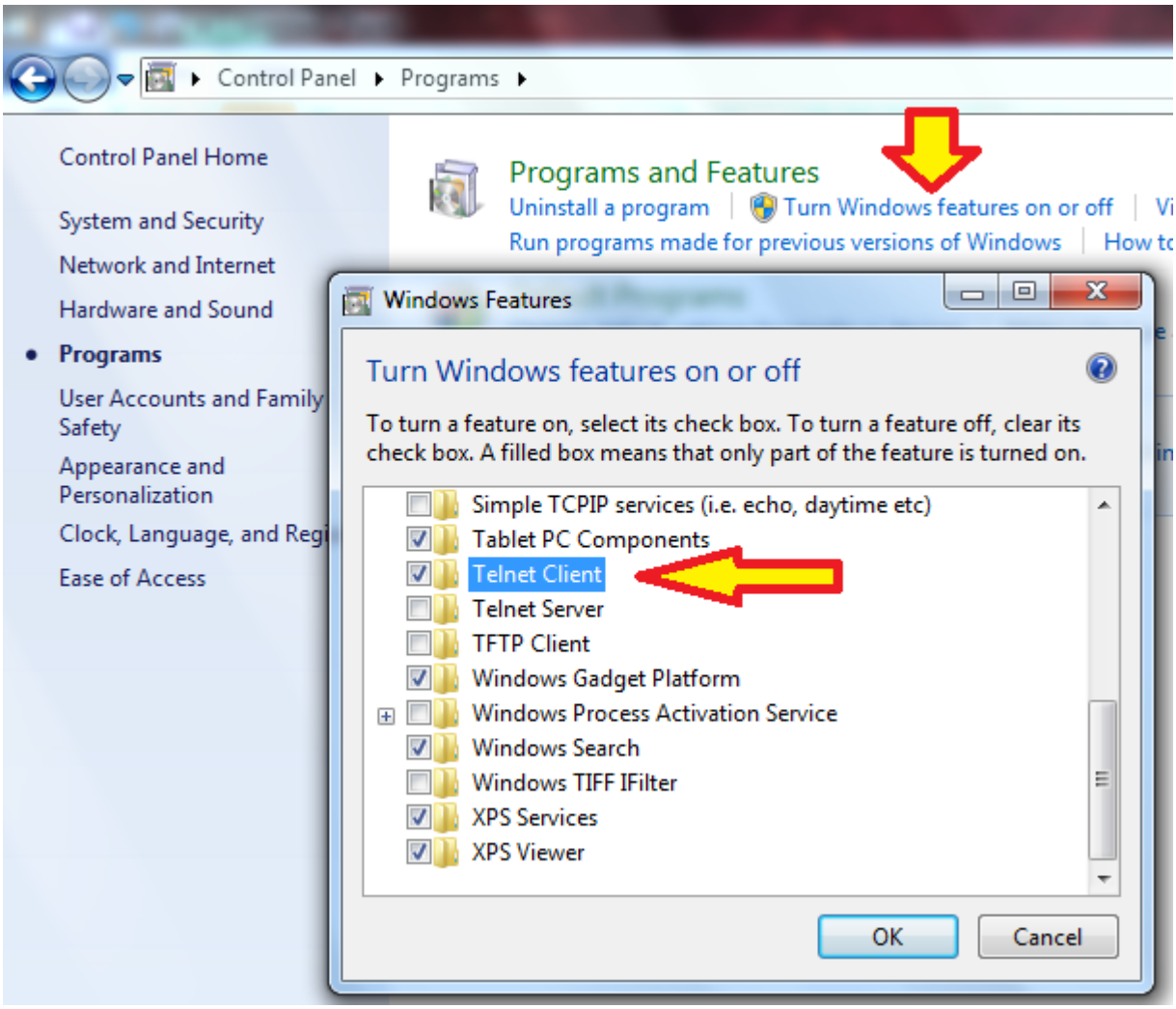
Open control panel.

Next go into Programs.

Then in programs and features there should be a part that says `turn windows features on or off `.

Click `turn windows features on or off ` then on the list that appears simply check the box beside: **Telnet Client**.

Then click ok. A Please Wait message will appear while the Telnet Client is enabled.



Now TELNET.EXE will be available on the workstation.

VMware Solutions for Poor Network Performance

The following is an excerpt from this link:

https://pubs.vmware.com/vsphere-50/index.jsp?topic=%2Fcom.vmware.vsphere.monitoring.doc_50%2FGUID-C4EA86FD-95CB-4DE7-A9E3-63F6BFC1A268.html

Network performance is dependent on application workload and network configuration. Dropped network packets indicate a bottleneck in the network. Slow network performance can be a sign of load-balancing problems.

Problem

Network problems can manifest in many ways:

- Packets are being dropped.
- Network latency is high
- Data receive rate is low.

Cause

Network problems can have several causes:

- Virtual machine network resource shares are too few.
- Network packet size is too large, which results in high network latency. Use the VMware AppSpeed performance monitoring application or a third-party application to check network latency.
- Network packet size is too small, which increases the demand for the CPU resources needed for processing each packet. Host CPU, or possibly virtual machine CPU, resources are not enough to handle the load.

Solution

- Determine whether packets are being dropped by using **esxtop** or the advanced performance charts to examine the **droppedTx** and **droppedRx** network counter values. Verify that VMware Tools is installed on each virtual machine.
- Check the number of virtual machines assigned to each physical NIC. If necessary, perform load balancing by moving virtual machines to different vSwitches or by adding more NICs to the host. You can also move virtual machines to another host or increase the host CPU or virtual machine CPU.
- If possible, use **vmxnet3** NIC drivers, which are available with VMware Tools. They are optimized for high performance.
- If virtual machines running on the same host communicate with each other, connect them to the same vSwitch to avoid the cost of transferring packets over the physical network.
- Assign each physical NIC to a port group and a vSwitch.
- Use separate physical NICs to handle the different traffic streams, such as network packets generated by virtual machines, iSCSI protocols, VMotion tasks.
- Ensure that the physical NIC capacity is large enough to handle the network traffic on that vSwitch. If the capacity is not enough, consider using a high-bandwidth physical NIC (10Gbps) or moving some virtual machines to a vSwitch with a lighter load or to a new vSwitch.
- If packets are being dropped at the vSwitch port, increase the virtual network driver ring buffers where applicable.
- Verify that the reported speed and duplex settings for the physical NIC match the hardware expectations and that the hardware is configured to run at its maximum capability. For example, verify that NICs with 1Gbps are not reset to 100Mbps because they are connected to an older switch.
- Verify that all NICs are running in full duplex mode. Hardware connectivity issues might result in a NIC resetting itself to a lower speed or half duplex mode.
- Use vNICs that are TSO-capable, and verify that TSO-Jumbo Frames are enabled where possible.
- Ensure the Storage Device used by the SSA to store workstation (quick) inventory and workstation audit records is not introducing its own latency

Poor network performance can also result from an overcommited virtual host. For VMware, statistics provided by esxtop can provide insights.

Follow this link:

https://www.yellow-bricks.com/esxtop/

Search on these items:

%RDY

%MLMTD

%CSTP

Further here:

https://communities.vmware.com/t5/Storage-Performance/Interpreting-esxtop-4-1-Statistics/ta-p/2786881

That will allow you to review the history of that virtual machine hosting the SofTrack Server Agent.

We recommend a %RDY of no greater than 10 but there are other potential issues as found by searching on those other items noted above.

Note: Excessive %CSTP (Co-Stop) will directly relate to the slowness since the CPUs of the virtual machine were inactive for large amounts of time and incapable of processing network I/O traffic.

Chapter 3 Installing the SofTrack Local Workstation Agent for Windows®

Overview

SofTrack's Local Workstation Agent (LWA) allows you to control all Windows-based applications used at each workstation, regardless of the application's location—whether it is stored locally (i.e., C:\ drive) or on any device, including remotely (i.e., Storage Area Network (SAN), Network Attached Storage (NAS), SAMBA server, memory stick, CD-ROM, etc.).

LWA Features Overview

SofTrack's LWA performs the following:

- Audits File Create, Open, Delete and File Copy events. See Chapter 9.
- Audit Login and Logout Activity as well as workstation lock and unlock.
- Audits Creation or Modification attempts for `*.EXE` and `*.COM` files. See Chapter 9.
- Audits all browser access attempts. See Chapter 9.
- Denies File Rename and Copy requests for `*.EXE` and `*.COM` files. See Chapter 9.
- Denies usage of executable files that do not have an `*.EXE` or `*.COM` extension. See Chapter 9.
- Audits and optionally controls the use of all 16-bit, 32-bit and 64-bit Windows-based applications on Windows XP, Windows Vista, Windows 7, Windows 8 and Windows 10 and 11 workstations. Including virtualized applications such as those provided by APP-V technology.

- Audits and optionally controls the use of all 16-bit, 32-bit and 64-bit Windows-based applications on Windows Server 2008, Windows Small Business Server (all editions), and Windows Server 2012. 2016, 2019, and 2022. Including virtualized applications such as those provided by APP-V technology
- Meters the use of all 16, 32 and 64-bit Windows-based applications on thin client terminals hosted by Microsoft's Terminal Service and by third party add-ons, such as Citrix Systems' WinFrame and MetaFrame (www.citrix.com).
- Can provide Offline Metering. See Offline Metering section in this Chapter.
- Detects and optionally records use of any application not specifically defined for metering. See Chapter 6, Server Agent Options.
- Ensures license compliance of applications used on workstations and terminal service sessions.
- Blocks the use of *any* application you define by name, such as `SETUP.EXE` and `INSTALL.EXE`.
- Detects application idle activity and can optionally alert the user to an idle application as well as terminate the application's use after a defined time period of inactivity. See Chapter 5, Activate Idle Detection.
- Tracks optional timekeeping details. See more in this chapter and Chapter 5, Activate Timekeeping Prompt.
- Provides for automatic Quick Inventory data collection. See Chapter 8.

Theory of Operations

When installed, the LWA automatically configures itself to its environment. The LWA on all Windows verions utilizes two files, CPTLWA32.DLL and CPTLWA64.DLL. Installation is detailed later in this chapter. The LWA for Windows XP will properly operate on computers with up to 32 processors. The LWA for Windows Vista and later will operate properly on computers with any number of CPUs. For environments including Terminal Services, the LWA–per computer will automatically configure its internal processes to allow metering and tracking for up to 4,000 terminal service sessions.

The SofTrack LWA works by monitoring every 16, 32 and 64-bit Windows application's usage. (MS-DOS applications are not metered by the LWA.) Each time an application is launched, the LWA will request a license from the SofTrack Server Agent (SSA). The LWA is merely a conduit in which
the application is launched. The LWA itself does not contain knowledge of the applications to be monitored; the SSA maintains that data. If the SSA indicates that the application launch is to be denied (i.e., because there are no more licenses, the license is blocked, a time restriction has occurred, etc.), the LWA will gracefully deny access and present the user with a message from the SSA indicating the nature of the denial. The traffic generated between the workstation and the server is minimal. Fewer than 1,500 bytes are exchanged for each application launch. If the SSA is not active or the network connection is broken, the LWA will gracefully *time out* and allow the application to be used. The LWA will **not** later notify

the SSA of the application that was allowed to be used; therefore, the use will not be accounted for. Once the SSA becomes active or the network connection resumes, the LWA will resume its normal interactions with the SSA.

While active, the LWA will poll the SSA approximately once per minute to see if any messages await the user. Messages include queue notification as well as messages sent via the STUSER or SOFTRACK Administration tools. The message poll traffic represents about 1,000 bytes of network traffic, unless there is a message to be delivered, in which case it would be about 1,200 bytes, depending on the size of the message. The only exception to this frequency of polling for messages would occur when the LWA is used on a computer that is a Terminal Server Host. In such a case, the LWA establishes a direct connection to the SSA, allowing for immediate delivery of any messages. As a result, no polling is performed. Use of the LWA on a Terminal Server Host is further detailed below.

If an application is opened multiple times, the LWA will track each specific use as a *single use*—except when using the timekeeping feature (see Timekeeping section), which will track each individual application use. When all uses of the application have been closed, the LWA reports to the SSA that the application has been exited, so an appropriate entry in the `METER.LOG` file can be made. If the LWA is unable to communicate with the SSA when the application is exited, the actual time of metering activity completion will *not* be recorded. In such an instance, the metering activity will be recorded as a *purged use* instead of as a normal use. The SSA will record the purged use when it detects that the LWA has either been restarted or has been inactive for more than 24 hours (this can be configured). The SSA will also record a purge event if the workstation stops responding or is turned off before exiting the application. If the SSA itself is stopped or the host on which it is running stops responding, then any metering activity it was tracking will also be recorded as a *purged use*. The purge record will be recorded the next time the SSA is started.

DHCP Lease Time

It is recommended that workstations using the LWA have a minimum DHCP Lease Time of 30 days.

The SofTrack LWA depends on a consistent IPv4 address being assigned to the workstation. If the workstation's IPv4 address changes between workstation reboots this will likely impact SofTrack's ability to reliably control and record software metering usage.

It is recommended that a DHCP Lease Time period be assigned that is longer than the typical time between workstation reboots (30 days is usually a safe period, recommended above). If the DHCP Lease Time is shorter than the time between reboots, and if the DHCP server assigns a new IPv4 address rather than renewing the lease of the existing IPv4 address, the LWA's metering will likely become inaccurate especially when another workstation where the LWA is installed has been assigned the IPv4 address instead of being renewed for the existing workstation. When multiple workstations are using the same IPv4 address, SofTrack's metering control and activity records will usually be less accurate.

LWA Features in Depth

Idle Detection and Termination

Once the application is in use, the LWA will monitor the application's idle time, if that option has been selected. Upon the occurrence of an idle warning period time-out, the LWA will display a popup message at the user's desktop to indicate the idle activity. You can customize the idle warning and idle termination messages received by the workstations to contain any text, up to 117 characters. The message customization will affect all License Profiles. Customization is not available for a specific License Profile. After the defined number of idle warnings, the LWA will terminate the application. For each idle warning and idle termination the LWA processes, it will notify the SSA of the action, and the event will be recorded in the `METER.LOG` file. To view the idle warning and termination events, select the **Details of License use Report.** To receive alerts of each idle warning and idle termination use the STALERT agent detailed in Chapter 6.

An application is considered idle if it is not the currently *focused* application. A focused application is the one that is topmost on the desktop and is active. The currently active window features a highlighted caption bar, as shown in the following figure.

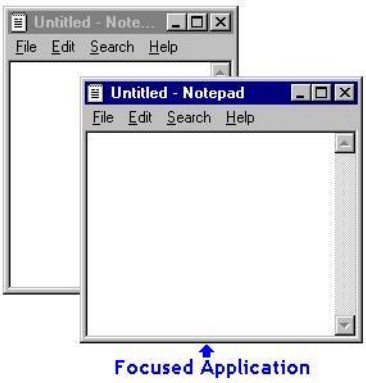


Figure 3-1

All other windows have a diminished or grayed caption bar. The Idle Detection option does not take mouse and keyboard actions into account because a user may be waiting for the completion of a function (for example, a recalculation) or reading the contents of the screen. Once focus is taken off of an application's window (i.e., it is minimized, another application is focused, etc.), the *idle timer* begins. Once the defined time period has elapsed, a warning will be displayed.

Figure 3-2

After an administrator-defined number of warnings, with the possibility of infinite, the user receives a termination notification, and the application is terminated. If the License Profile has been defined to warn only, then the user is continually warned of idle detection, and no application termination occurs.

Figure 3-3

NOTE: In both of the above examples, the name shown within the square brackets is the same as that in the actual application's caption bar (also known as the title bar). In this example, **Calculator** is the name shown in the application's caption bar.

Here is an example of how SofTrack's Idle Detection and Termination feature works: Suppose the idle time period on a workstation was defined as one minute. Each minute that passed without activity would incur a new warning. If the number of warnings before termination was set to 5, the user would receive a termination notification one minute after the fifth warning, and then, the application will be terminated.

CAUTION: NO DATA WILL BE SAVED! When the application is terminated, it is a forceful termination, and any unsaved data WILL BE LOST.

If a workstation automatically locks (via Windows configuration) this will cause idle warnings to begin for any defined applications currently in-use.

Timekeeping

Uses of the timekeeping feature include:

- Customer Billing of Application Use on their behalf
  - CAD/CAM
  - Legal Applications
  - any environment where the customer is billed for services
- Internal Departmental Billing of Application Use
  - Shares application costs between departments
  - Charges application upgrade and other costs based on departmental use
  - Finds out how the application is actually being used, idle time and overall use

Timekeeping: Classic Option

SofTrack's exclusive Timekeeping functionality first debuted in the year 2002. This section details the "classic" timekeeping functionality.

> **Notice**: Classic Timekeeping is available for all versions of Windows however, does not operate while in Offline Mode.

Classic Timekeeping maintains a second log that is independent of the metering activity stored in the `METER.LOG` repository. The timekeeping report log is accessed via the **Reports** tab within `SOFTRACK_CONSOLE.EXE`. To access, click **View Timekeeper Data Log**. This report type is further detailed in "Interactive Reporting of Classic Timekeeping Activity".

You can define the Classic Timekeeping option to suit your needs. See Activate Timekeeping Prompt.

When an application defined for timekeeping is launched, the LWA will receive timekeeping instructions from the SSA that must be performed before allowing the application to be used.

The following figure shows a sample timekeeping prompt.

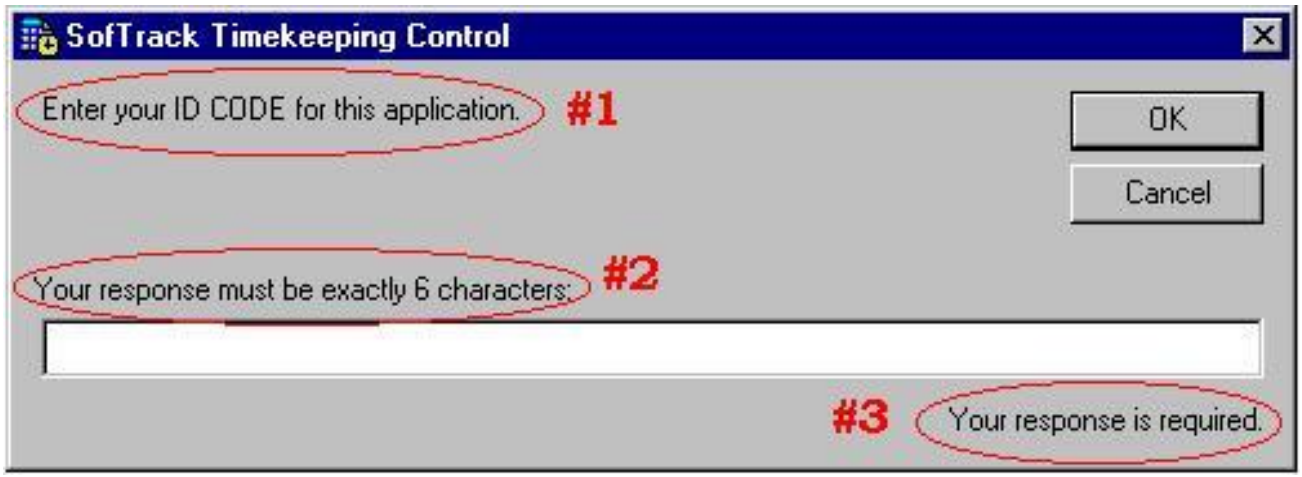


Figure 3-4

The choices you make when defining the timekeeping option affect three areas of this prompt:

- The **first area** is the *timekeeping prompt*. The text you enter may be up to 110 characters in length.
- The **second area** is the *response length*. In the License Profile, you may select a fixed length for the user to enter (as shown in the above figure) or a minimum length. The maximum response length allowed is 50 characters.
- The **third area** denotes whether or not a response is required before the application is allowed to launch. The user's response is *not* a password; rather, it is a code associated with the particular use of the selected application.
  - If a response is required (as in the above figure), the application will be dismissed and not allowed to run if the user clicks **Cancel**.
  - If a response is optionally required, no timekeeping data will be recorded if the user clicks **Cancel**.

  In either case, the METER.LOG will contain a record of the application's use in addition to any timekeeping data logged. By clicking **Cancel**, the user is not turning off metering—just the timekeeping feature.

If you selected the **Silent - No Prompt** option in the License Profile definition, the user will not receive a timekeeping prompt at all. In this case, a timekeeping record will always be logged, and the user's response will be defined as: ***SILENT***.

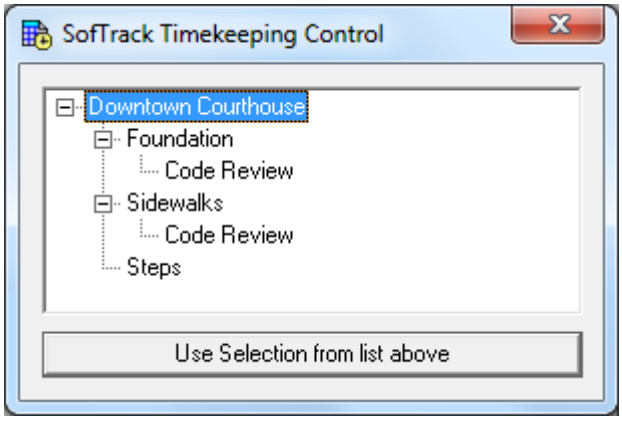
Timekeeping: Advanced Option

SofTrack's exclusive Timekeeping functionality first debuted in the year 2002. In May 2014, the Advanced Timekeeping Option was introduced. This section provides and overview of the "advanced" timekeeping functionality.

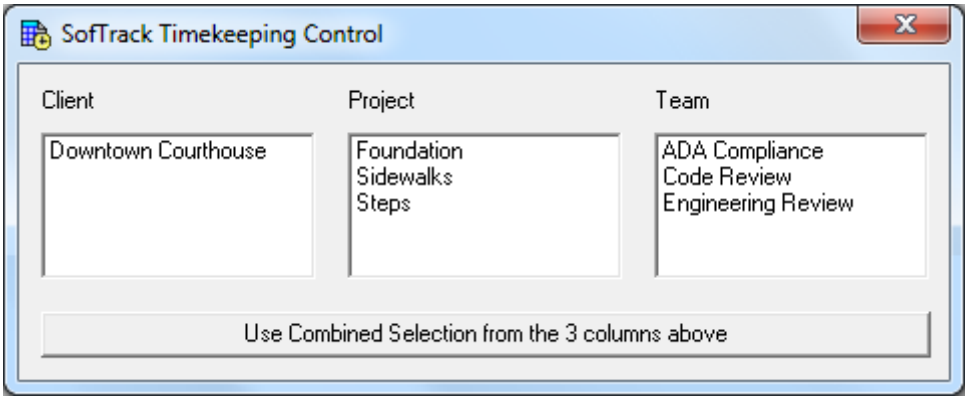
Notice: Advanced Timekeeping is only available for Windows workstations and terminal servers using Windows Vista or later including Windows 7, 8, 10 (and later versions) as well as 2008 and 2012 and future Windows O/S versions.

Further, Advanced Timekeeping requires use the TCP/IP communication protocol between the SofTrack LWA and SofTrack Server Agent. The SofTrack LWA does include the alternate ability to use Named Pipes instead of TCP/IP but is not supported for Advanced Timekeeping.

Advanced Timekeeping provides the SofTrack Administrator with the ability to pre-define responses codes that the user will select. The codes can be singular, dual or triple. This means the user can select from a nested list such as:



Alternatively, the user could be presented with a list that looks like this:



The user selects their response from the list(s) you define. SofTrack's Advanced Timekeeping option gives you the control to ensure user data is correctly specified. In "select from 3 columns" image above, please know that the user an instead be prompted based on one or two columns or three as shown.

When an application defined for Advanced Timekeeping is launched, the LWA will receive timekeeping instructions from the SSA that must be performed before allowing the application to be used.

These Advanced Timekeeping Options are downloaded to the workstation and are stored in a file STLWA_NT.TKA and is located in the same folder as the LWA file STLWA_NT.EXE. This is done to expedite the processing and presentation of the Timekeeping prompt. And, to allow Advanced Timekeeping to be available while the LWA operates in Offline Mode.

Timekeeping responses are transmitted to the SofTrack Server Agent (SSA) and stored in a report-ready log where the filename is based upon the combination of the user selected response code(s). These log files are stored in a subdirectory named `TKAUDIT` and is found in the `METER.LOG` repository.

The Advanced Timekeeping report logs are accessed via the **Reports** tab within `SOFTRACK_CONSOLE.EXE`. To access, click **View Timekeeper Advanced Option Reporter**. This report type is further detailed in "Interactive Reporting of Advanced Timekeeping Activity".

To define Timekeeping Advanced Option, please refer to Chapter 5, Activate Timekeeping Prompt.

The Timekeeping Advanced Option also functions while in Offline Mode.

Command Line Switch Metering

SofTrack includes the ability to meter application usage based upon partial or full matching command line value used while the application is initially launched.

Notice: Command Line Switch is only available for Windows workstations and terminal servers using Windows Vista or later including Windows 7, 8, 10 (and later versions) as well as 2008 and 2012 and future Windows O/S versions.

There is one exception, Bentley® license activation codes via Command Line Switch is supported on Windows XP.

For a SofTrack License Profile to perform Command Line Switch Metering, any command line(s) specified to track will only be considered for Local Windows filename(s) defined in the same profile to be metered. This means that command line switch metering does not function in the absence of defined filename(s) to track. You must specify Local Windows filename(s) to meter for Command Line Switch Metering to function.

This option, when used, allows you to track based upon the combination of the application filename and the command line switch(es) used.

Example Command Line (this example includes both the full application filename and its command line for a total length of 150 characters):

```
"C:\Program Files (x86)\Bentley\MicroStation V8i (SELECTseries)\MicroStation\ustation.exe"
   -wsLoad_InRoads_SS3=1 -wsINROADS_APP=InRoads^^^Inrsuite.exe
```

As shown above, the command line typically includes the full path of the executable plus its command line switches. At present the SofTrack LWA will use the first 360 characters of the command line. If the command line is longer than 360 characters, know that only the first 360 characters will be inspected by the SofTrack Server Agent for a match.

Special note: In the example above notice at the end of the command line you see

```
^^^Inrsuite.exe
```

this is NOT part of the command line used to launch the application. The “signature” of 3 ^ characters (this character is found on the keyboard, press SHIFT and then the 6 key) indicates that what follows is the process filename that launched the application. This special addition to the command line recorded by SofTrack is provided to assist you in defining a unique command line signature to use when metering select applications such as Bentley®’s InRoads Suite.

If no process is found to have launched the application then the ^^^ signature will not be presented.

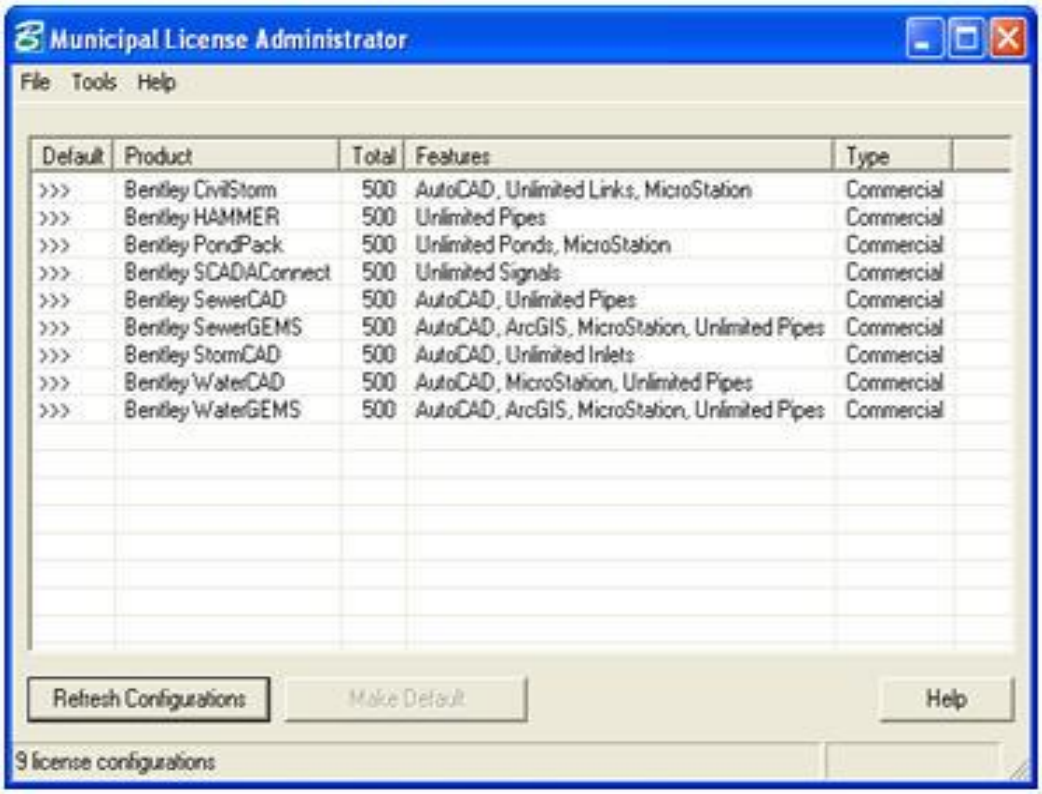
"C:\Program Files (x86)\Bentley\WaterGEMS\x64\WaterGEMS.exe' ^^^explorer.exe**!!!**acad=yes|agis=yes|mstn=yes|pipe=5000**!!!**

As shown above, the command line includes a new suffix. Notice the "signature" of 3 ! characters (SHIFT and the 1 key) indicates what follows is the "feature string" as used by XM Licensing Of Bentley Haestad Products:

- ✓ CivilStorm
- ✓ CulvertMaster
- ✓ FlowMaster
- ✓ HAMMER
- ✓ PondPack
- ✓ SewerCAD
- ✓ SewerGEMS
- ✓ StormCAD
- ✓ WaterCAD
- ✓ WaterGEMS

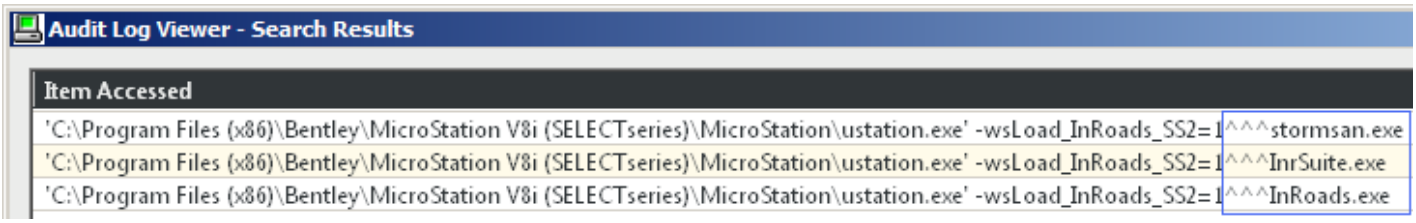
SofTrack's Local Workstation Agent automatically detects when a Bentley Haestad product is being launched and includes its current default feature string so you can use it for accurate metering.

Further notice the "feature string" is ended with 3 additional ! characters. These can be used by your SofTrack license profile to accurately meter Bentley Haestad products based on the "default feature string" set by the Municipal License Administrator tool:



There are two methods to obtain the command line switches, the first is by inspecting the application's desktop shortcut link at the workstation. The other method is to use SofTrack's Audit feature to audit application launches and to review the workstations' audit logs for any LAUNCH COMMAND LINE records.

The following image shows SofTrack's Application Launch audit report. Notice the command lines include the "^^^processname.exe" – each is outlined in a blue box:



By observing the image above you will notice if you enter a command line of

*^^^InrSuite.exe

or

^^^InrSuite.exe

that would be the only command line entry required to meter "ustation.exe" being run via Inrsuite.exe

To define Command Line Switch Metering, please refer to Chapter 5, Command Line Switch Metering.

This feature also functions while in Offline Mode.

Disallow Multiple Launches per Desktop

This option ensures, per-user desktop, that only *one* instance of any file defined by this License Profile is in use at any time. For example, the License Profile defines four different executable files for metering. If one of those files is in use, no others will be allowed to run, including a second instance of the application first used. This option ensures that certain applications, such as in-house database-accessing applications, are run only once. If such an application is run more than once per desktop, it could corrupt the database; hence the value of this option.

You can customize the message received by the workstations to contain any text, up to 117 characters. The message customization will affect all License Profiles. Customization is not available for a specific License Profile. To customize the message, select **Administration** | **Customize License Messages** from the main menu of `SOFTRACK_CONSOLE.EXE`. For further information see message customization.

Offline Metering and Auditing

Overview

The SofTrack LWA can be configured via the SofTrack Console to provide Offline Metering. While operating offline, the LWA will provide a reduced subset of features. Basic software metering will be provided, that is, when an application is used and by whom. Metering with optional Command Line Switches also functions as does Advanced Timekeeping. The ability to block starting of applications remains as well. Please note if an application is started while the LWA is online and then the LWA goes offline the application is not automatically terminated and the SofTrack Server Agent will eventually detect the LWA is offline and free its licenses just as if the workstation had been shutdown while using a metered application.

These actions will be recorded and uploaded to the SSA when the LWA is next started and it is able to immediately connect to the SSA (while the LWA starts).

Notice: Offline Mode is only available for Windows workstations and terminal servers using Windows XP or later including Windows Vista, 7, 8, 10 (and future versions) and 2008 as well as 2012 and 2016.

Further, Offline Mode requires use the TCP/IP communication protocol between the SofTrack LWA and SofTrack Server Agent. The SofTrack LWA does include the alternate ability to use Named Pipes instead of TCP/IP but is not supported for Offline Mode.

Additionally, the LWA, when operating offline, will attempt to connect to the SSA at the top of each hour (:00 minute) and if successful, will transmit its offline logs at that time – the LWA will continue in offline mode. The LWA makes the determination of whether to operate in offline mode or not each time it is started. Typically the LWA is restarted whenever the workstation is rebooted.

Other advanced metering options such as Classic Timekeeping, Idle Detection, Disallow Multiple Launches are not available. However, auditing and blocking options are completely available and audited actions will be recorded and uploaded to the SSA for later reporting.

Workstations can be individually configured to always operate in Offline mode. This can be useful for workstations (probably laptops) that are not typically connected to your network. While operating in "always offline mode", the LWA on these workstations will attempt to upload metering and audit data every hour at the :00 minute and if contact with the SSA can be made, the data will be uploaded.

How

To operate in offline mode, the LWA must first connect to the SSA to download the offline metering and auditing instructions. These instructions are stored in the local registry of the workstation in the `SofTrackLocalAgentService` key. Each time the LWA first starts it will at that time, attempt to connect to the SSA and, if successful, will download the then current offline metering and auditing instructions and refresh the values it has stored in the local workstation's registry. The only exception is the Advanced Timekeeping instructions, these are stored in a file named STLWA_NT.TKA and is stored in the same folder as the LWA file STLWA_NT.EXE (at each workstation).

Immediately after downloading these data the LWA will then upload any offline metering and auditing records it has collected. These data are stored in files. The files are stored in a folder named:

`LWA.OFF`

This folder is automatically created by the LWA. This folder is created directly under the folder where STLWA_NT.EXE is located. Once these data files are uploaded to the SSA they are automatically deleted.

Otherwise, the LWA will attempt to automatically transmit offline usage data at the top of the hour (:00 minute), each hour until successfully transmitted.

Scenarios

The following sections detail how SofTrack's offline mode is implemented by the SofTrack Local Workstation Agent (LWA).

Below, the word ***pingable*** is used to indicate TCP/IP port 3884 is not blocked by a

firewall and communications to that port are allowed between the workstation hosting the LWA and the server hosting the SofTrack Server Agent (SSA).

Pingable does not indicate the "ping" command functions between the LWA and SSA host (the actual Ping command uses a different port, not 3884). Further, if the SSA is not active, any TCP/IP communications attempted by the LWA will be rejected, however, the connection between the LWA and SSA is still ***pingable***.

However, if the server hosting the SSA is not reachable on TCP/IP Port 3884 for any reason including firewall blocking, port 3884, the server not present on the network the LWA host is currently connected to, and when the LWA host is not connected to a network the connection is ***not pingable***.

Additionally, the word ***connectable (or reachable)*** is used in the scenarios below to indicate that TCP/IP communications on Port 3884 are allowed and possible between the LWA host and SSA host.

When LWA is not configured for Offline mode, and the SSA is not connectable, what happens?

When LWA first starts:

a. If the SSA is not reachable (even if pingable, does not matter) the LWA goes into offline mode and starts recording Application Launches to LWA.OFF folder (yes, even if not configured to do this, specifically Offline Mode is not engaged)
b. If the SSA later becomes reachable (i.e. the SSA is active and pingable) it does not matter, LWA remains operating in a default offline mode, and the LWA never tries to reconnect.
c. To be specific, if the top of hour occurs (:00 minute), LWA will remain operating in default offline mode (again, if Offline mode is NOT configured at all, the LWA will just remain in its default offline mode until its is restarted and SSA is connectable at time the LWA first starts)
d. If the LWA service is stop/restarted or its host rebooted and at that time the SSA is reachable, no offline launch records will be uploaded because LWA is not configured for offline mode. However, the application launches that occurred are recorded and if offline mode is ever configured that activity will be uploaded for reporting.

When LWA is not configured for Offline mode, and the SSA is connectable what happens?

When LWA first starts:

a. If the SSA is reachable/connectable, LWA will perform its actions as normal, i.e. metering applications, recording configured audit data and so on.
b. If the SSA then becomes unreachable but SSA host is pingable the LWA will fail-over and allow metered applications to launch as this is the default failover implicitly defined when offline mode is not configured and the LWA cannot reach the SSA
c. At this time, the PC user where the LWA is in-use will notice a delay each time an application is started (about 2 seconds) as the LWA is attempting to reach the SSA and is unable to (this is different if a firewall is blocking, there will be a longer delay)

d. If the SSA host is not pingable the PC user where the LWA is in-use will experience a delay of 15-20 seconds for the first 10 application starts (could be fewer) and then the LWA will go into default offline mode and the PC user will not experience a delay in starting applications
e. Unlike the previous scenario, when these series of events occurs no record of offline application launches is recorded
f. Every 3 minutes the LWA will automatically attempt to reconnect to the SSA, if the LWA is able to reconnect it will begin regular metering/auditing again

When LWA is configured for Offline mode, and the SSA is connectable what happens?

When LWA first starts:

a. If SSA is running and it is reachable via TCP/IP and Offline Mode is configured, First, if there are LWA.OFF activity records they will be uploaded (even if they were created when LWA was not configured for offline mode but the scenario above occurred)
b. If while active the LWA loses contact with the SSA (SSA host is pingable) there will be a 3 second delay when next application is launched and the LWA is attempting to connect to the SSA and then determines the SSA can no longer be communicated with and will immediately change to Offline Mode and act as defined – for instance, if a metered application is configured to be blocked while in Offline Mode it will be blocked
c. If the SSA host is pingable, Other applications not defined to be blocked while offline will experience a 2-3 second start delay because LWA is attempting to reconnect to SSA (since the SSA host is pingable, pingable means port 3884 is not blocked by a firewall, so communications to that port are allowed but there is no SSA to manage it so the LWA packets sent to port 3884 are rejected)
d. If the SSA host is not pingable (firewall blocking port 3884 or the SSA host is not on the same network as the LWA PC or the LWA PC is not on a network at all) the user experiences 15-20 second delay for each of the next 10 application launches (could be fewer) and then LWA goes into Offline Mode and automatically retries to connect to SSA host, during this time the user has no more delays when starting applications.
e. If the user "unplugs" the network cable (or disables the network interface) the LWA will immediately go into Offline Mode and block any applications specifically defined to be blocked while in offline mode and otherwise act as configured for Offline Mode operation
f. **Important:** If a user had started a metered application that is to be blocked while operating in Offline Mode and then the LWA switches to Offline Mode, the application will not be terminated, it will be allowed to continue being used and if the user exits the metered application while the LWA is in Offline Mode the "stop" time of the application will not be tracked. Further, it is possible that the SSA will continue to show the metered application (i.e. by way of its license profile) as being in-use for up to 24 hours (the SSA automatically cleans/purges LWA connections where last communication was more than 24 hours earlier, this can be configured). Common reasons the SSA may show less than 24 hours of use (a) if the SSA is stopped/restarted; (b) if the LWA reconnects and the PC hosting the LWA has been rebooted since it last connected to the SSA; (c) if the LWA reconnects and the user launches and exits the metered application.

g. If the SSA host connection is restored and the SSA itself is running/active then the LWA will automatically reconnect within 3 minutes and immediately resume online metering and in the background upload offline activities that occurred (and if an application was previously being blocked because of Offline Mode will now be allowed to start as normal)

When LWA is configured for Offline mode, and the SSA is not connectable, what happens?

When LWA first starts:

a. If the SSA is not reachable for any reason the LWA (this presumes the LWA has previously successfully connected to the SSA when the LWA is first started so it has downloaded the Offline Mode instructions - this can be confirmed in the SofTrack Console, Agents tab, review the *Last Offline Download Instructions* column for the selected LWA host PC)
b. The LWA will immediately go into Offline Mode and acts as configured (i.e. blocking applications if defined) (there is no delay in application launches experienced by the user)
c. If the SSA host connection is restored (reachable) and the SSA itself is running/active then the LWA will automatically reconnect within 3 minutes and at that time immediately resume online metering and in the background upload offline activities that occurred (and if an application was previously being blocked because of Offline Mode it will now be allowed to start as normal)
d. If the SSA is reachable but SSA host is not running, LWA immediately goes into Offline Mode and acts as configured (i.e. blocking applications if defined) (there is no delay in application launches experienced by the user)
e. If the SSA had been stopped/restarted and is running/active then the LWA will automatically reconnect within 3 minutes of the SSA being available (SSA can take 5 - 15 minutes after being started before it accepts connections by the LWA) and immediately resume online metering and in the background upload offline activities that occurred (and if an application was previously being blocked because of Offline Mode it will now be allowed to start as normal) The LWA will also automatically warn and terminate metered usages that start prior to SSA restart, click here for details.
h. If the SSA host is suddenly not pingable (i.e. firewall block, user PC not on same network as SSA host) the user experiences 15-20 second delay for each of the next 10 app launches (could be fewer) and then LWA goes into Offline Mode and automatically retries to connect to SSA host, user has no more delays launching applications
f. If the user "unplugs" the network cable (or disables the network interface) the LWA will immediately go into Offline Mode and block any applications specifically defined to be blocked while in Offline Mode
g. **Important:** If a user had started a metered application that is to be blocked while operating in Offline Mode and then the LWA switches to Offline Mode, the application will not be terminated, it will be allowed to continue being used and if the user exits the metered application while the LWA is in Offline Mode the "stop" time of the application will not be tracked. Further, it is possible that the SSA will continue to show the metered application (i.e. by way of its license profile) as being in-use for up to 24 hours (the SSA automatically cleans/purges LWA connections where last communication was more than 24 hours earlier, this

can be configured). Common reasons the SSA may show less than 24 hours of use (a) if the SSA is stopped/restarted; (b) if the LWA reconnects and the PC hosting the LWA has been rebooted since it last connected to the SSA; (c) if the LWA reconnects and the user launches and exits the metered application.

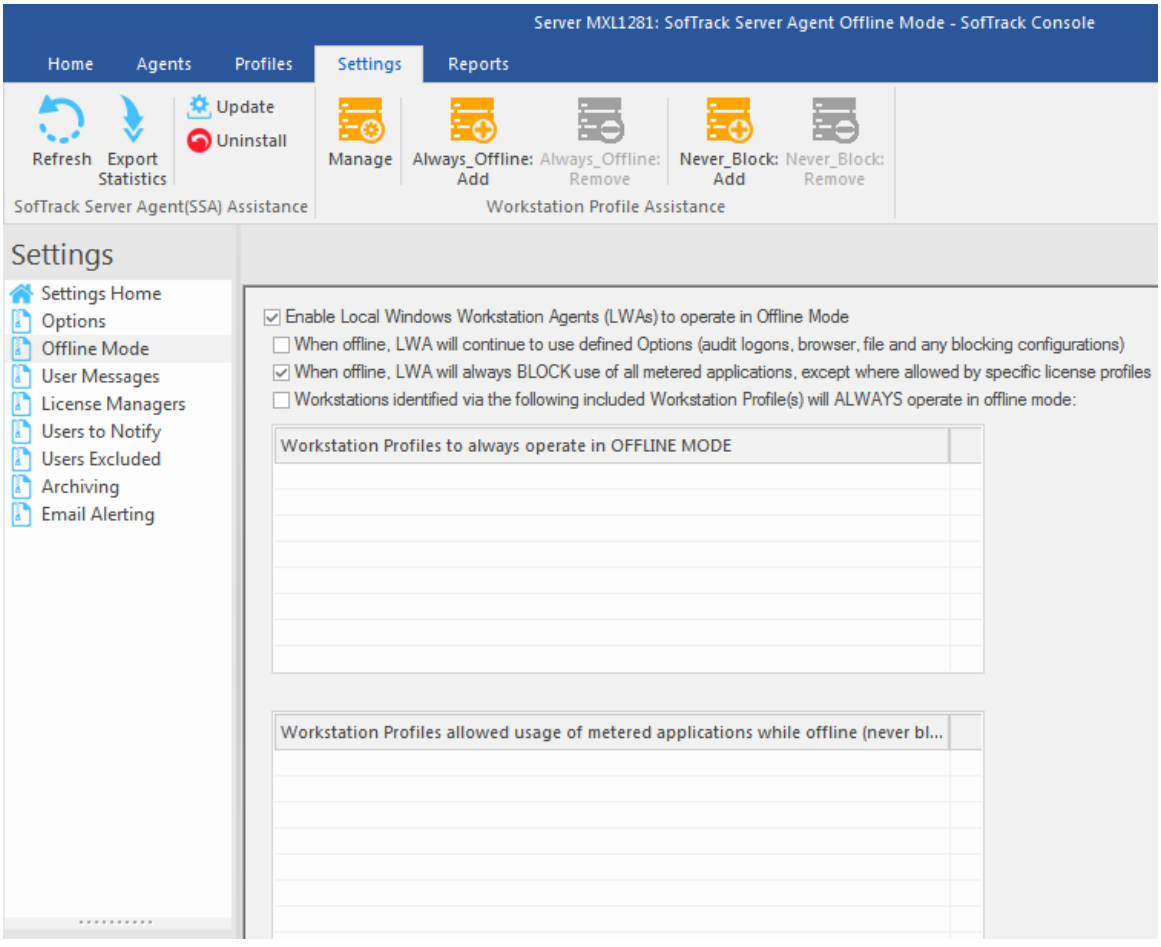
LWA detects offline mode via two methods:

- Workstation (by name) is defined at the SSA to always operating in offline mode
- Workstation's LWA cannot connect to the SSA due to network configuration issues or the SSA not running ***AND*** the server/workstation hosting the SSA is not reachable on TCP/IP port 3884 from the workstation (i.e.firewall blocking port 3884, WAN Accelerator caching packets, not being connected to same network, LWA not connected to any network and in some cases configuration issues at the SSA host server or network switches in the the communications path between the LWA and SSA).

Offline Mode Setup

Follow these instructions to configure Offline mode:

1. Open `SOFTRACK_CONSOLE.EXE`.
2. Select "Settings" tab, select the Offline Mode shortcut and the following will appear:



3. Select the first checkbox "Enable Local Windows Workstation Agents (LWAs) to operate in Offline Mode.
4. Review the notes and remaining checkboxes and make your selections.

   Note: If you select "**When offline, LWA will always BLOCK use of all metered applications**" you will find an option on each License Profile you can define that will allow you to exempt selected applications from the "always block use" configuration. Any applications that remain, will be blocked and the user will NOT be notified that SofTrack blocked the application, it is a "silent" fail.

   Note: If you select "**When offline, LWA will always BLOCK use of all metered applications**" you can then click the **Manage button**. This allows you to create one or more Workstation Profiles containing workstations where metered applications can be used when offline. This is an additional method to define where offline usage of metered applications will be allowed.

5. All changes are immediately applied and the SSA updated.

Reporting

SofTrack's software metering reports will automatically recognize Offline metering records. Only the Details of License Use report will indicate if a particular metering record was performed offline.

SofTrack's auditing reports will automatically include offline records. Only application launches performed offline are indicated as having occurred offline.

Installation on Windows Server, Workstation, and Terminal Server Hosts

IMPORTANT: Before you begin, note that the LWA installation method detailed here installs *both* the Local Workstation Agent (LWA) *and* the Quick Inventory Agent (QIA). If you prefer to install the Quick Inventory Agent *without* the Local Workstation Agent, refer to Installing the Quick Inventory Agent. Note that if you install *only* the QIA, you will *not* be able to take advantage of LWA functions, such as Smart Inventory, Local Application Metering, Idle Detection, and Timekeeping.

MSI Method

The SofTrack MSI installer was created using the Windows Installer technology made available by Microsoft Corporation. Every effort has been made to follow best practices related to the implementation of this technology. If any issues should occur as a result of limitations and/or known issues with the Windows Installer, direct such support inquiries to Microsoft Technical Support. Integrity Software is unable to provide support for issues related to Windows Installer and/or environmental problems.

The SofTrack LWA MSI installer was designed to ease the installation of SofTrack components. The SofTrack LWA MSI Installation Package (LWASETUP.MSI) is located in the

Install.LWA.and.QIA folder. Please rely on our support team to create customized MSI(s) for your specific deployment requirements.

mailto:support@softwaremetering.com

NOTE: The latest versions of the SofTrack LWA MSI installer provide support for automatically upgrading a previous manual installation of the LWA. This also does **not** require that you remove a previous manual LWA installation prior to deploying the MSI.

Special Note: Mass-Deployment of the LWA via MSI

The SofTrack Technical Support team has created a document to assist with the mass-deployment of the LWA. This whitepaper is available at the following URL:

http://www.softwaremetering.com/outgoing/Deploying_SofTrack_MSI_Installer.pdf

Additional details are available in "MSI Method - Options".

1. From the Install.LWA.and.QIA directory of the product installation, copy the LWASETUP.MSI file to the workstation and double-click to launch it.
2. Click **Next** in the Welcome dialog.
3. Select **Typical Installation** in the Installation Method dialog and then click **Next**.
4. In the Server Name dialog, type the name of the server hosting the SSA and select the OS platform. Then, click **Next**.
5. Click **Install** in the Ready to Install dialog and wait for the installation to complete.
6. Reboot the workstation.

Manual Method

Additional details are available in "Manual Method - Options for Use on Windows Server, Workstation and Terminal Server Hosts".

Follow these instructions when installing the LWA on Windows Server, Workstation computers, including Terminal Server Hosts:

1. Copy the following files from the **Tools\LWA.raw** directory of the product installation to the designated workstation's %**SystemRoot%\System32\Drivers** directory:
   - `STLWA_NT.EXE`
   - `STLWMON.SYS`

   There is no option to load these files from a remote device. The Windows operating system *requires* that all system-level kernel drivers be located in this specific directory.
   - On Windows NT and 2000 systems, the default %SystemRoot% directory is **C:\WINNT**.
   - On Windows XP and later systems, the default %SystemRoot% directory is **C:\WINDOWS**.

If you are not certain what your %SystemRoot% directory is, perform the following:

a. Click **Start | Run** and then enter `CMD.EXE`.

b. In the resulting CMD window, type the command: **`SET`** <enter>

c. Look through the alphabetical list of SET parameters for the value of **SystemRoot**

2. Click **Start | Run** and then enter `CMD.EXE`.

3. In the resulting CMD window, change the current directory to **%SystemRoot%\System32\Drivers**.

4. Enter the following command:

   `STLWA_NT -install` followed by the command:

   `STLWA_NT -server` ***`YOUR_SERVER_NAME`***

   where *YOUR_SERVER_NAME* is the name of the server hosting the SSA.

TIP: Specify only the server's name or IPv4 address. Only use the server's IPv4 address if it is statically assigned. Do **not** use `\\server_name` or `www.server_name.com`.

The **`-install`** command will install the LWA as a service on the local machine. It will be defined to load automatically at boot time. To view its entry, open **Control Panel** and then open the **Services** browser. There you will find the SofTrack Local Metering Agent Service.

The **`-server`** command will store the name of the server hosting the SSA in the local machine's registry.

5. To start the SofTrack LWA, reboot the workstation.

Special Note: Terminal Services Metering

When the LWA is installed on a Terminal Server Host, it will automatically detect this and will self-configure its operations. Terminal Server Hosts include:

- Windows Terminal Server Edition
- Windows Server (any version) with Terminal Services Enabled
- any of the above with a third-party add-on, such as Citrix Systems' XenApp (previously known as WinFrame or MetaFrame (www.citrix.com))

In Terminal Service environments, the LWA—per computer—will automatically configure its internal processes to allow metering and tracking for up to 4,000 terminal service sessions.

The LWA *can be installed* on the same computer that hosts the SSA, which is often done in Terminal Service environments.

IMPORTANT: Use of the LWA on a Terminal Server Host requires a specific TSE (Terminal Server Environment) token to authorize its use—in addition to or instead of a token for metering of non-TSE computers. Without such a token, all administrator workstations will receive a SofTrack Token Warning indicating that TSE tokens are unavailable or exhausted.

Push Console

The SofTrack Push Console was created to assist with installing and upgrading the SofTrack LWA and QIA (Quick Inventory Agent).

Before you begin, your current Windows logon account must be sufficiently credentialed to connect to each designated workstation and install a new service. Generally this means your account is a member of the Domain Admins group (a default group present in a Windows Domain).

To access the Push Console, start the SofTrack Console and select the desired server, click the "Agents" tab and click the in the "Push Console" button (Figure 3-5).

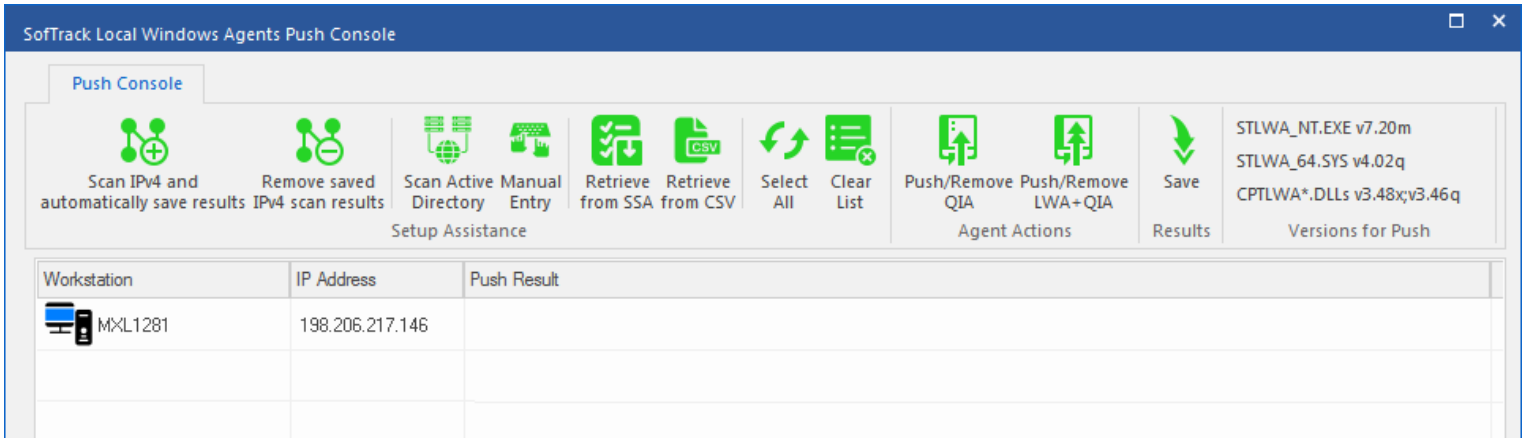


Figure 3-5

The Push Console window is initially empty. The Figure above shows a workstation for demonstration purposes. To begin, a list of workstations to push to must be obtained. There are four (4) retrieval methods. As shown in Figure 3-5:

- ✓ Scan IPv4 (specify range and reverse DNS lookup is used to obtain computer names)
- ✓ Scan Active Directory
- ✓ Retrieve from SSA
- ✓ Retrieve from CSV

Once a list of workstations has been obtained, use the "Push" buttons to perform the indicated action. When clicked, the "Push/Remove LWA..." button produces the following screen:

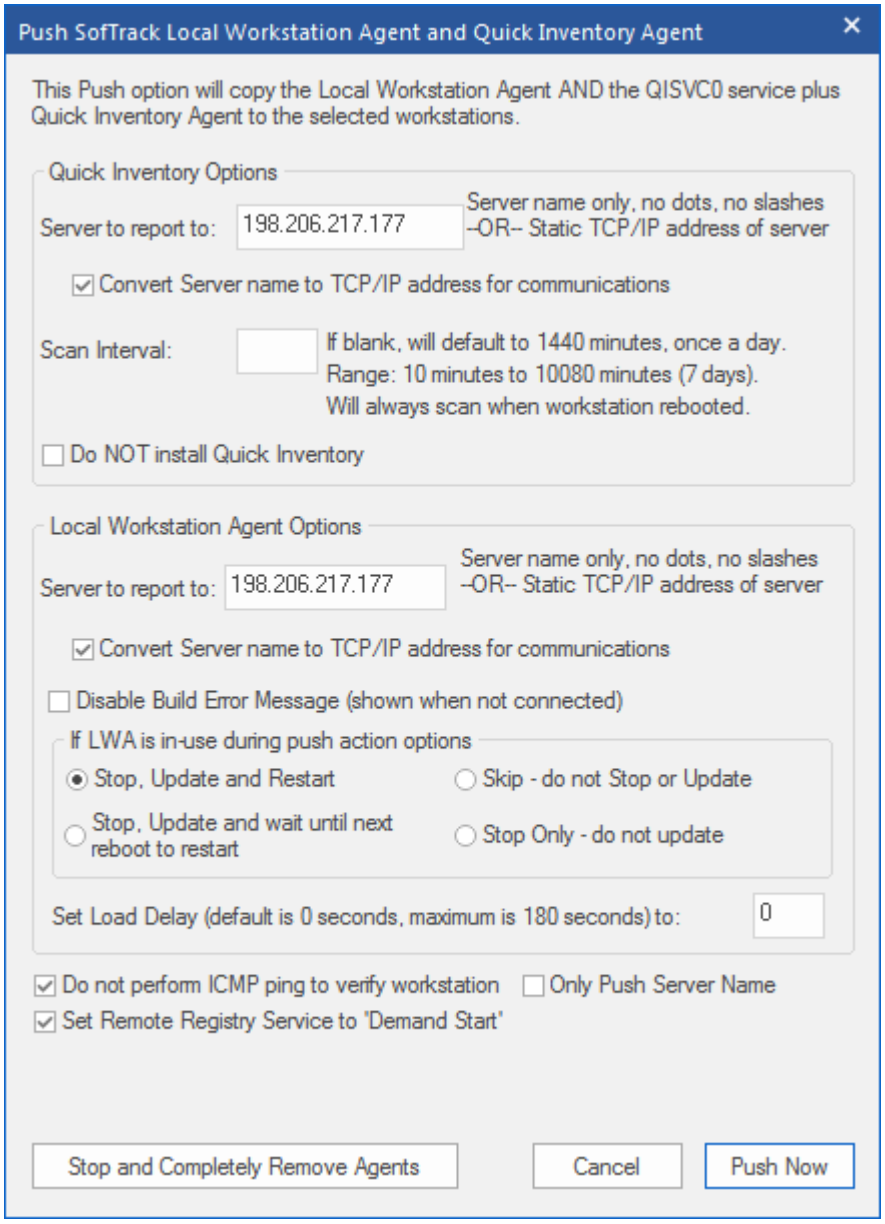


Figure 3-7

The push options include the server to report to, the default selection being the currently selected server's IPv4 address. If the server name is shown instead, to specify the server by its IPv4 address simply enter the value such as "10.1.5.0".

Server Name Change (Migration)

If you are *only* needing to change the server the LWA reports to, click the "Only Push Server Name" checkbox as shown in Figure 3-7. This will create a file named:

```
stlwa_nt.servername
```

in the path where STLWA_NT.EXE is located at each selected PC. This file will contain the server name as entered in the "Local Workstation Agent Options" section.

This specific push option only requires access to the file system at each PC and does not require remote registry services or service control services.

To successful, this feature requires LWA v7.25a and later to already be in-use at each selected PC.

The LWA automatically checks for this file every 5-10 minutes and if found, will use it to update the server name reported to for **both** the LWA and the QIA service (if installed). Once updated, the LWA will auto-delete the file (stlwa_nt.servername). And the LWA will immediately begin using the new server name – no restart of the LWA service required.

If you are using this feature during an SSA migration you can push the server name after the migration to your PCs (or before) and all your PCs will automatically connect to the new server.

About Named Pipes

If you do not enter an IPv4 address for the server *and* you do not click on the **Convert Server name to TCP/IP address for communications**, then any resulting push installations of the SofTrack LWA will use Named Pipe communication method (instead of TCP/IP). Please be aware that Named Pipe communications have the following concerns:

- The LWA operating with Named Pipe communications will use a Windows Client Access License (CAL) at the named server (the LWA using TCP/IP does not consume a CAL) – if the workstation normally uses a CAL on the named server then there is no extra CAL consumed
- The user logged on to the workstation must have valid logon credentials to the named server as Named Pipes use regular Windows credentials for authentication
- The LWA will not be able to use the following features:
  - Advanced Timekeeping Prompt
  - Offline Mode

At the lower left corner is a button "Stop and Completely Remove Agents". Use this button to perform a "reverse push", specifically, removing both the Local Workstation Agent and the Quick Inventory Agent from each selected workstation.

The following is a sample screenshot of the push process:

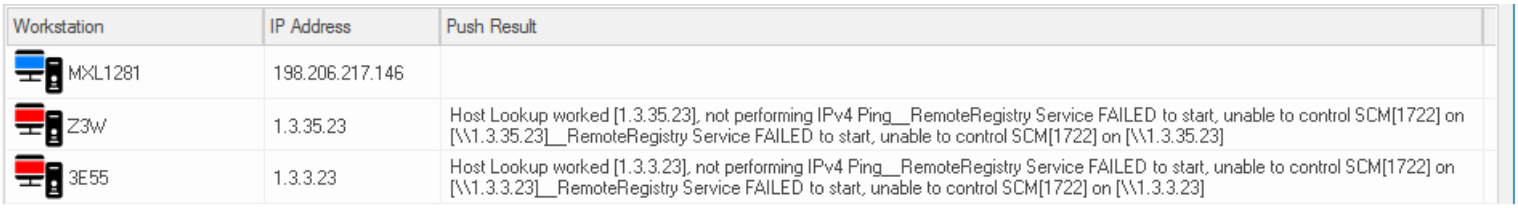


Figure 3-8

Notice the icons are changed to indicate success (green) or failure (red) of the push process (blue indicates not selected for push). To expedite the push process it is performed in parallel for each selected workstation.

Push Failures

Reasons for push failures include the following at the destination workstation:

1. Removal of the C$ private share or other SystemDrive private share.
2. Disabling of the Remote Registry service. Please note that the Push Console does attempt to remotely start the Remote Registry service if not already running. And, further, please note that Windows 8 workstations automagically start the Remote Registry service whenever remote access is attempted by a sufficiently credentialed user account.

3 Insufficient administrative permissions.

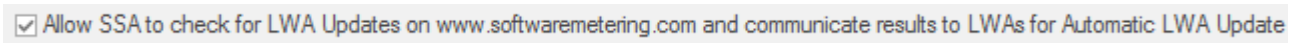
Automatic LWA Updates

Beginning with SofTrack Server Agent v7.14n (x32) and v8.14n (x64) and SofTrack Local Workstation Agent v7.25a, the SofTrack LWA can be automatically updated.

By default, this ability is disabled.

To enable, start the SofTrack Console and select the desired server, click the "Settings" tab and click the "Options" section and scroll down to the option:

Allow SSA to check for LWA Updates on www.softwaremetering.com and communicate results to LWAs for Automatic LWA update:



Once checked, the SSA will then attempt to retrieve this file:

www.softwaremetering.com\outgoing\LWAUPDVER

If successful, this file will be placed in the root of the "STLOG" path located at the SSA host.

This file contains a version code that the SSA will then send to each workstation within a few minutes. Each LWA (at each workstation) regularly "checks in" with the SSA and this is via this method that the LWAs will become aware.

Next, each LWA (must be using v7.25a or later) will review the version value provided and if found to be newer than what that LWA is currently using, the LWA (at each workstation) will attempt to automatically download:

www.softwaremetering.com\outgoing\LWAUPD.EXE

It will be downloaded to same path where STLWA_NT.EXE is located at each PC.

The automatic download action performed by the LWA does require the PC to have an internet connection.

The automatic actions do not require any user permissions and will function even when no user is currently logged on. Further, the update actions detailed below do not require the PC's local users to have any special permissions as the update occurs within the permissions level of the SofTrack LWA, which has full "local system" permissions and has the ability to update without any user interaction. Other than requiring an internet connection to enable the LWA to download the update, there are no other requirements for the update to proceed and complete other than those detailed in the following paragraphs.

Next, the LWA will verify the file LWAUPD.EXE is digitally signed by Integrity Software, Inc. and has not been tampered with. To verify, the LWA will automatically create `LWAVerifyDLL32.dll` (this file is stored directly within STLWA_NT.EXE and is extracted when needed) and proceed to perform the necessary verifications to ensure the file LWAUPD.EXE is trusted.

To complete the update, the next time the LWA is started (typically when the PC is rebooted) it will detect LWAUPD.EXE is present, re-verify it as being trusted and then automatically run LWAUPD.EXE. Then LWAUPD.EXE will stop the LWA service and proceed to update the following files:

```
stlwa_nt.exe
inventry.exe
cptlwa64.dll
cpt_x64a.exe
cptlwa32.dll
stbw_k32.sys
stbw_k64.sys
stvista.sys
stlwa_64.sys
lwatray.exe
```

Some of the above files are specific to 32bit or 64bit versions of Windows and are updated as needed.

Finally, LWAUPD.EXE will auto-re-start the LWA service.

Details of each LWA's automatic actions is recorded to the text file:

```
stlwa_nt(nce).log
```

Saved to the same path where STLWA_NT.EXE is located.

MSI Method - Options

Installation Method Dialog

In the **Installation Method** dialog, you can select a **Typical Installation** or an **Advanced Installation**. This dialog also allows you to choose whether or not to disable the BUILD ERROR (select this option if your machine is a laptop) and the Quick Inventory Agent (QIA) installation.

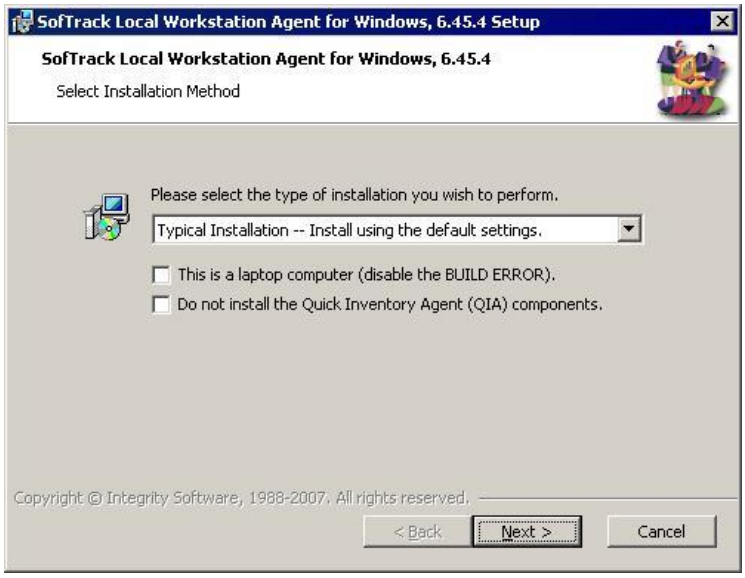


Figure 3-22

- **Typical Installation –** Selecting this option will perform an installation of the LWA using default settings. This option provides the fastest method for installing the LWA.
- **Advanced Installation –** Selecting this option will allow you to modify default settings prior to installation.
- **This is a laptop computer –** Selecting this check box will disable the BUILD ERROR. Typically, this error appears to the user when the workstation is unable to reach the SofTrack Server Agent (SSA). Such an error may occur when the laptop is removed from the LAN.
- **Do not install the Quick Inventory Agent (QIA) components –** Selecting this check box will disable the installation of the Quick Inventory Agent. This will prevent an inventory from being gathered on the client workstation unless the inventory is gathered using an alternative method.

Server Name Dialog

The **Server Name** dialog allows you to enter the name of the server hosting the SofTrack Server Agent (SSA) and select the Operating System (OS) platform.

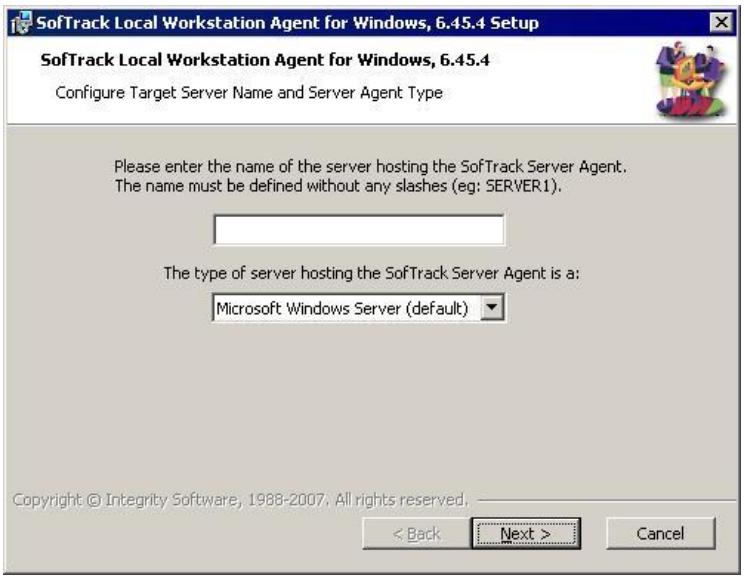


Figure 3-23

- **Microsoft Windows Server –** Selecting this option instructs the installer to configure itself for a Windows environment.
- **Novell NetWare Server –** Selecting this option instructs the installer to configure itself for a NetWare environment.

Advanced Install: Configure Advanced Settings – LWA Options Dialog

If you selected the **Advanced Installation** option in the **Installation Method** dialog, the **Configure Advanced Settings – LWA Options** dialog will appear after you click **Next** in the **Server Name** dialog. This **LWA Options** dialog allows to you to modify default installation settings.

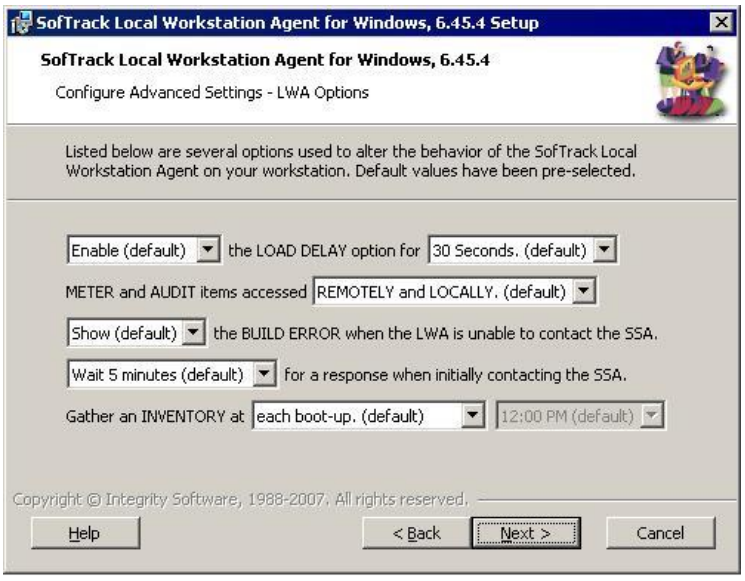


Figure 3-24

- **Enable the LOAD DELAY option –** This option allows you to enable or disable the load delay feature as well as configure how long of a delay should occur.
- **METER and AUDIT items accessed –** This option provides the ability to select whether or not the LWA should meter and/or audit applications executed via just the local hard drive or from both the local hard drive and a remote path (i.e., shared network location).
- **Show the BUILD ERROR –** This option enables you to select whether or not an error dialog should appear to the user when the LWA is unable to contact the SSA.
- **Wait 5 minutes for a response –** This option allows you to configure whether the LWA should attempt to contact the SSA for a period of only five minutes or indefinitely.
- **Gather an INVENTORY at –** This option enables you to configure whether an inventory should be gathered *only* when the workstation is started or *both* at boot-up *and* at a daily timed interval. The latter feature is useful for a workstation that is not frequently restarted but that requires a daily inventory.

Advanced Install: Configure Advanced Settings – STUSER Dialog

If you selected the **Advanced Installation** option in the **Installation Method** dialog, the **LWA Options** dialog will appear after you click **Next** in the **Server Name** dialog. After you make your selections in the **LWA Options** dialog and click **Next**, the **Configure Advanced Settings - STUSER** dialog appears.

This **STUSER** dialog allows you to select whether or not the STUSER utility should be installed on the client workstation.

Figure 3-25

- **YES –** Setting this option will install the STUSER utility.
- **NO –** Setting this option will prevent the STUSER utility from being installed.

Manual Method - Options for Use on Windows and Terminal Server Hosts

The following options are available for the LWA on Windows workstations and servers, including Terminal Server Hosts; each is saved in the local registry; the usage format is **STLWA_NT -*option***:

-HideBuildError

-ShowBuildError

When loaded, the LWA confirms with the SSA that the LWA is properly licensed. This confirmation can be denied for the following reasons:

- The SSA is not active.
- The SSA requires an updated license.
- The workstation on which the LWA is running is disconnected from the network and, therefore, cannot contact the SSA.

If confirmation is denied, the LWA will display an error message and then unload. To prevent the error message, use the **-HideBuildError** option. You may want to prevent the error message from appearing if your workstations are routinely disconnected from the network or if the SSA is not always active.

The **-ShowBuildError** option will enable the error message if it has previously been disabled with **-HideBuildError**.

The default is to display the LWA licensing error to the user.

-notlocalonly

Use this option to instruct the LWA to meter all applications that are run, regardless of where the application file is hosted. By default, only applications that exist on the workstation's local hardware will be metered. When this option is used, the LWA will meter *any* application used.

You can use SOFTRACK_CONSOLE.EXE to determine if this option has been set. To do so, open SOFTRACK_CONSOLE.EXE, select the desired server, click the "Agents" tab and click the in the "Open Connections In-Use Console" button (Figure 3-26) Connections that use this option will include an **[S]** notation (in the "Server Metering by Local Workstation Agent (not local only)" column.

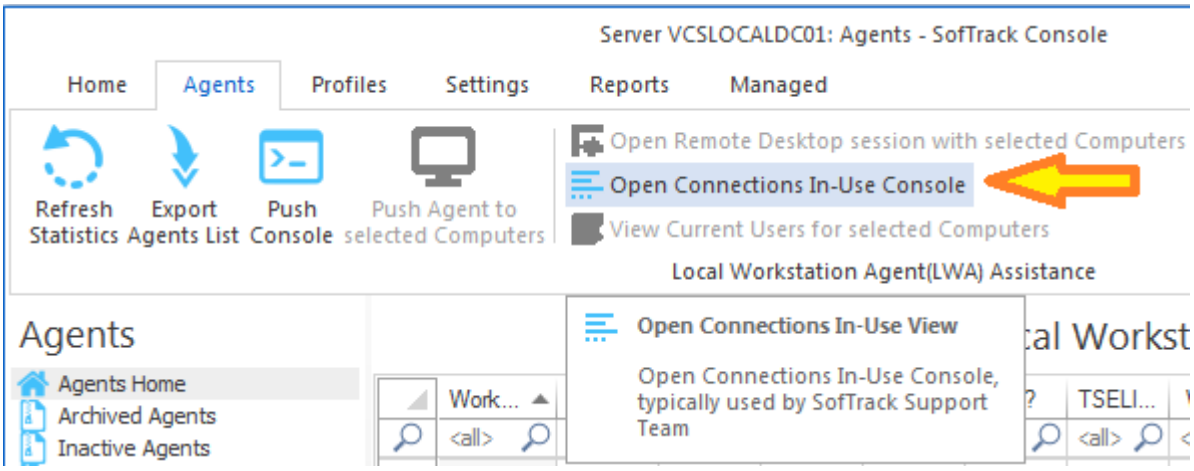


Figure 3-26

`-localonly`

Use this option to instruct the LWA to meter only those applications that exist on the local computer's hardware (i.e., C:\ drive and any other local device). This is the default LWA operation.

`-loaddelay`

This option is available to delay the loading of the LWA in the event there is another application that is also loading at login that needs to complete prior to the LWA's load. We know of no commercial applications that require the use of this option. It is provided as a debugging aid. The maximum delay is 180 seconds.

`-profile`

This option will display the LWA's current settings and check to see whether or not the server is available.

To save these settings, perform the following steps:

1. Click **Start | Run** and then enter `CMD.EXE`.
2. In the resulting CMD window, change the current directory to **%SystemRoot%\System32\Drivers**.
3. Enter the following command:

   `STLWA_NT -profile > output.txt`

4. The resulting `output.txt` will contain the profile information.

`-profiles`

This option will display the LWA's current settings and check to see whether or not the server is available. To save these settings, perform the following steps:

1. Click **Start | Run** and then enter `CMD.EXE`.
2. In the resulting CMD window, change the current directory to **%SystemRoot%\System32\Drivers**.
3. Enter the following command:

   `STLWA_NT -profiles > output.txt`

4. The resulting `output.txt` will contain the profile information.

Upgrading SofTrack LWA - MSI Method

Windows Workstations, Servers and Terminal Server Hosts

The SofTrack MSI installer package provides support to perform upgrades. When performing an upgrade, use the same method that was used to originally deploy the MSI. Upgrading the MSI is essentially the same as performing a new installation, and all properties must be defined again. You can perform an upgrade of the MSI by executing the new MSI installation package using the steps mentioned in "MSI Method".

Removing SofTrack LWA - MSI Method

NOTE: The process of removing the SofTrack LWA MSI installation will depend on the original method that was used to install it on each client workstation. For example, an administrator who used Active Directory to deploy the MSI would use the same method to remove it.

1. Click **Start | Settings | Control Panel**.
2. Double-click **Add or Remove Programs**.
3. Locate the appropriate entry for the **SofTrack Local Workstation Agent for Windows** in the **Add or Remove Programs** screen and click the corresponding **Remove** button.

Removing SofTrack LWA - Manual Method

Windows Workstations, Servers and Terminal Server Hosts

To remove the LWA from a Windows workstations and servers including Terminal Server Hosts:

1. Click **Start | Settings | Control Panel**.
2. Double-click **Administrative Tools**, double-click **Services**, and then double-click **SofTrack Local Metering Agent Service**.
3. In the General tab, click **Stop**. Then, click **OK**.
4. Click **Start | Run** and then enter `CMD.EXE`.
5. In the resulting CMD window, change the current directory to **%SystemRoot%\System32\Drivers**.
6. Enter the following command:

   ```
   STLWA_NT -remove
   ```

7. **Delete** the following files (not all files present on all systems):

   %SystemRoot%\SysWow64\STLWA_NT.EXE
   %SystemRoot%\System32\Drivers\STLWA_NT.EXE
   %SystemRoot%\System32\Drivers\STLWMON.SYS
   %SystemRoot%\System32\Drivers\STVISTA.SYS
   %SystemRoot%\System32\Drivers\STLWA_64.SYS
   %SystemRoot%\System32\Drivers\STBW_K32.SYS
   %SystemRoot%\System32\Drivers\STBW_K64.SYS
   %SystemRoot%\SysWow64\Drivers\CPTLWA32.DLL
   %SystemRoot%\SysWow64\Drivers\CPTLWA64.DLL
   %SystemRoot%\System32\Drivers\CPTLWA32.DLL
   %SystemRoot%\System32\Drivers\CPTLWA64.DLL

8. Reboot the workstation. The removal is complete.

CAUTION: Removal will not be complete until you REBOOT the workstation.

Chapter 4 Defining a Software Metering License Profile

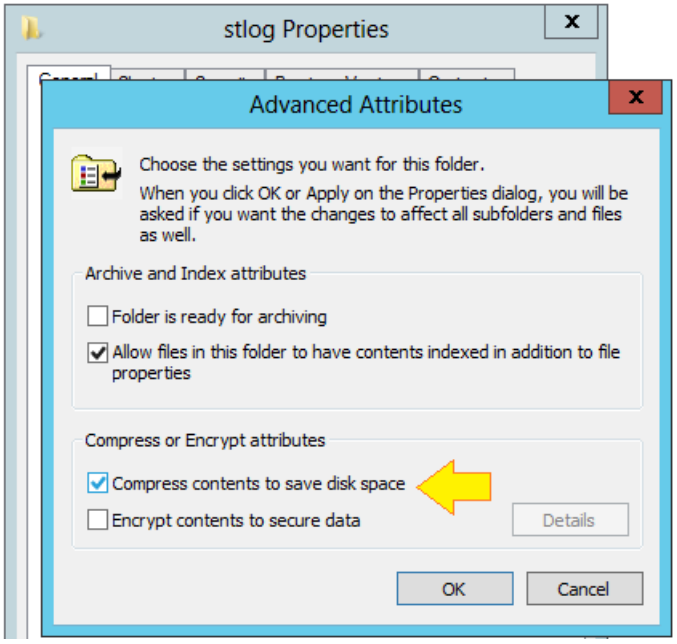
Preparations for Defining a License Profile

All recording of SofTrack activity tracking data is performed by the SofTrack Server Agent (SSA). You must define a server-based file system path—called the `METER.LOG` path—to enable the SSA to record this data. The `METER.LOG` path defines where the SSA stores all activity tracking data.

NOTE: In order for SofTrack Administrator's Console (`SOFTRACK_CONSOLE.EXE`) to create reports from this data, the `METER.LOG` path must be accessible via a *server share*.

To Create the METER.LOG Share Location

1. Log in to your server with administrative-level credentials (may be done via MSTSC/RDP).
2. Create a folder on a server drive called **`STLOG`**. This name is simply for demonstration purposes, you can select any name.
3. Enable Windows File Compression:



4 Make this folder "shared" with the share name `STLOG` and assign the following rights:

- Share rights:
  - Local Administrators: FULL CONTROL
  - System: FULL CONTROL
- Security (NTFS) rights:
  - Local Administrators: FULL CONTROL
  - System: FULL CONTROL

To Set the METER.LOG Path

6 Open `SOFTRACK_CONSOLE.EXE`.

7 Select "Settings" tab, set the **Log File Path (share)** value, once set, the value is automatically saved and the SofTrack Server Agent updated (Figure 4-1)

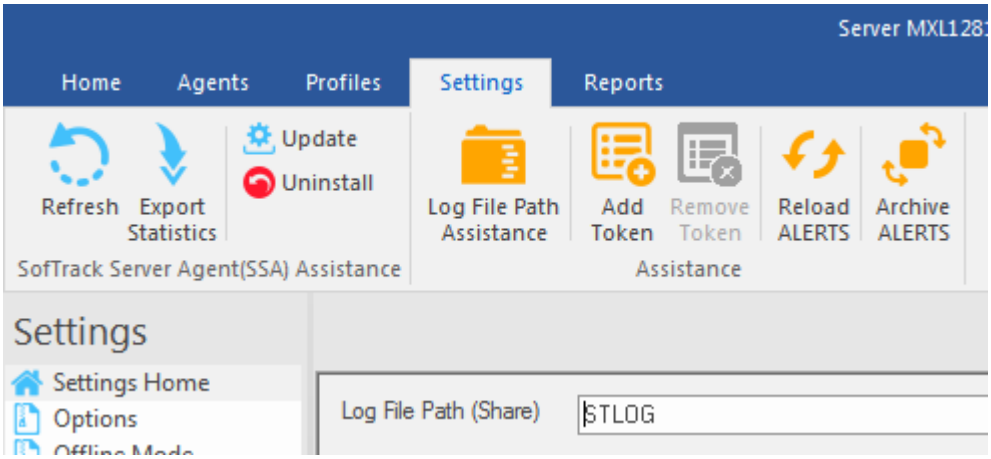


Figure 4-1

What is stored in METER.LOG and when is it recorded?

The SSA records activity tracking data defined by License Profiles you create. to the `METER.LOG` upon the completion of a metering event. When a metered application is opened, the SSA begins to track it. Once the metered application is closed (exited), its metering event is then recorded to `METER.LOG` and is available for reporting.

Other Files and Directories found in the METER.LOG path

Depending on how you configure the SSA, you will also find other files in the `METER.LOG` path.

If you enabled Archiving (see Set METER.LOG Archive Rate), you will find files named `METER.000`, `METER.001`, etc. These files are archived copies of `METER.LOG` that contain historical activity tracking data. Reporting options within `SOFTRACK_CONSOLE.EXE allow you` to use an archived file for reporting, additional details in Chapter 7.

If you are using the Classic Timekeeping option, you will find this data stored in the file `TIMEKEEP.CSV`.

If you are using the Advanced Timekeeping option, you will find this data stored in multiple files within a directory named **TKAudit.**

If you use the Quick Inventory feature, you will see a directory named **Computers**. Within will be files for each computer where a Quick Inventory has been performed.

If you use the Audit feature, you will see a directory named **Audit**. Within will be files for each computer where Audit data has been gathered. These files can grow in excess of 1MB per day per workstation.

If you use the Logon Tracking feature you will see a directory named **Logon**. Within will be files for each computer where Logon data has been gathered.

If you use the Managed Applications feature, you will see a directory name STSLAM. Within will be files and folders related to processing of collected data into SQL databases.

Excluding Accounts from Metering

System Backup applications can appear to be using a metered application when, in fact, they are only opening the file to back it up. When such "backup accounts" are metered, you can receive incorrect reports of application usage and metering. Also, if no licenses are available when the backup accounts attempt to open a metered application, the request is denied, and the backup software is unable to back up the file. The following procedure details how to exclude such accounts from metering:

1. Open `SOFTRACK_CONSOLE.EXE`.
2. Select the server to modify, click the "Settings" tab
3. Click the "Users to Exclude" shortcut (Figure 4-2)

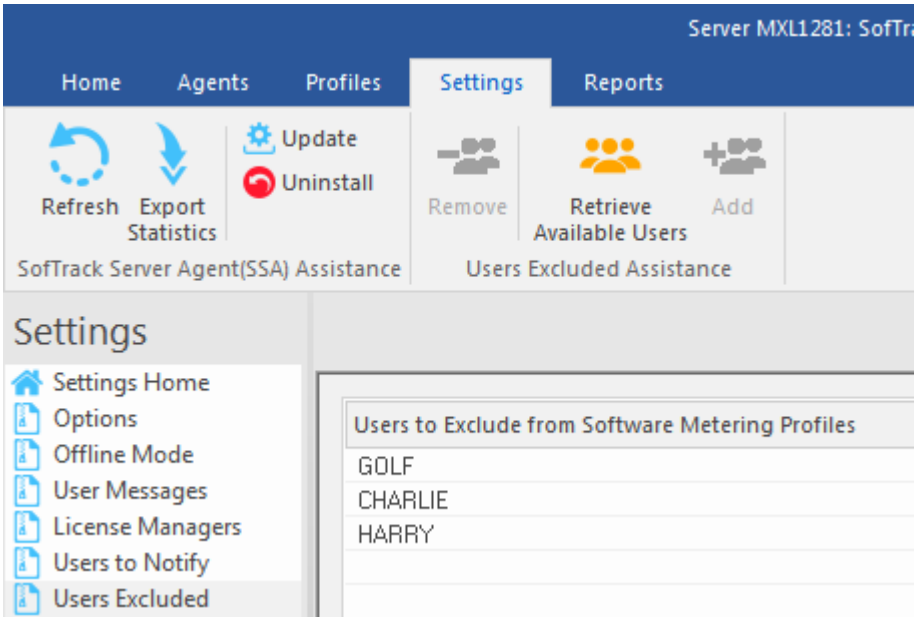


Figure 4-2

4. Click the **Retrieve Available Users** button (shown in Figure 4-2).

NOTE: All Local (Domain) users accounts will be shown

5. Click **Add** button to insert selected users.
6. Click **Save Settings** to save your changes.

Users will be excluded from metering beginning the next time they log in. If the users logged in when added to the exclude list, they will have to log out and log in again to be properly recognized as being on the exclude list.

NOTE: Excluded Users are not recognized when a workstation agent is operating in offline mode. It is possible to exclude a workstation (and each user utilizing that workstation) from offline mode blocking.

Defining a License Profile

SofTrack uses License Profiles to define what to applications to specifically monitor usage or including the ability to meter and how to meter it. Perform the following procedure to create a License Profile

1. Open `SOFTRACK_CONSOLE.EXE`.
2. Select the desired server and click the "Profiles" tab (Figure 4-3)

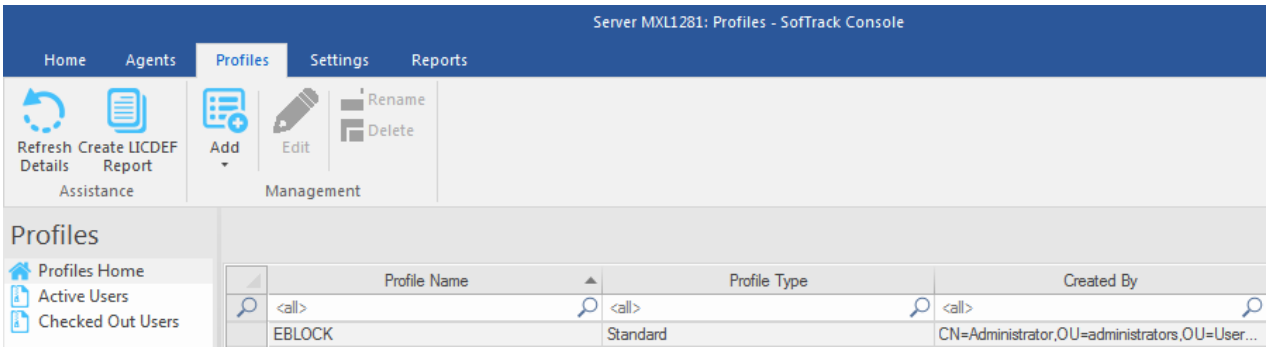


Figure 4-3

3. Click the Add button above in the Management section (Figure 4-3) and the following prompt appears:

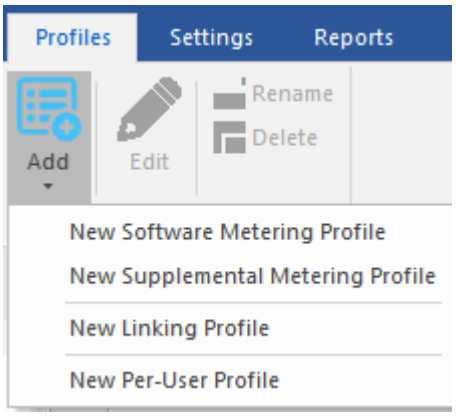
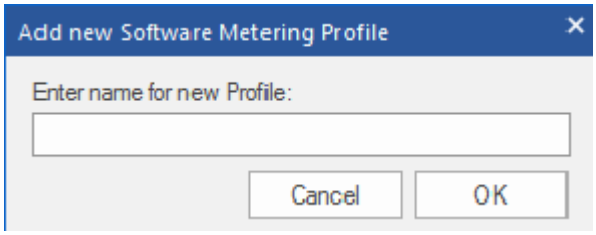


Figure 4-4

Select the *New Software Metering Profile* type to create and then a prompt will appear:



NOTE: The License Profile name can contain up to 20 characters and may include symbols and

spaces. Spaces will be automatically converted to underscores and all letters to uppercase.

4 Enter the name CALC and click **OK**.

Each License Profile can include several options. For this short demonstration, we will focus on just a few. Note that the default setting for **Maximum Concurrent Users** is 1.

5 The following screen will appear:

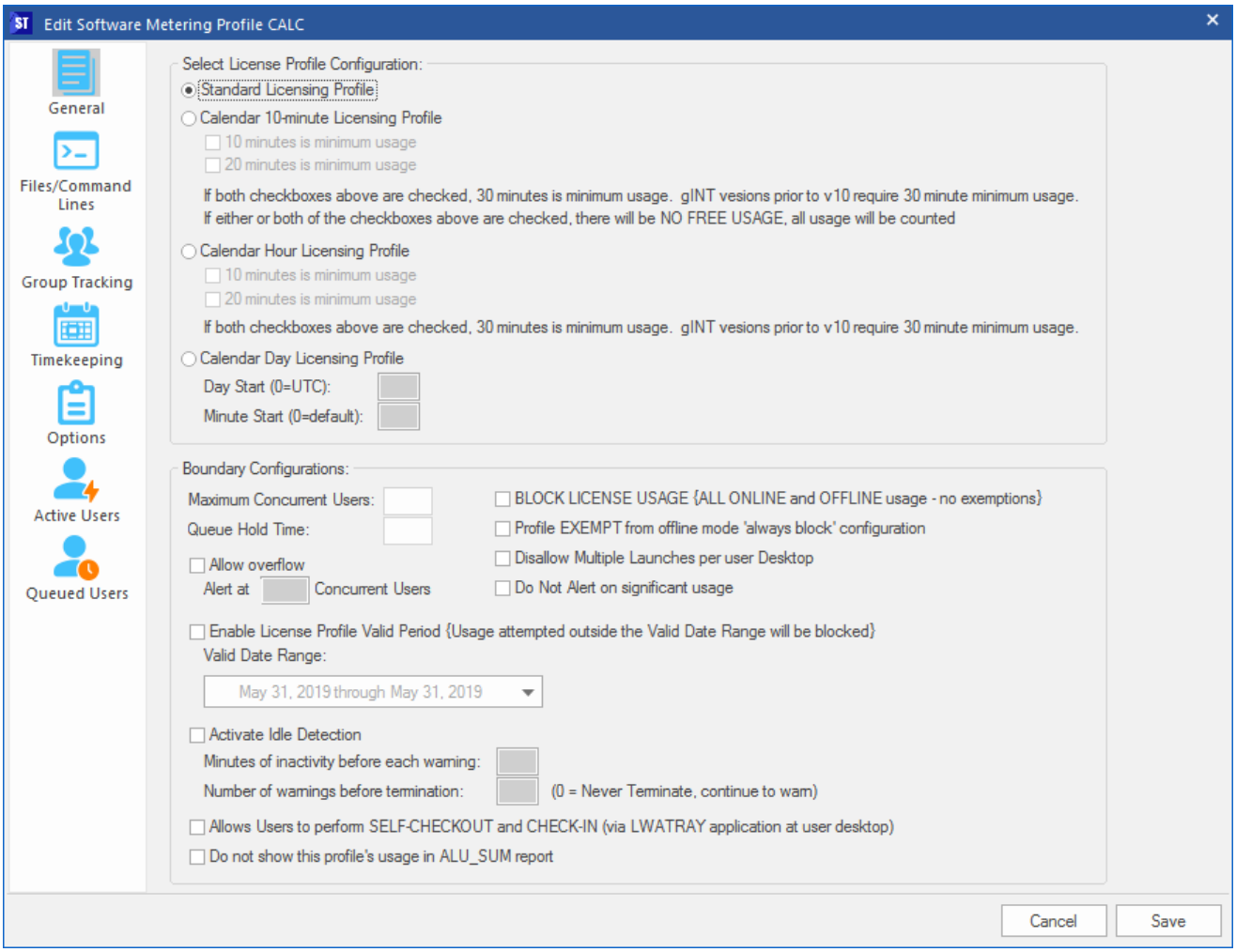


Figure 4-5

6 Select the **Files/Command License** shortcut at upper left, the screen shown in Figure 4-6 will appear.. Files entered here are tracked whenever the file is run. To be tracked, Files entered here must be run on a workstation where the Local Workstation Agent is in-use.

7 In the field next to the **Add** button enter the executable name. For our first test, enter `CALC.EXE`.

8 Click the **Add** button and the file is entered in the list to be tracked (Figure 4-6).

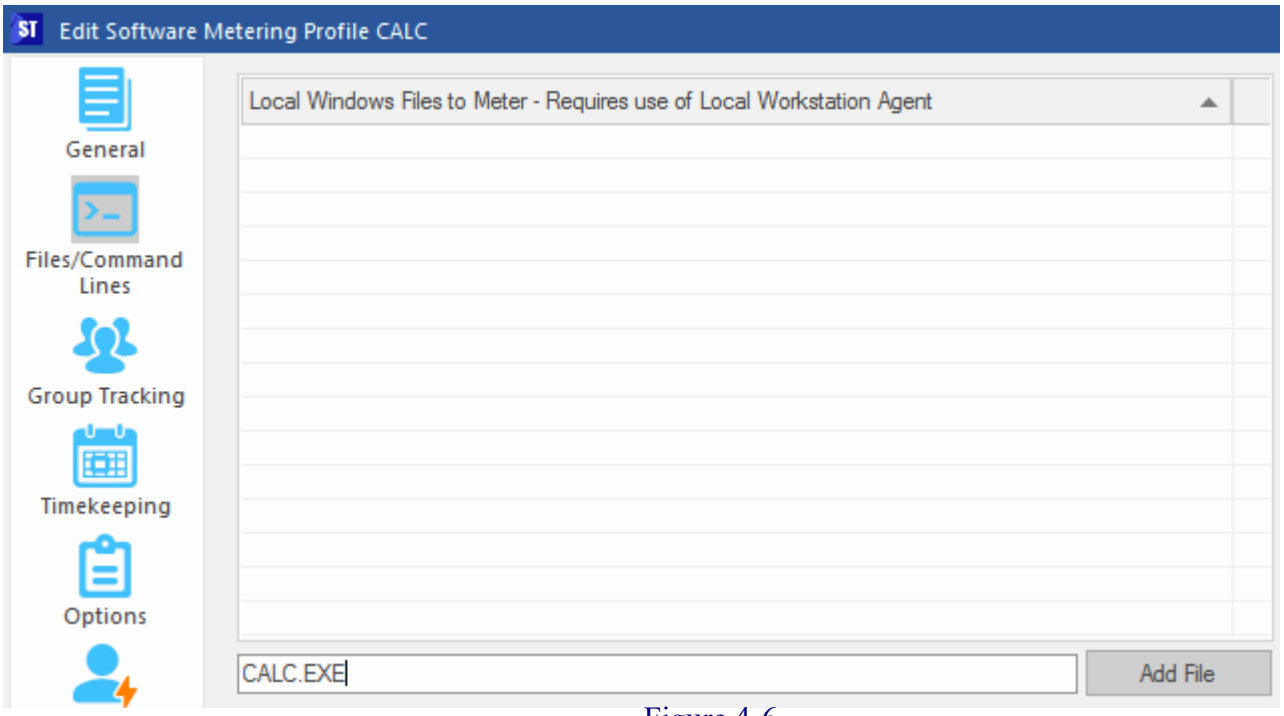
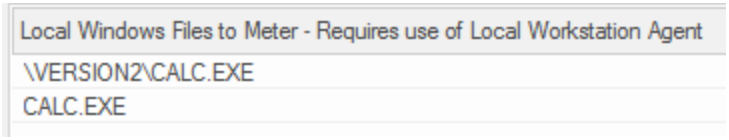


Figure 4-6

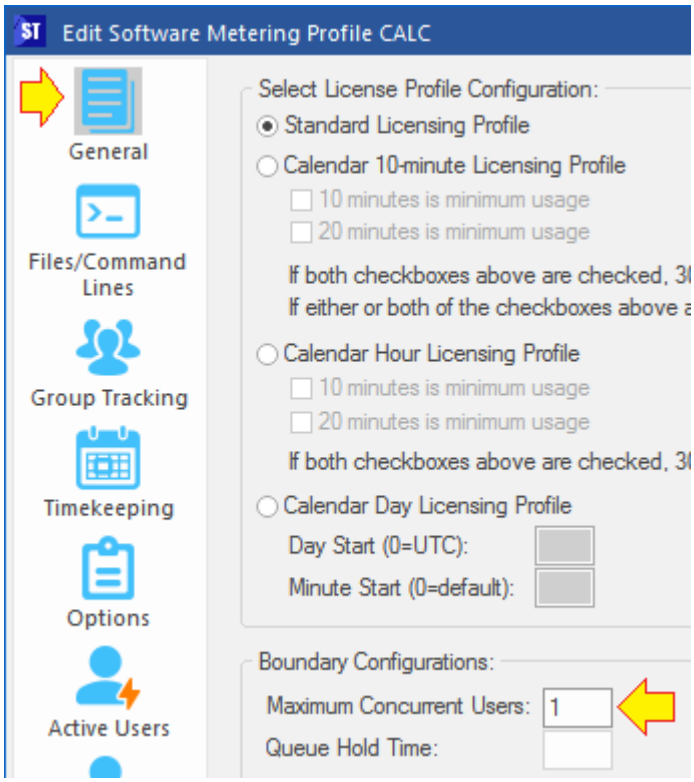
NOTE: When choosing the application file to meter, always select the initial `.EXE` file that is used to run the application.

If you are metering a DLL file, simply enter that filename.

You may also enter a full or partial folder path for the filename. This is particularly useful when needing to track different versions of the same application where the lead filename is the same but the folder path is different.



9 Click on the **General** shortcut and update the number of concurrent users you want to allow for this License Profile in the **Maximum Concurrent Users** field.



NOTE: Once a workstation uses an application or other file from the License Profile, its user may invoke as many copies of the application/file as they require without using additional licenses. SofTrack can limit launches to once only per desktop. Doing so requires the use of the SofTrack Local Workstation Agent (LWA). See Disallow Multiple Launches in Chapter 3.

10 To save your changes click **Save** button located at the lower right.

A message appears, indicating that the SofTrack License Server Agent has been refreshed (or not).

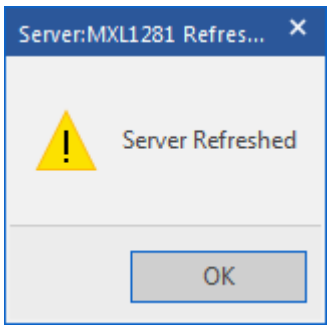


Figure 4-8

Testing the CALC License Profile

NOTE: When testing, we recommend using one machine to run `SOFTRACK_CONSOLE.EXE`

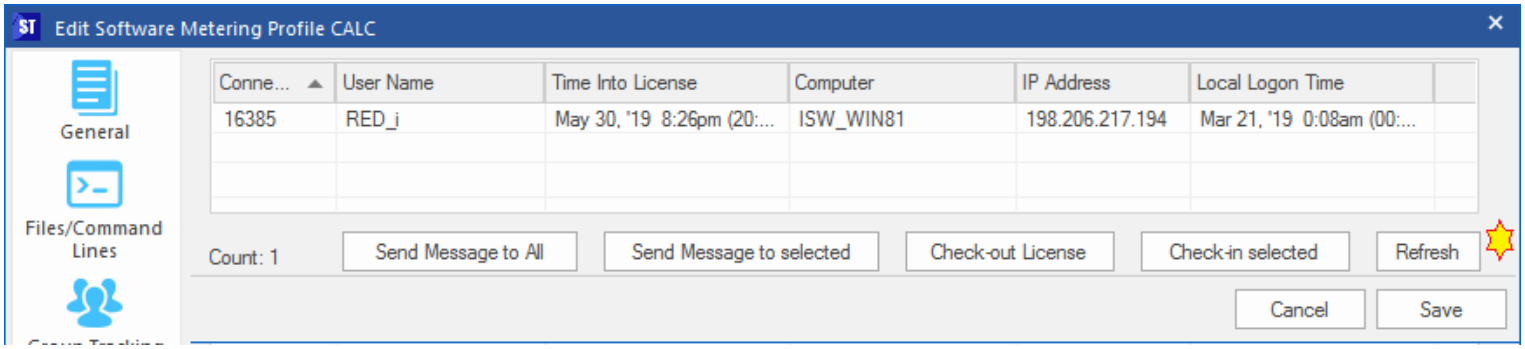
(or `STUSER.EXE` —see end of Chapter 7) on another machine to launch the metered application.

Before testing the CALC License Profile:

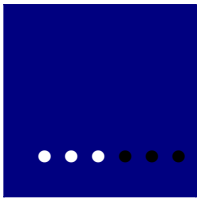
- The `CALC.EXE` file must be launched by a workstation running the local workstation agent (LWA) connected to the server hosting the SSA.
- The SSA must be active for testing.

To test the CALC License Profile:

1. Open `SOFTRACK_CONSOLE.EXE`.
2. Select your server, click the "Profiles" tab and select the CALC profile by double clicking it.
3. Click the **Active Users** shortcut to view Active Users (refer to Figure 4-5)
4. From another Windows-based workstation, run `CALC.EXE`. The SofTrack LWA must be used for your use of CALC to be tracked.
5. Click **Refresh**. You will see your test workstation and user showing as an Active User.



6. Exit CALC and then click **Refresh**. The username is no longer listed.



Chapter 5 Software Metering License Profiles

Overview

In the Chapter 4, you defined a sample License Profile and set some basic options. This chapter describes all License Profile options.

The material in the remainder of this guide assumes that you are familiar with the concepts covered in the last chapter, Chapter 4, "Defining Software Metering License Profile". If you are new to SofTrack, take a few minutes to review the material in the Chapter 4.

In general, the job of the SofTrack *Software Metering* License Profile is to specify any number of the following:

- The executable file or files (EXE and DLL) that SofTrack will meter. SofTrack for Windows meters server and/or workstation-based 16-bit, 32-bit and 64-bit `.EXE` files that are launched from Windows-based workstations.
- To audit only *without* enforcing usage limitations. This ability to *audit* or *passively meter* allows you to simply watch what applications are used and how they are used.
- To specify how many copies of a license can be used concurrently. When the number you specify is exceeded, new usage is blocked until a previously used license is freed.
- To specify which Windows Local and Active Directory Groups to meter. Users outside the memberships of the groups specified are not tracked as part of the specified License Profile. This ability allows you to *divide* licenses between different groups of users.
- Whether or not the License Profile is to be Globally shared among other Windows servers hosting SofTrack Server Agents (SSA).
  When a License Profile is marked Global, its license count is to be shared among as many servers as you require. Per License Profile, this option allows sharing of up to 65,000 licenses.
- How long to hold a license for a user who was queued (for future use when a license becomes available) and had their usage blocked because of insufficient licenses being available. The **Queue Hold Time** specifies how long to exclusively hold a free license for a previously queued user before returning it to the pool of available licenses.
- If you want to discover what applications are being used at each workstation without defining a License Profile for each, see Include all Application Launch Attempts.
- Several more options are described in the following sections.

Accessing a License Profile

1. Open `SOFTRACK_CONSOLE.EXE`.
2. Click your server and then select the "Profiles" tab

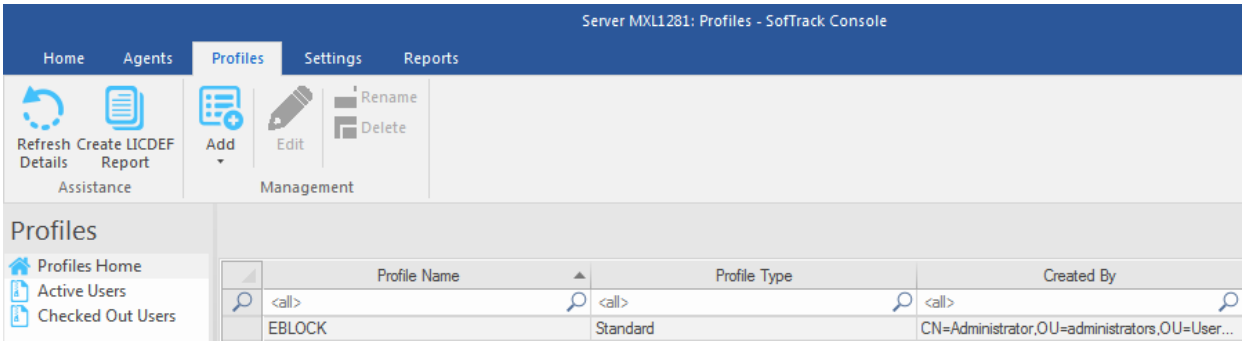


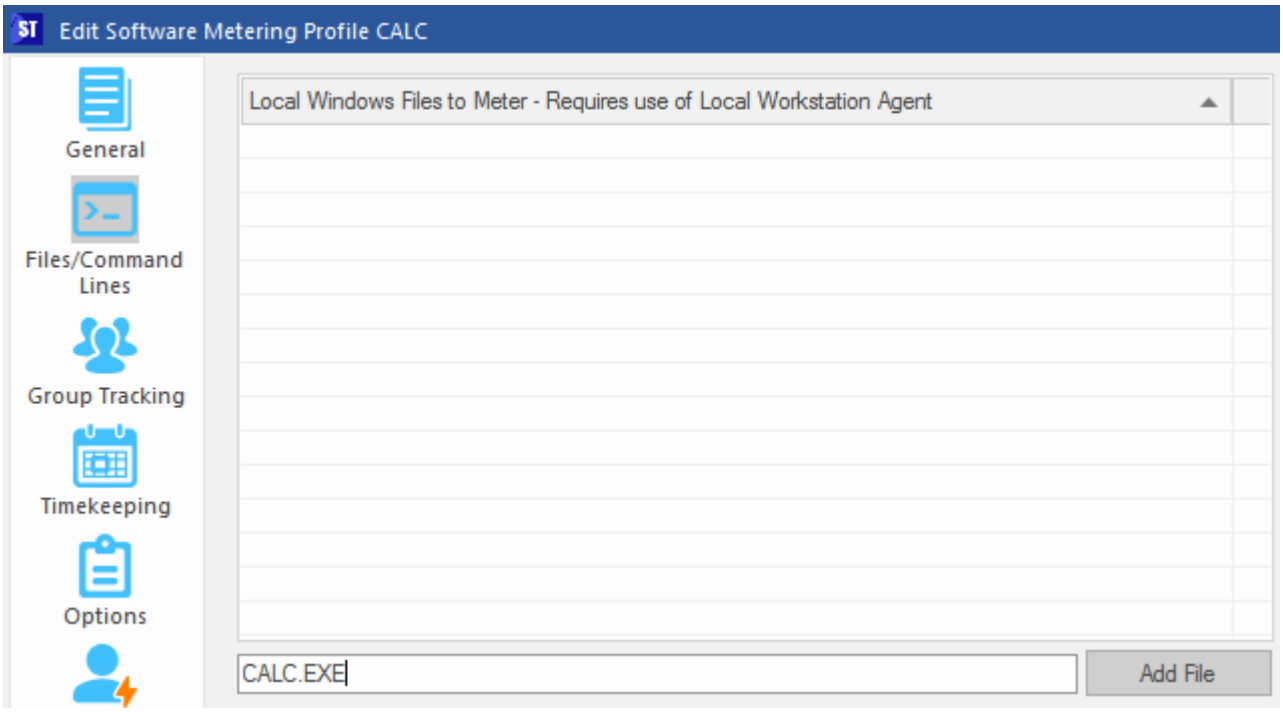
Figure 5-1

3. Select an existing License Profile and double click. When the License Profile appears, it is ready for your edits.

Selecting Files to Meter

SofTrack meters applications by tracking their executable files. For Windows 16bit, 32bit and 64-bit applications, SofTrack only meters files with `.EXE and .DLL` extensions. The file to meter is usually the lead executable file. To select files to meter:

1. Click the **Files/Command Lines** shortcut in the License Profile.



NOTE: You may enter the filename only or you may enter the full path or partial folder path name. By using folder paths as part of the specified filename you can distinctly meter the same filename as required, generally because multiple versions of the same product are being used.

SofTrack provides the ability to meter applications used by the workstation regardless of where the file originated (i.e., local hard disk, SAN/NAS, Linux server running SAMBA, other users' workstations, etc.). Only those workstations using the SofTrack LWA will meter files specified.

The LWA is available for all Windows-based workstations including Terminal Services Client, Citrix Systems' XenApp, VDI, and Remote Desktop Connection. The LWA is further detailed in Chapter 3.

Click here to review the section that details specifying Command Lines to associate with executable file launches.

2 After the filename is entered, click the **Add** button to add that file to the profile. There is no limit on the number of files you can enter.

Understanding Files to Meter: Files/Command Lines section

SofTrack License Profiles are for metering Windows-based 16bit, 32bit and 64bit executable files (`*.EXE and *.DLL`) that exist *anywhere on any device*. Metering MS-DOS (`*.COM`) files is not supported. Files entered here are metered by the SofTrack Local Workstation Metering Agent (LWA), which is software that must be installed on each workstation to be metered. *Only* executable files may be entered into the **Files/Command Lines** section. Additionally, you may specify only the filename and all instances of that filename regardless of path will be tracked. Or

you may enter a full or partial path to track only specific instances of the named file.

The filename to choose is usually always the same name as the file used to launch the application.

The LWA can be used on any Windows-based workstation and supports all Terminal Services Client servers and clients including Citrix and all other terminal service products. Additionally, the LWA supports the Remote Desktop Connection (RDC) introduced by Windows XP. The LWA provides this metering ability by directly interfacing with the Windows operating system. This gives the LWA the power to meter every application the workstation uses. Use the **Files/Command Lines** section to meter all files the workstation uses. This includes but is not limited to files run from Storage Area Networks (SANs), Network Attached Storage (NAS), any network server including Linux servers using SAMBA, memory cards, zip drives, CD-ROMs, DVDs, floppy drives, etc. Optionally, the LWA can be configured to meter only those files run from locally attached devices such as hard drives or CD-ROM drives.

Further details are found in Theory of Operations and Installation of the LWA is discussed in Chapter 3.

Deleting a File from the Metering List

To delete a file from the list of files to meter, highlight the file and click the **Remove** button. The change will only become effective when you click the **OK** button.

What SofTrack Does and Does Not Meter

SofTrack for Windows *does not* meter MS-DOS applications (`.COM` files).

SofTrack for Windows *does* meter the following:

- Windows 16-bit, 32 and 64-bit applications (*.EXE and *.DLL files) that are hosted by a Windows server running the SSA.
- Windows 16-bit, 32 and 64-bit applications launched from local workstations or any other device (requires the use of the SofTrack LWA).
- Windows 16-bit, 32 and 64-bit applications launched by the Terminal Services, Citrix, or Remote Desktop Connection client (requires the use of the SofTrack Local Workstation Agent).

SofTrack's Audit option can be used to monitor all file open, create, delete and copy activity performed at each workstation. Please refer to Chapter 9 for further details.

Metering Multiple Files per Application or File Pooling

With SofTrack you can group several applications together within a single License Profile. This ability allows you to correctly meter licenses for groups of files contained within a single product. When a license agreement for a product group specifies that the applications included may be run on only one workstation at a time, you can combine the applications in one License Profile to ensure that they are used legally.

To define a License Profile for a suite of applications, be sure to specify the files to meter for each individual application within the product.

When you combine multiple applications in the same License Profile, your users can still open more than one application at a time. This is because SofTrack counts all uses of applications defined within a single License Profile as one use. This also allows an individual user to open more than one copy of an application without tying up an additional license. This is consistent with the ordinary ability to allow more than one copy of an application to be in use at once on a single system.

NOTE: The phrase *single system* indicates a particular logon session or desktop. This is particularly important to remember when using SofTrack in a Terminal Services Client or Remote Desktop Connection environment.

Command Line Switch Metering

The Command Line Switch Metering option, found within the **Command Line** section of the **Files/Command License** section, is used to track the amount of active time an application is used. After reviewing this section, please refer to Chapter 11 for additional Bentley specific Command Line Switch details.

Optionally you may specify partial matching command line(s) to monitor for any Local Windows application filename provided.

> **Notice**: Command Line Switch is only available for Windows workstations and terminal servers using Windows XP or later including Windows Vista, 7, 8, 10 (and later versions) as well as 2008 and 2012 and future Windows O/S versions. This option will operate while in Offline Mode.

For a SofTrack License Profile to perform Command Line Switch Metering, any command line(s) specified to track will only be considered for Local Windows filename(s) defined in the same profile to be metered. This means that command line switch metering does not function in the absence of defined filename(s) to track. You must specify Local Windows filename(s) to meter for Command Line Switch Metering to function.

This option, when used, allows you to track based upon the combination of the application filename and the command line switch(es) used.

Example Command Line (this example includes both the full application filename and its command line for a total length of 150 characters):

```
"C:\Program Files (x86)\Bentley\MicroStation V8i
(SELECTseries)\MicroStation\ustation.exe"
-wsLoad_InRoads_SS3=1 -wsINROADS_APP=InRoads^^^Inrsuite.exe
```

As shown above, the command line typically includes the full path of the executable plus its command line switches. At present the SofTrack LWA will use the first 360 characters of the command line. If the command line is longer than 360 characters, know that only the first 360 characters will be inspected by the SofTrack Server Agent for a match.

Special note: In the example above notice at the end of the command line you see

```
^^^Inrsuite.exe
```

this is NOT part of the command line used to launch the application. The "signature" of 3 ^ characters (this character is found on the keyboard, press SHIFT and then the 6 key) indicates that what follows is the process filename that launched the application. This special addition to the command line recorded by SofTrack is provided to assist you in defining a unique command line signature to use when metering select applications such as Bentley®'s InRoads Suite.

If no process is found to have launched the application then the ^^^ signature will not be presented.

"C:\Program Files (x86)\Bentley\WaterGEMS\x64\WaterGEMS.exe' ^^^explorer.exe**!!!**acad=yes|agis=yes|mstn=yes|pipe=5000**!!!**

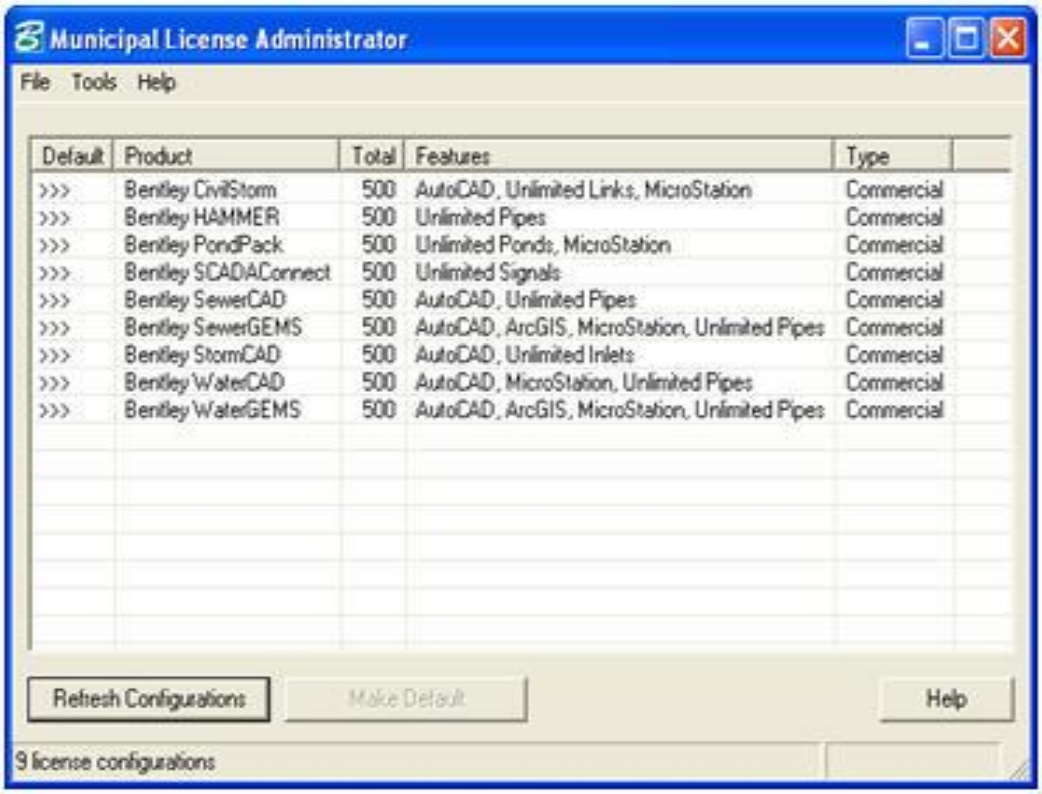
'C

As shown above, the command line includes a new suffix. Notice the "signature" of 3 ! characters (SHIFT and the 1 key) indicates what follows is the "feature string" as used by XM Licensing Of Bentley Haestad Products:

- ✓CivilStorm
- ✓CulvertMaster
- ✓FlowMaster
- ✓HAMMER
- ✓PondPack
- ✓SewerCAD
- ✓SewerGEMS
- ✓StormCAD
- ✓WaterCAD
- ✓WaterGEMS

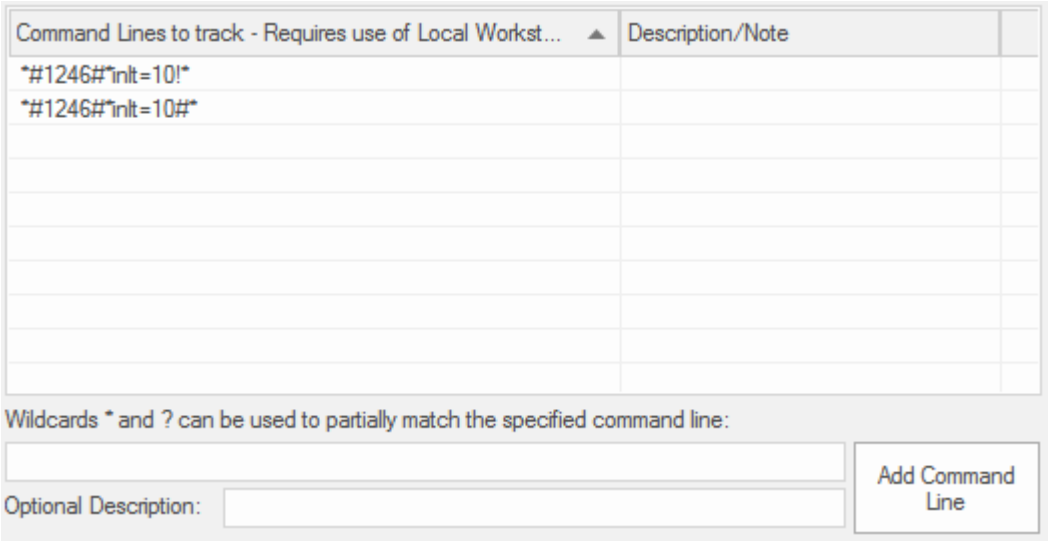
SofTrack's Local Workstation Agent automatically detects when a Bentley Haestad product is being launched and includes its current default feature string so you can use it for accurate metering.

Further notice the "feature string" is ended with 3 additional ! characters. These can be used by your SofTrack license profile to accurately meter Bentley Haestad products based on the "default feature string" set by the Municipal License Administrator tool:



There are two methods to obtain the command line switches to use for metering. The first is by inspecting the application's desktop shortcut link at the workstation. The other method is to use SofTrack's Audit feature to audit application launches and to [review the workstations' audit logs] for any `LAUNCH COMMAND LINE` or `LAUNCH OFFLINE COMMAND LINE` records.

The command line that will be used for comparison typically includes the entire application filename + command line switch(es). Use the asterisk (*) and the question mark (?) symbols to specify to match any number of characters or to match a specific number of characters. You can use the wildcards * and ?, all other characters will be literally interpreted.



There is no requirement that command line switch(es) be defined. However, if you do define them, and the application is run without a matching command line ***it will not be metered*** by the selected profile so it is very important to appropriately select the command lines entered.

As mentioned above, SofTrack only considers the first 360 characters of the command line.

Note that lower case and upper case letters are treated the same, in other words, Command Line Metering is not case sensitive.

For instance, this command line:

```
"C:\Program Files (x86)\Bentley\MicroStation V8i
(SELECTseries)\MicroStation\ustation.exe"
-wsLoad_InRoads_SS3=1 -wsINROADS_APP=InRoads
```

could be tracked by defining the following Command Line Switch in the SofTrack Profile:

*app=inroads

notice there is no trailing * this means the command line must end with “app=inroads”

If there is a possibility that the command line will contain further items, such as in this example:

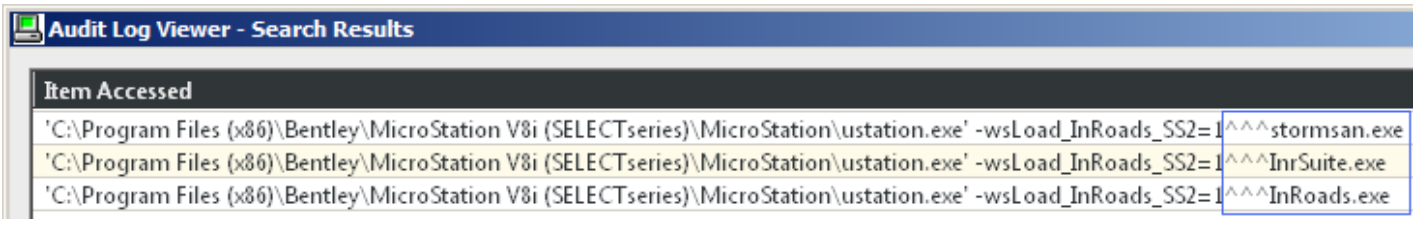
```
"C:\Program Files (x86)\Bentley\MicroStation V8i
(SELECTseries)\MicroStation\ustation.exe"
-wsLoad_InRoads_SS3=1 -wsINROADS_APP=InRoads^^^Inrsuite.exe
```

then use:

app=inroads

When defining a Command Line Switch to meter there is a limit of 116 characters per command line switch entry. The “edit field” used for adding entries is limited so you cannot enter more than 116 characters.

The following image shows SofTrack’s Application Launch audit report. Notice the command lines include the “^^^processname.exe” – each is outlined in a blue box:



By observing the image above you will notice if you enter a command line of

*^^^InrSuite.exe

or

^^^InrSuite.exe

that would be the only command line entry required to meter “ustation.exe” being run via Inrsuite.exe

SofTrack License Profile Configuration

The SofTrack License Profile includes a number of flexible ways to define applications for active and passive metering. Active metering is when the number of licenses allowed is actively enforced with additional usages being blocked. Passive metering is when all usage is tracked and no usage is blocked. Both active and passive metering allow you to define activity levels for administrator alerts, which are discussed below.

Standard Licensing Profile

This option indicates *real-time* concurrent access control (i.e. software metering) achieved via a single SofTrack Server Host.

Calendar 10-minute Licensing Profile

This option indicates *10-minute* concurrent access control such as that used by Bentley Systems SELECT Open Access "Trust License Usage" policy (announced by Bentley in May 2016). This option is a fully discussed in Calendar 10-minute Licensing: Overview.

Calendar Hour Licensing Profile

This option indicates *hourly* concurrent access control such as that used by Bentley Systems SELECT Open Access "Trust License Usage" policy (announced by Bentley in January 2014). This option is a fully discussed in Calendar Hour Licensing: Overview.

Calendar Day Licensing Profile

This option indicates *daily* concurrent access control such as that used by Bentley Systems Enterprise Select License program. This option is a fully discussed in Calendar Day Licensing: Overview.

General Options – Boundary Configurations

As shown in the following Figure 5-2, the **General** Boundary Configuration section several options. Below are descriptions of each option.

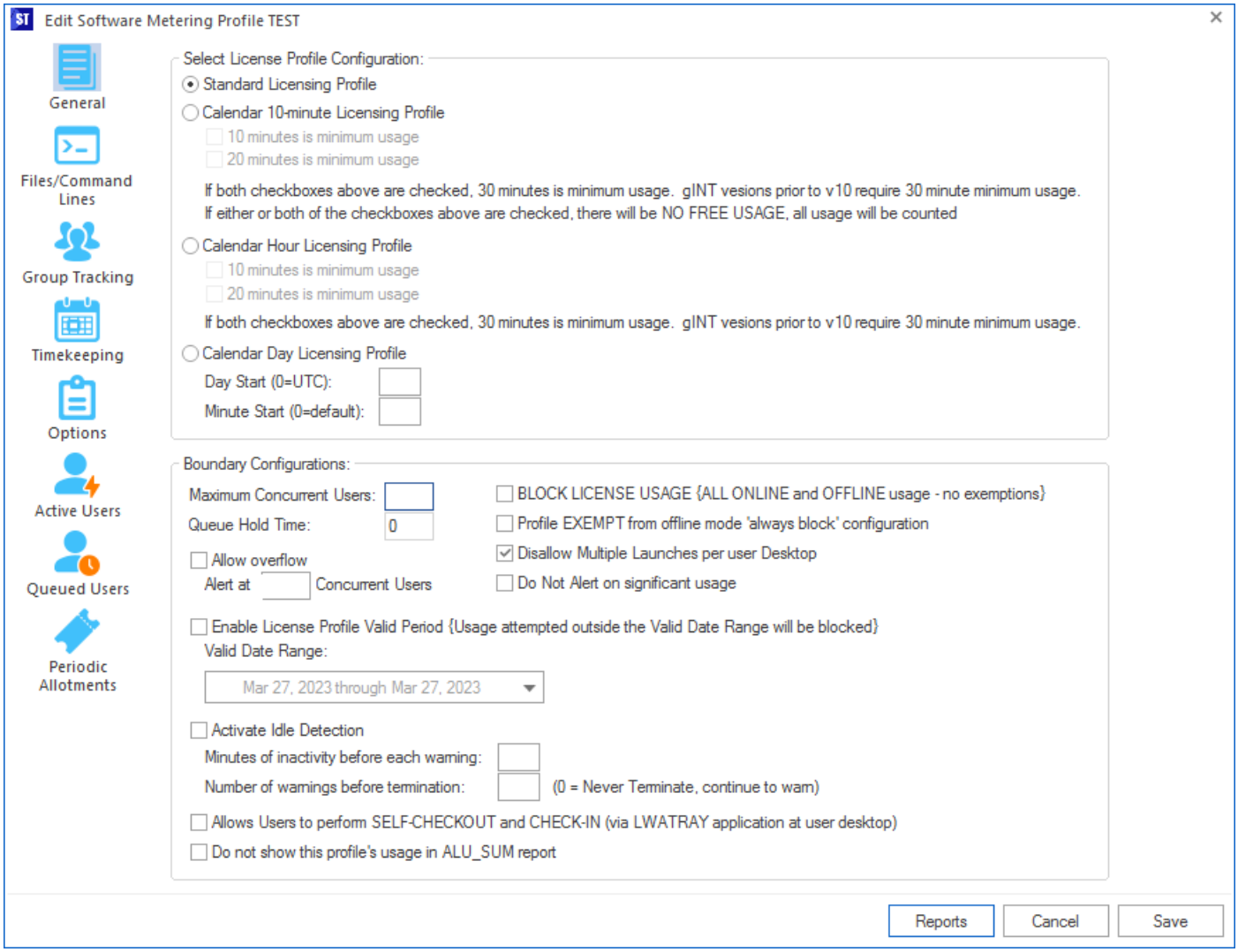


Figure 5-2

Maximum Concurrent Users

Each License Profile includes a **Maximum Concurrent Users** count.

If you want to allow more users than you are licensed (such as allowed by various licensing agreements such as Bentley® Systems Enterprise Subscription License (ELS) you might use a value that is 1 or 2 (or other) above your current desired limit.

If you want to allow an unlimited number of users but be notified when a particular threshold is reached, use the **Allow Overflow** option described below.

The number you specify should be one of the following:

The number of licenses of the product that you are legally entitled to use concurrently

or

If using Global License sharing, the number of licenses you want to share on this particular server

Ordinarily the **Maximum Concurrent Users** count is limited to 3,000

Queue Hold Time

SofTrack contains a number of features that help you ensure that there are always enough licenses available for users who need them. However, there will be times when no license is available. For those times there is the **Queue Hold Time**. By defining a **Queue Hold Time** (value: 1 through 30 minutes), you enable queuing for the selected License Profile. The **Queue Hold Time** sets the amount of time that SofTrack will exclusively hold the newly available license for the queued user. A license becomes available as other users relinquish their use. Once a license becomes available, the queued user is sent a "popup" notification message signalling that the license is now ready for their use. You can customize the message users receive under the "User Messages" section within the "Settings" tab of `SOFTRACK_CONSOLE.EXE`.

Setting the **Queue Hold Time** is optional. The default of 0 indicates that queuing is disabled, and when a user is denied access due to no licenses being available, their use will be rejected or blocked. Setting the **Queue Hold Time** to a value between 1 and 30 minutes enables queuing and will ensure that queued users will be given sufficient time to begin using the requested License Profile before another queued user is notified or before another user is given access to the License Profile controlled application.

The Queue holds up to 8 users simultaneously. If more than 8 users are to be queued those in excess of the first 8 will be blocked instead of being queued.

NOTE: Only eight users can be queued at any one time for any one particular License Profile. The ninth user receives a message that the license is not available, and they will not be queued.

Here is an example of what the user will experience:

1 User Joseph attempts to open a metered application for which there is no license available.

2 The user Joseph will receive a "Request for License <name of License Profile> has been queued." message.

3 At this point, Joseph will not have access to the metered application.

4 Later, when a license becomes available and if the user Joseph is still logged in, he will receive a message stating "License <name of License Profile> is being held until <time where time is the current time plus the number of minutes you specified in the

Queue Hold Time>".

NOTE: The messages the user receives in Steps 2 and 4 can be customized. See Message Customization in Chapter 6

Allow Overflow

When you click on and set **Allow Overflow,** you are instructing SofTrack to allow an unlimited number of users to use the License Profile's file(s). The limit is actually 9,000 users per server (64bit) and 3,000 users per server (32bit). When **Allow Overflow** is set, the **Maximum Concurrent Users** count is ignored for license usage enforcement, but it is still referred to when generating usage alerts as defined under Users to Notify of Significant License Usage.

BLOCK LICENSE USAGE

When you click on and set **BLOCK LICENSE USAGE,** you are instructing SofTrack to completely block use of any files defined within the License Profile. Usage that is Blocked due to this option is recorded as a "rejected" use.

Profile EXEMPT from offline mode 'always block' configuration

This option is used when you are using Offline Mode and need the applications(s) defined by this License Profile to remain usable while the user is working offline.

Disallow Multiple Launches per user Desktop

This option will ensure per user desktop that only *one* instance of any file defined by this License Profile will be in use at any time. For example, if the License Profile defines four different executable files for metering, if any one of those files is in use, no others will be allowed to run, including a second instance of the application first used. We have found this option useful to ensure that certain applications such as in-house database accessing applications are run only once. If that application is run more than once per desktop, it could corrupt the database—hence the value of this option.

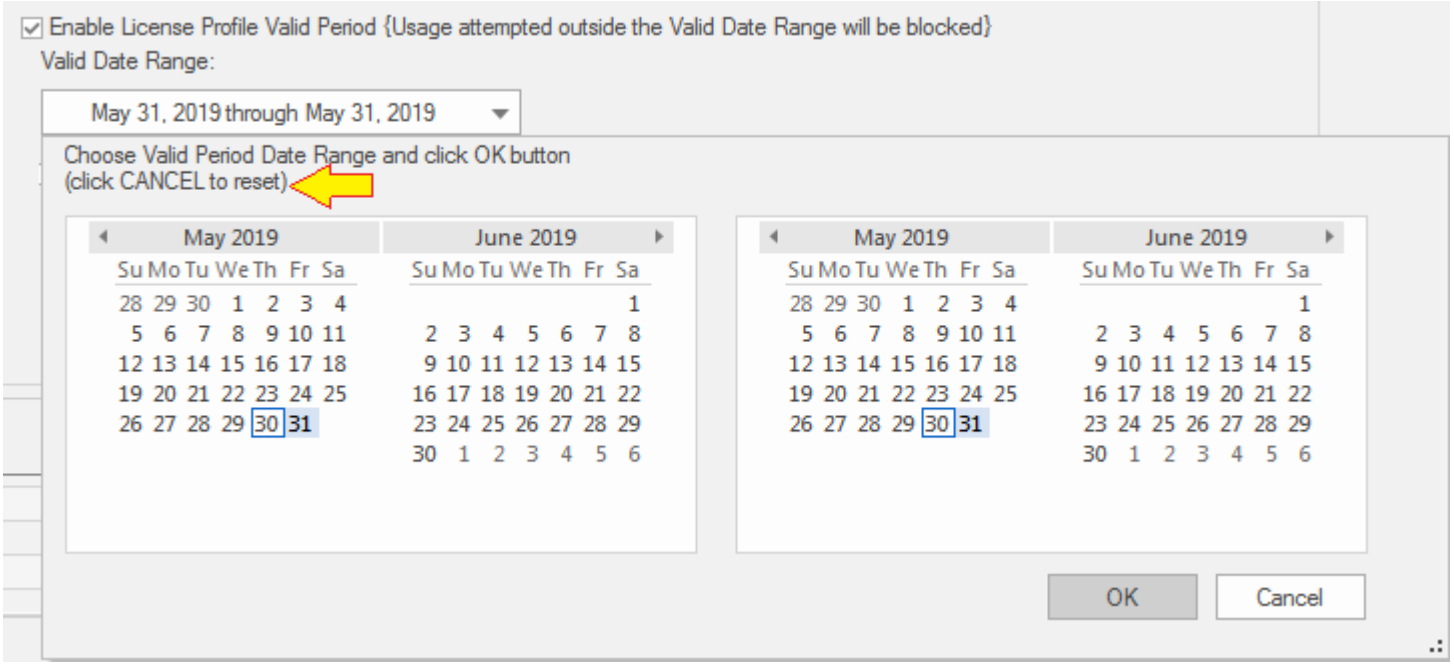
The message received by the workstation can be customized to any text you want, up to 117 characters. The message customization will affect all License Profiles; there is no customization available for a specific License Profile. To customize the message, from "Settings" tab of `SOFTRACK_CONSOLE.EXE`, click the "User Messages" section.

Chapter 6 includes further details regarding message customization.

Do Not Alert on Significant Usage

When you click on and set **Do Not Alert on significant usage,** you are instructing SofTrack to not send any usage alerts that have been defined. The usage alerts are defined under Users to Notify of Significant License Usage.

Enable License Profile Valid Period



When you click **Enable License Profile Valid Period**, you are instructing SofTrack to only allow usage of the current License Profile from the First Day through the end of the day of the Last Day. Any attempts to use this License Profile outside the Valid Period will result in the user receiving a Blocked License Profile message – no queueing will occur.

This option also functions while the LWA is used offline to ensure the License Profile Valid Period is always enforced.

Activate Idle Detection for This License Profile

Once the application is in use, the SofTrack LWA will monitor the application's idle time if that option has been selected. Upon the occurrence of an idle warning period time-out, the LWA displays a popup message at the user's desktop to indicate the idle activity. The message can be customized. The idle warning and idle termination messages received by the workstations can be customized to any text you want, up to 117 characters. The message customization affects all License Profiles. There is no customization available for a specific License Profile. For more, see Message Customization in Chapter 6. After the defined number of idle warnings, the LWA terminates the application.

If the user workstation (or session if using Terminal Services) is locked any application defined for idle detection will continue to be monitored for idle activity. Idle activity is determined by which application is "topmost" on the desktop (i.e. it has current input focus). Please note, when a workstation/session becomes locked the application loses it topmost input focust and the idle timer will begin counting down until the warning and/or termination intervals have occurred.

For each idle warning and idle termination the LWA processes, it will notify the SSA of the action, and the event will be recorded in the `METER.LOG` file. To view the idle warning and termination events, select the **Details of License use Report**.

An application is considered idle if it is not the currently *focused* application. A focused application is the one that is topmost on the desktop and is active. The currently active window will be noted by its highlighted title bar as shown below.

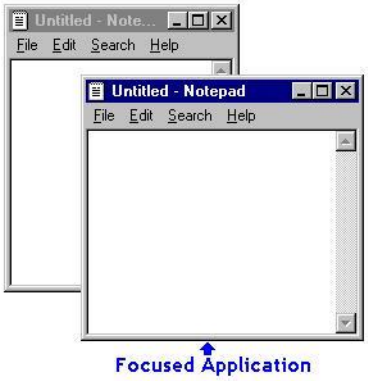


Figure 5-3

All other windows will have diminished or grayed caption bars. The Idle Detection option does not take into account mouse and keyboard actions, because a user may be waiting for a function such as a recalculation to complete or may be reading the screen's contents. Once focus is taken off an application's window (i.e., the window is minimized, another application is focused, etc.), the *idle timer* begins. Once the defined time period has elapsed, a warning is displayed.

Figure 5-4

After the administrator defines the number of warnings, with the possibility of infinite, the user receives a termination notification, and the application is terminated. If the License Profile has been defined to warn only, then the user is continually warned of idle detection, and no application termination occurs.

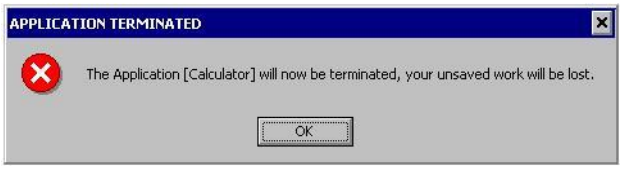


Figure 5-5

In both examples above, the name shown within the square brackets [ ], is the same as the caption bar of the actual application. In this example, **Calculator** was the application's name in its title bar.

As an example: If you have defined one minute as the idle time period, each minute that goes by will incur a new warning. If the number of warnings before termination is set to 5, that means that one minute after the fifth warning, the user will receive a termination notification, and the application will be terminated.

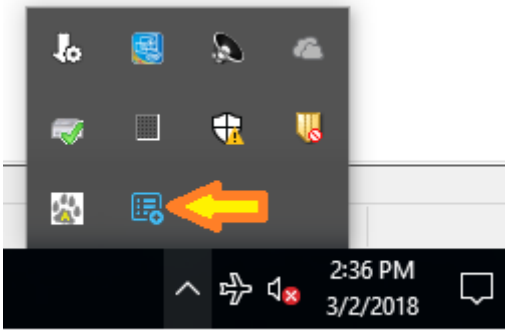
CAUTION: NO DATA WILL BE SAVED! When the application is terminated, it is a forceful termination, and any unsaved data WILL BE LOST.

The idle warning and idle termination messages received by the workstations can be customized to any text you want, up to 117 characters. The message customization will affect all License Profiles; there is no customization available for a specific License Profile. To customize the messages, from the main menu of `SOFTRACK_CONSOLE.EXE`, select the "Settings" tab and then the "User Messages" For further information regarding message customization, see Message Customization in Chapter 6.

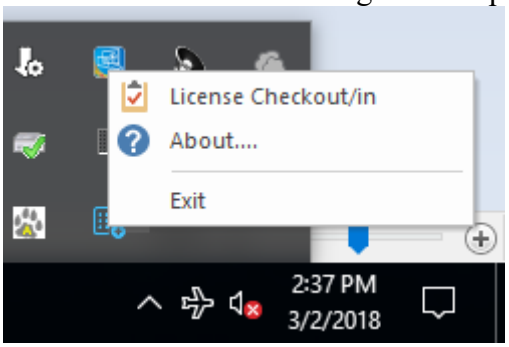
Allow Users to perform SELF CHECK-OUT and CHECK-IN via LWATRAY.EXE

This option as show in Figure 5-2 will enable the user to check out (and check in) via the LWATRAY.EXE application (part of the SofTrack LWA). The SofTrack LWA will automatically start the LWATRAY.EXE application when one or more license profiles are configured to allow user self check-out.

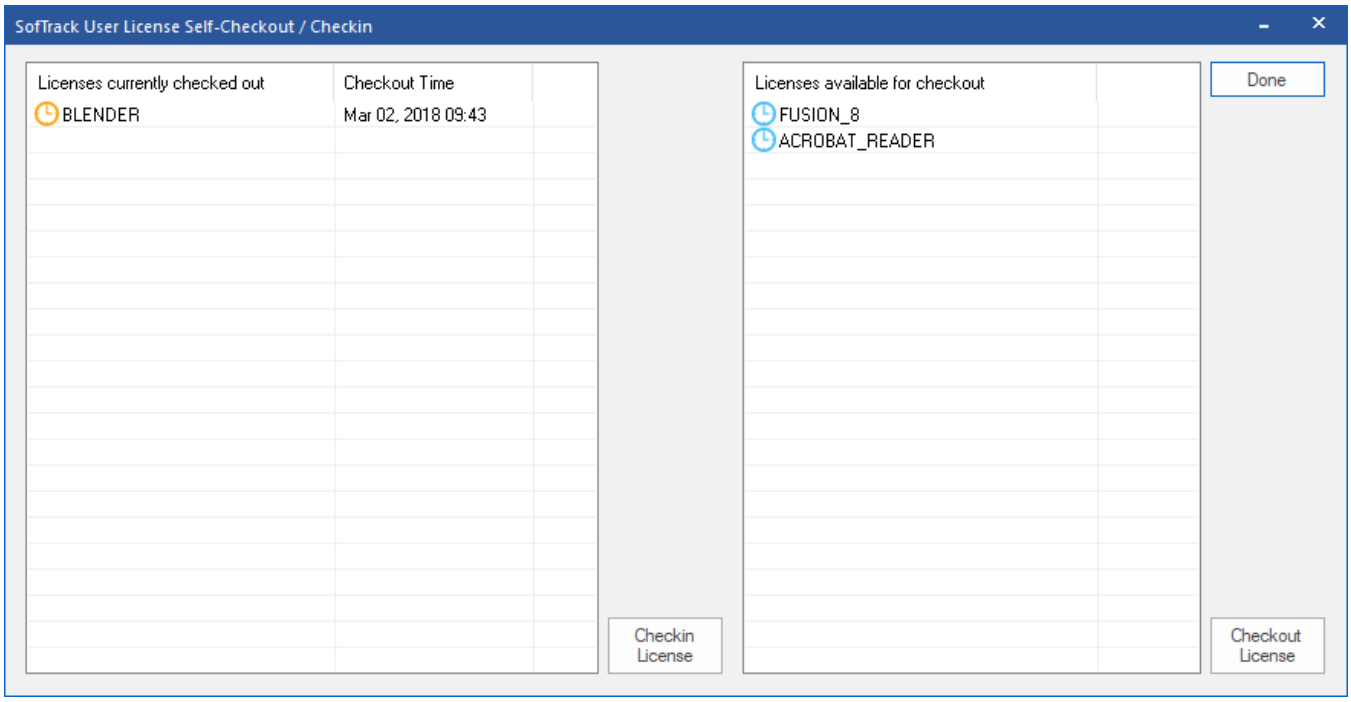
The LWATRAY.EXE will appear in the user's system tray:



Right click the icon and the following menu is presented:



Select License Checkout/in and the following screen appears:



The values in the left side list (Licenses currently checked out) show all licenses currently checked out for the current workstation. This list is obtained directly from the SofTrack Server Agent (SSA). The license profiles shown can include those the user has self-checked out and those checked out by a SofTrack Administrator on behalf of the user at the current workstation.

The values in the right side list (Licenses available for checkout) show all licenses currently available for user self-checkout.

The buttons shown (Checkin License and Checkout License) will send the selected request to the SSA and there will be a delay of at least 3 seconds to enable time for the SSA to process the request – in some cases more time may be required to process the request. Once the delay is complete the list of licenses shown should be updated to represent the current configuration. If the display is not updated as expectedt, click the Done button and then re-open the window.

If the LWATRAY application is unable to connect to the SSA an error will be shown. If the workstation is currently operating offline a different error will be shown. And, if there is any error in communication with the SSA a representative error message will be shown.

Group Tracking: Overview

With SofTrack you can meter and track license use by Local Domain Group membership and by Active Directory Group Membership. When you use SofTrack's Group Tracking option, you can:

- Track and report license usage by Group membership *including any nested Groups*.
- Divide a single application's licenses between different Groups to ensure availability.
- Scope metering by Group, which can be used to represent different departments or organizations.

NOTE: To configure SofTrack to not utilize nested group memberships, configure the Settings Option : Disable Nested Group Scanning for License Profile Group Tracking option

Group Tracking: How It Works

Select a License Profile for editing and click the **Group Tracking** section. By default, the **Groups Tracked** list is empty. This indicates that SofTrack will meter any user or workstation who attempts to use the applications defined. Only group members (which can be users or workstation objects) usage will be metered when you specify one or more Groups in the License Profile's **Groups Tracked** list. For accurate metering results of any one specific application, do not use the same group or its membership in more than one License Profile that is defined for that application.

Users who are not members of the group(s) specified will not be metered unless there is another License Profile for the same application(s) that either has no groups to be tracked or specifies a group to track that includes the user as a member.

SofTrack's Group Tracking does not displace Windows file and directory security.

NOTE: If all License Profiles defined for a specific application include groups to track, it is possible that a user who is not a member of any group that is tracked will be able to use the application without being metered.

SofTrack will first attempt to match a metered application use to a License Profile that includes a matching group to track. If the metered application's user or workstation is not a member of any group to track, and if a License Profile exists that does not contain a group to track it will be used. Thus, if you define License Profiles that include group tracking you might also define a "duplicate" License Profile that does not include groups to track. By doing this you will ensure no user will have their use of a metered application go untracked/uncontrolled.

When the SofTrack Server Agent is processing new connections it, by default, resolves that user's and workstation's group membership "in the background". Typically this is completed in less than 5 seconds. However, if you ever notice group tracking "not working" when a user's workstation first connects to the SofTrack Server Agent please check the following:

1. Does the host machine where the SofTrack Server Agent is running have connectivity and sufficient permissions to reach and read the group membership of all objects involved? That would include the user, workstation and groups tracked. If not, group tracking will not function as expected. Be careful when multiple Active Directory domains are involved that the server hosting the SofTrack Server Agent has sufficient connectivity and permissions.

2. Is the workstation operating in offline mode? If so, offline mode does not support group tracking. Any License Profiles defined that include group tracking will still be used for offline mode but without group tracking awareness.

3. If you just defined group tracking for a License Profile, realize that group tracking will only occur after the next time the affected workstations are rebooted as the SofTrack Server Agent only determines workstation (and user logged on) group memberships when first connecting that occurs when the workstation is restart.

4. If a user logs onto their workstation-only (i.e. local non-Active Directory logon) then group tracking that includes Active Directory group membership will likely not work.

5. If a user or workstation Active Directory object is a direct member in more than 500 groups, group tracking may not work. The 500 limit is arbitrary, please contact support@softwaremetering.com if you require a higher limit.

6. DNS issues between the server hosting the SofTrack Server Agent and the Active Directory domains can result in group tracking not working.

If all the above have been reviewed and found to not be the cause or likely cause of group tracking not working when a user first logons on but does "start working" within a minute or less then there is an option that can be engaged at the server hosting the SofTrack Server Agent.

At that server, run REGEDIT.EXE (included in Windows) and navigate to this registry key:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\SofTrackService

And "right click" on that key and add new DWORD value:

`InlineGroupTrack`

And set its value to 1

The value name must precisely match the text above, you might cut and paste that text.

Once the value is set, the SofTrack Server Agent must be stopped and restarted as this setting will only have effect if it is defined at the time the SofTrack Server Agent starts.

The reason this value is not the "default" is because of the possible issues listed above and if any occur can cause delays *potentially lasting several minutes* at each workstation when

users first logon to their workstations.

NOTE: To configure SofTrack to not utilize nested group memberships, configure the Settings Option : Disable Nested Group Scanning for License Profile Group Tracking option

Group Tracking: How to test

When you define a SofTrack License Profile that includes one or more groups to track here is how to test:

Prior to test:

(1) Define your Active Directory Group or Groups to track (can be of any type: Domain, Universal, Local, Security, Distribution and so on)

(2) Add members to your Group (users and/or workstations)

(3) Add the Group or Groups to track to the SofTrack License Profile (and if not previously defined, set up the particulars of the profile such as file(s) to track and so on)

(4) Once saved, the SofTrack Server Agent will read in the details, this can take up to 2 minutes

Testing:

Once the SofTrack License Profile is updated with the Group or Groups to Track and members have been added, to test:

(A) Reboot the user workstation (presuming the SofTrack Local Workstation has previously been installed)

(B) Logon and use the application defined by the SofTrack License Profile

(C) If your user logon account and/or workstation account is a member of any defined group your use should now appear as an active user

IMPORTANT:

Any time you change group membership, any affected user or workstation
will not be properly recognized
by any SofTrack License Profile that is configured with Group Tracking that includes any such group whose membership has changed
until the next time
the user's workstation (where either or both is a group member) is rebooted.

Alternatively, if testing, you can instead stop and restart the SofTrack Local Workstation Agent to achieve the same result as rebooting the workstation.

BACKGROUND:

The SofTrack Server Agent only detects group membership of a connected user and workstation at the time it is first connected to the SofTrack Server Agent - this includes after a workstation reboot or manual stop/restart of the SofTrack Local Agent service.

Thus, any changes in group membership that affect that user and/or workstation will not be properly recognized for purposes of Group Tracking until the next time the workstation is rebooted.

ADDITIONAL:

Please be sure to review the "Settings" tab in the SofTrack Console (under the sub-tab labeled *Settings Home* section) for any alerts - you can refresh the view of alerts by clicking the **Reload ALERTS** button.

If you find any **STAD0:Failed Bind** type messages this generally indicates one of the following problems has occurred:

(i) The Groups defined to be tracked in are in a domain that the SofTrack Server Agent's "logon account" does not sufficient read permissions and/or network connectivity

(ii) The SofTrack Server Agent "logon account" (default is "Local System") does not have sufficient permissions to read any group's membership

(iii) The User (or Workstation) that is logged in that is using the SofTrack Local Workstation Agent belongs to a domain that the SofTrack Server Agent is not sufficiently credentialed to read or connect to.

And if any of these problems occur and **STAD0:Failed Bind** messages are present, it is likely Group Tracking will be not function as configured until resolved.

A recommended solution is to open "services.msc" (start / run / services.msc) and configure the SofTrack Service, under the "Log On" tab to use a Domain Administrator account instead of the default "Local System" account. And, if multiple peer-level domains are present you may need to configure one-way or two-way "domain trusts".

Example: Only Allow Group Members Access to an Application

The example here will show you how to use Group Tracking to allow only group members access to an application and to deny access to all non-group members:

1. Create an Active Directory Group that includes only those users you want to allow application access.
2. Create two License Profiles. The first profile will include the Group you established in Step 1 above. The second profile will be for all other users, i.e., non-members. Both profiles should define the same filename(s) to meter.
3. In the first profile, enter the number of licenses you own in the **Maximum Concurrent Users** field. Next, click the **Groups Tracked** tab. Click **Get Available Groups** or Click **Choose Groups by Location** (meaning Active Directory location) and select the Group(s) to track.
4. In the second profile, after you add the appropriate filename(s), click Block License.
5. All affected users and workstations will be recognized the next time the workstation for each is

rebooted. The reboot is required because the SofTrack Server Agent only determines group membership when the SofTrack Local Workstation Agent is first started. That is all you need to do. Now all group members will have access, and non-members will be denied access.

Example: VIP Access

VIP Tracking is simply a way of using SofTrack's Group Tracking feature to reserve a particular number of licenses for *specific users*. Senior executives might, for example, want to always be able to access the spreadsheet program that tracks budget information.

1. To ensure that an application is always available to specific users, follow the example below:
   a. When you set up the spreadsheet program for metering, create a special **License Profile** for your senior executives. Give it a unique name, such as *Excel_VIP*.
   b. Select the **files** and **path** (if required) to meter for the application.
   c. Select the **Group or Groups** that you want to include in the VIP group in the **License Profile Groups Tracked** box.
   d. Set the **Maximum Concurrent Users** count for the first license to a number equal to the number of VIP users. For example, if the groups specified in Group Tracking include a total of five users, set the Maximum Concurrent Users count to 5.
2. You can then create a second License Profile, such as *Excel_all*, for all the other groups on your network.
   a. Select the same files to meter as you selected in the License Program for the VIP group.
   b. In the **Group Tracking** box, select all the Groups in the selected server's Domain except those you specified in the License Profile for VIP users. You may enter no groups.
   c. Set the **Maximum Concurrent Users** count to a number equal to the total number of licenses you own minus the number you set aside for VIP users.

When you set up License Profiles as described in the previous procedure, your *VIP* users (as indicated by their group membership) can freely access Excel at any time, and their usage will be tracked separately.

If you want to make Excel freely available to your VIP users but do not want or need to track their usage, simply create only one License Profile that contains all user groups except those in the VIP group. Once you create a License Profile for an application, SofTrack will not meter or track users not included in a License Profile tracked group. To keep license usage within legal limits, deduct the number of VIP users from the **Maximum Concurrent Users** count when you define the License Profile for the rest of your users. You may also define VIP users in the **Users to Exclude from Metering** list.

NOTE: You can set aside more than one group of VIP users for an application. Simply set up additional License Profiles.

Timekeeping

Activate Timekeeping Code Prompt for This License Profile

The Timekeeping option, found within the **Timekeeping** section, is used to track the amount of active time an application instance is used. Each time the application is run a new Timekeeping response will be required and will be uniquely tracked. Many customers routinely use SofTrack's Timekeeping feature to assist in billing clients or internal project record keeping.

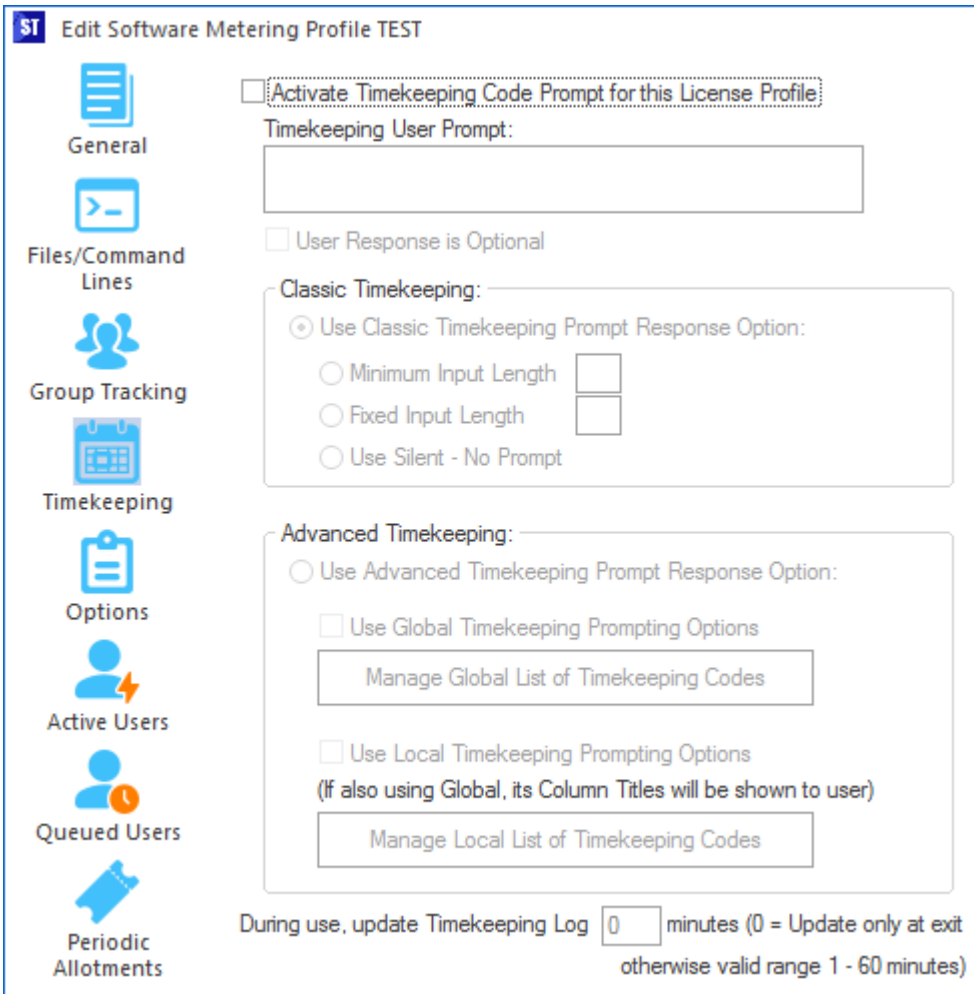
With the Classic Timekeeping option you can optionally require the user to enter a code that will be recorded that helps identify the application's usage with a particular activity such as billing application usage to a particular client or department.

Notice: Classic Timekeeping is available for all versions of Windows however, does not operate while in Offline Mode.

With the Advanced Timekeeping option you specify a pre-defined list of codes the user can select from.

Notice: Advanced Timekeeping is only available for Windows workstations and terminal servers using Windows Vista or later including Windows 7, 8, 10 (and later versions) as well as 2008 and 2012 and future Windows O/S versions.

Further, Advanced Timekeeping requires use the TCP/IP communication protocol between the SofTrack LWA and SofTrack Server Agent. The SofTrack LWA does include the alternate ability to use Named Pipes instead of TCP/IP but is not supported for Advanced Timekeeping.



In addition to normal metering usage being tracked, the Classic Timekeeping option creates a separate log file for its specific entries. This log file is named `TIMEKEEP.CSV` and is stored in the directory you defined for the `METER.LOG` file. (See Chapter 7 Timekeeping Reporting)

The report is in comma-separated values (`CSV`) format for easy importing to your favorite spreadsheet or database.

When using the Advanced Timekeeping option, you must pick to use **Global Prompt Options** and/or **Local Prompt Options**. User Timekeeping selections are stored in log files, also stored in CSV format, the subfolder named `TKAUDIT` and is found in the folder defined for the `METER.LOG` file.

Timekeeping reports are accessed by clicking the **Reports** tab of `SOFTRACK_CONSOLE.EXE`.

Options for Classic Timekeeping:

- **Response is Optional**

  This option signals to the LWA whether or not the user is forced to enter a response before allowing the application to be used. If not checked, and therefore optional, the user can click **Cancel** on the Timekeeping prompt and still use the application with no

Timekeeping data being recorded.

Note that regular metering data will always be recorded.

- **Minimum Input Length**
  This option signals to the LWA the minimum response length in characters the user must provide before allowing the application to be used. The maximum value that can be used is 50 (characters).

- **Fixed Input Length**
  This option signals to the LWA the exact response length in characters the user must provide before allowing the application to be used. The maximum value that can be used is 50 (characters).

- **Silent - No Prompt**
  This option signals the LWA not to prompt the user at all but to simply provide timekeeping data.

- **Timekeeping Prompt**
  Here you specify the prompt the user will receive when running an application tracked by Timekeeping. The prompt can be up to 110 characters in length.

  The following figure shows an example Timekeeping prompt seen during use:

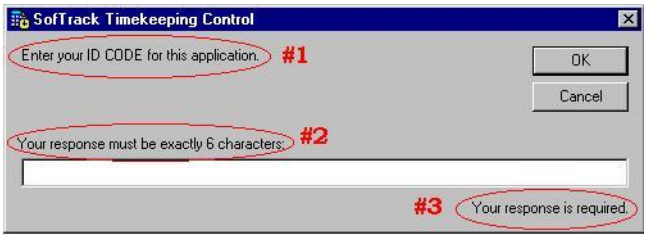


Figure 5-6

There are three areas of this prompt that are affected by the choices you make when defining the timekeeping option:

- The **first** is the Timekeeping Prompt. The text you enter may be up to 110 characters in length.
- The **second** is the length of the response that you want the user to enter. In the License Profile, you may select a fixed length (as shown in Figure 5-3) or a minimum length. The maximum response allowed is 50 characters.
- The **third** is whether a response is required before allowing the application to launch. The user's response is *not a password* but, rather, a code to associate with the particular use of the selected application. In Figure 5-3, a response *is required,* which means if the user clicks **Cancel,** the application will be dismissed and not allowed to

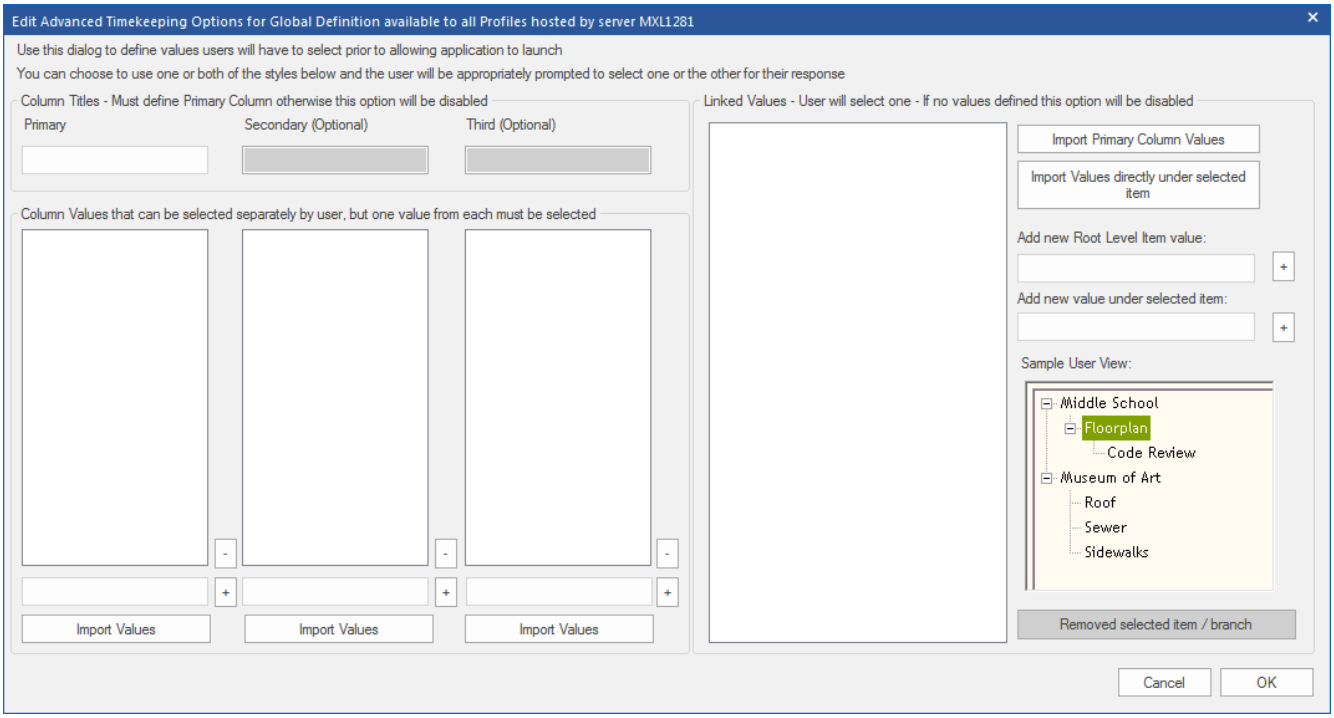
be run. The prompt can be configured to *optionally require* a response. In this case, if the user clicks **Cancel,** no timekeeping data will be recorded. In any case the `METER.LOG` will contain a record of the application's use in addition to any timekeeping data logged. By clicking **Cancel,** the user is not "turning off" metering, just timekeeping.

If, in the License Profile definition, you have selected the **Silent - No Prompt** option, the user will not receive a timekeeping prompt at all. In this case a timekeeping record will always be logged, and the user's response will be defined as: ***SILENT***.

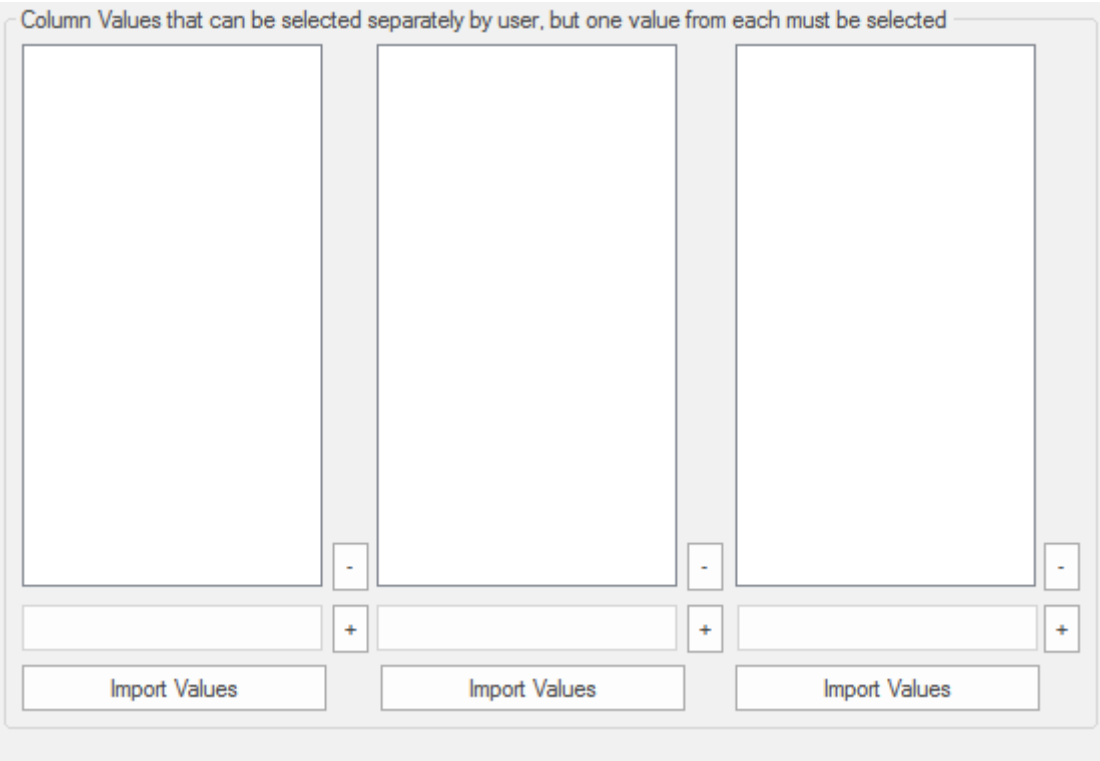
Options for Advanced Timekeeping:

For an overview, please refer the Advanced Timekeeping section in Chapter 3.

- **Use Global Timekeeping Prompt Options**
  To define, click the checkbox and then select the **Manage Global List of Timekeeping Options** button. The definition template presented is available to all SofTrack License Profiles.



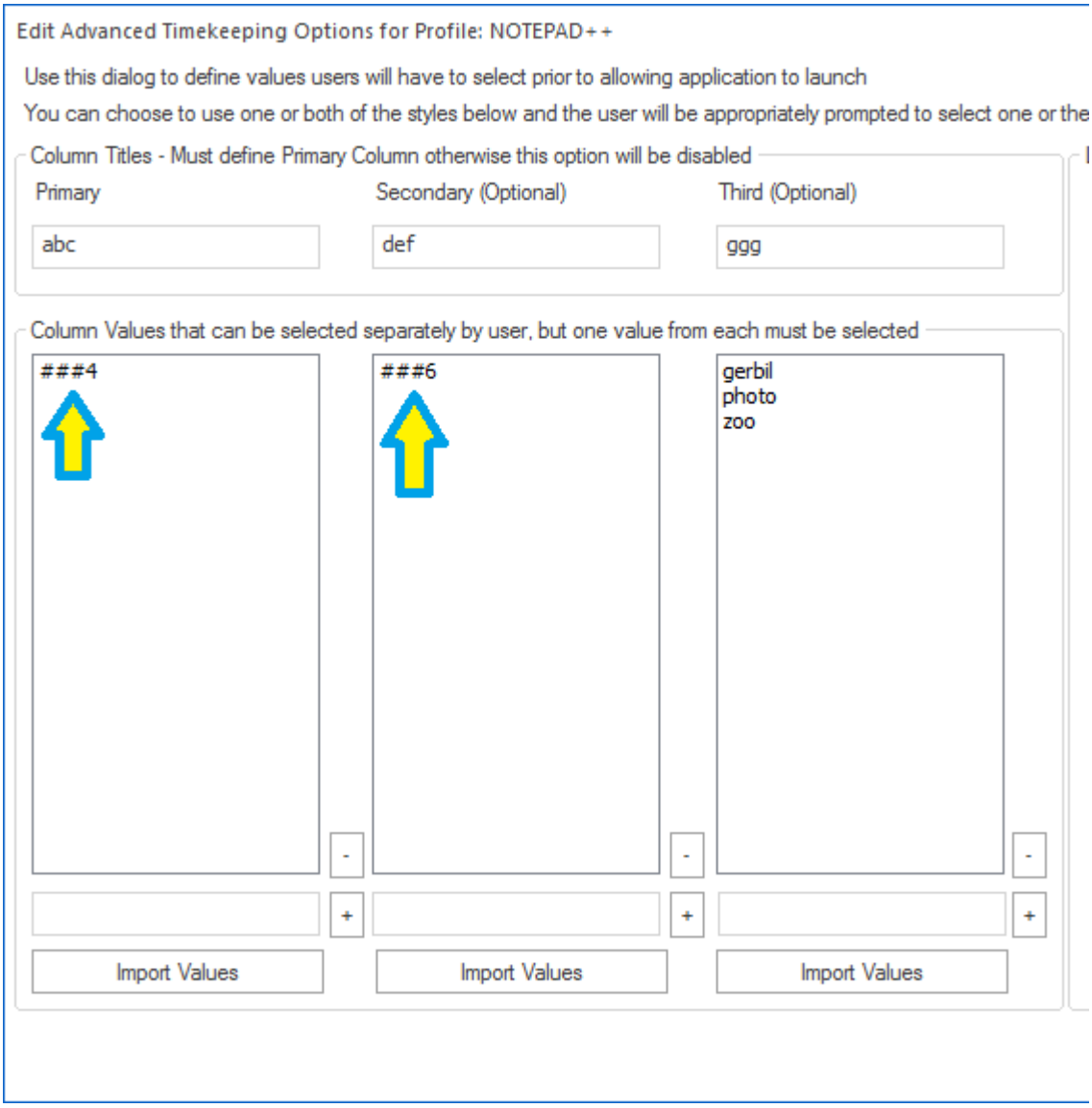
This screen allows you to define two different methods for the user to provide their Timekeeping input. The first:



Allows you to provide selection choices in a columnar view where the user will be required to select one value from each column provided. You may use one, two or all three columns. Notice the **Import Values** button. This allows you to import your pre-defined values rather than manually entering each.

Across the top notice the Column Titles section, here you provide the name of each column of data – this is meant to further assist the user in determining which value to select from each column presented.

Additionally, you can require the user to manually input a value up to a pre-determined length:



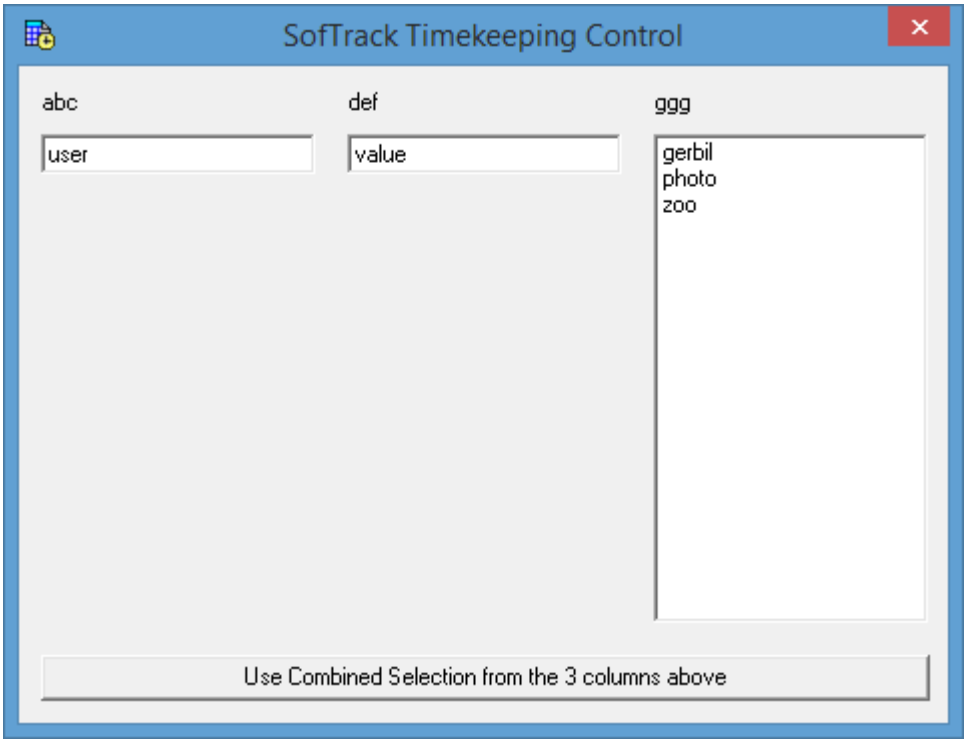
Notice in the Primary and Secondary columns above, the first and only value beings with:

###

and then is followed by a number. The number may be from 1 – 32. If no number is provided, or if a number is provided outside the range of 1-32, then a default value of 32 is used.

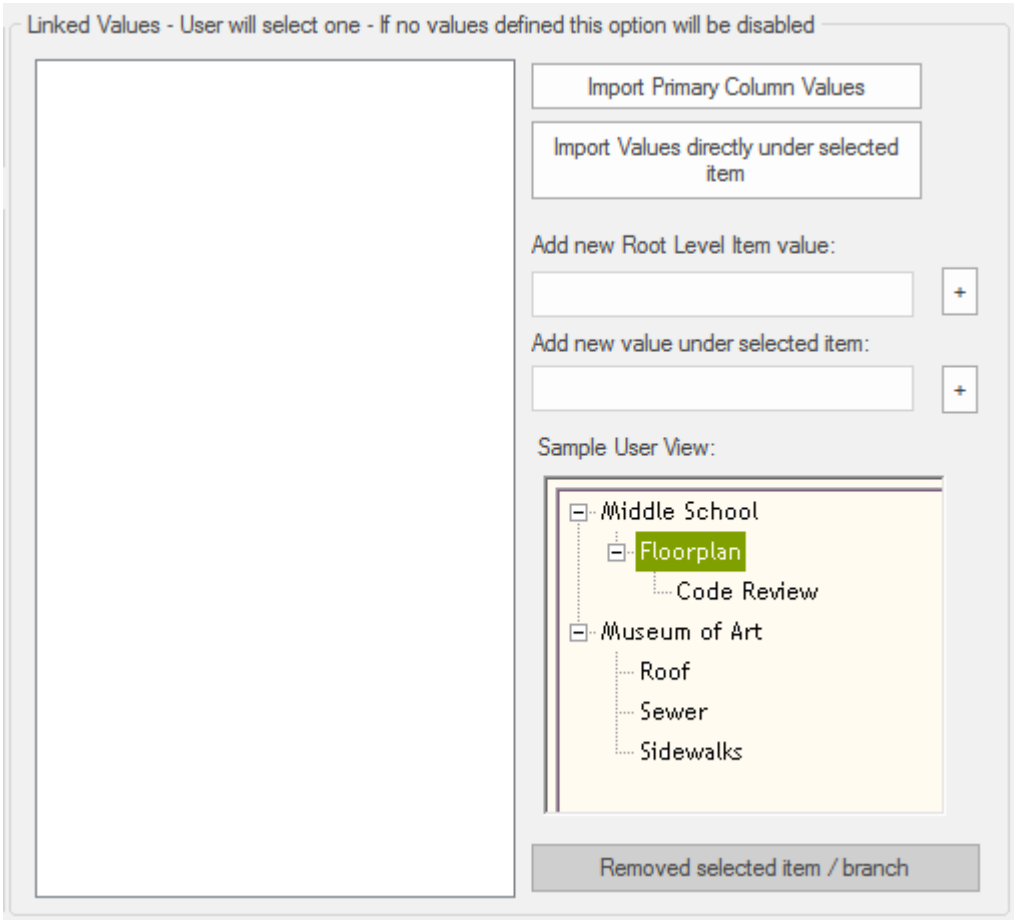
A column can either be *manual entry or list of pre-determined values*, it **cannot** be both.

Using the above example values, the user will be presented with the following prompt when accessing the application(s) defined by this License Profile:



Notice the first 2 columns only show the column title and then an edit field. The third column remains with pre-defined values. You can define for any combination of manual entry and pre-determined values. This ability is not available when using the second method shown below.

The second method:



Allows you to define Timekeeping user selections in a "tree" view where the user must select a "leaf" node from the list defined. Notice the **Import Primary Column Values** and **Import Values directly under selected item** buttons.

You may combine the first method and the second method and the user will be required to select one "combination" value from either the columnar view or the tree view.

- **Use Local Timekeeping Prompt Options**
  This option is identical to the Use Global Timekeeping Prompt Options except values defined within are only for the selected license profile.

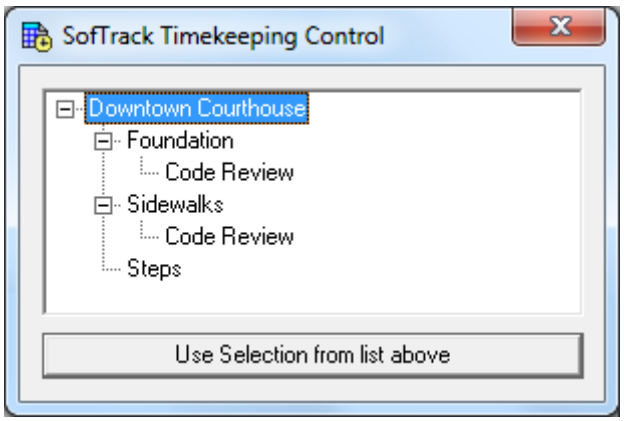
  If you combine Global and Local Timekeeping Prompt Options, the Global column title values (if provided) will be superior to the Local title values (if provided). Otherwise, datasets will be combined between the Global and Local Prompt Options.

- **During use, update Timekeeping Log every [nn] minutes (range: 1-60; 0=update only at exit of usage).**
  This option is available to both Classic and Advanced Timekeeping options and indicates how often to record the then current Timekeeping data. Reasons you would not set this value to zero include:
  - Users who do not want Timekeeping data to be recorded might reboot their

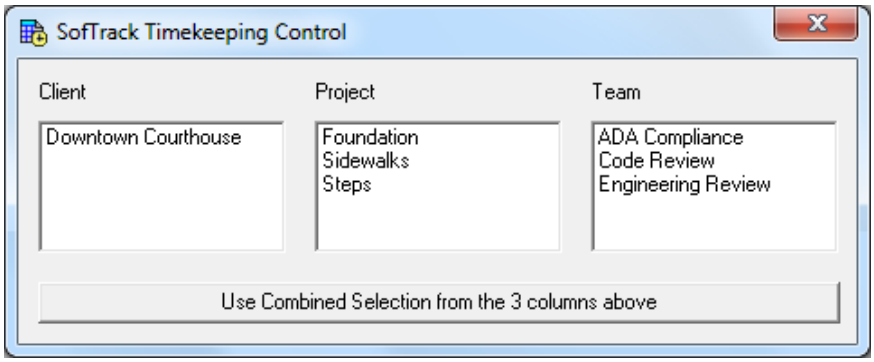
workstation or otherwise log off before properly exiting the application's use.

- If a user's workstation locks up or stops responding, no Timekeeping data will be recorded if this option is set to zero.
- If you require a very accurate detailing of how the application was used, do not set the option to zero.

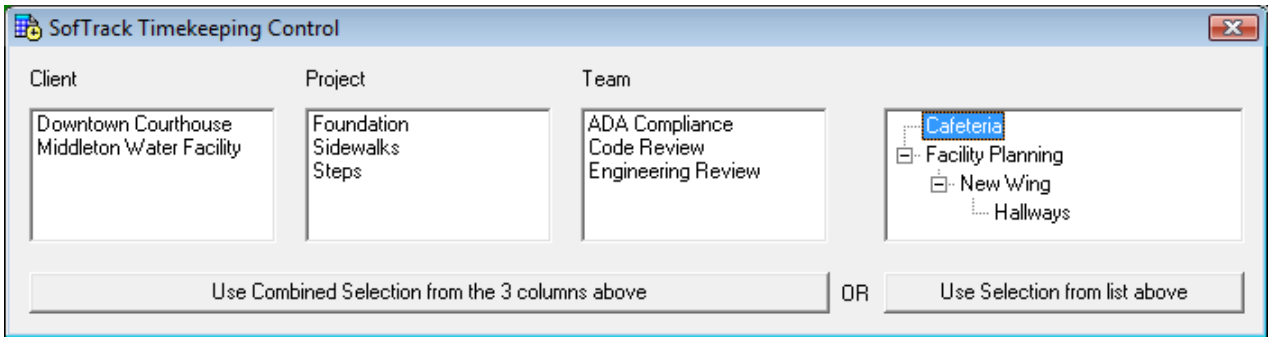
- **What will users see?** Depending on options selected, one of the following formats:



or



or



- **Reporting for the Timekeeper option**
  You can access the Timekeeping reports from the **Reports** tab on `SOFTRACK_CONSOLE.EXE`'s main screen. Additional reporting information is discussed in Chapter 7 Timekeeping Reporting.

Options

There are several additional options for each License Profile:

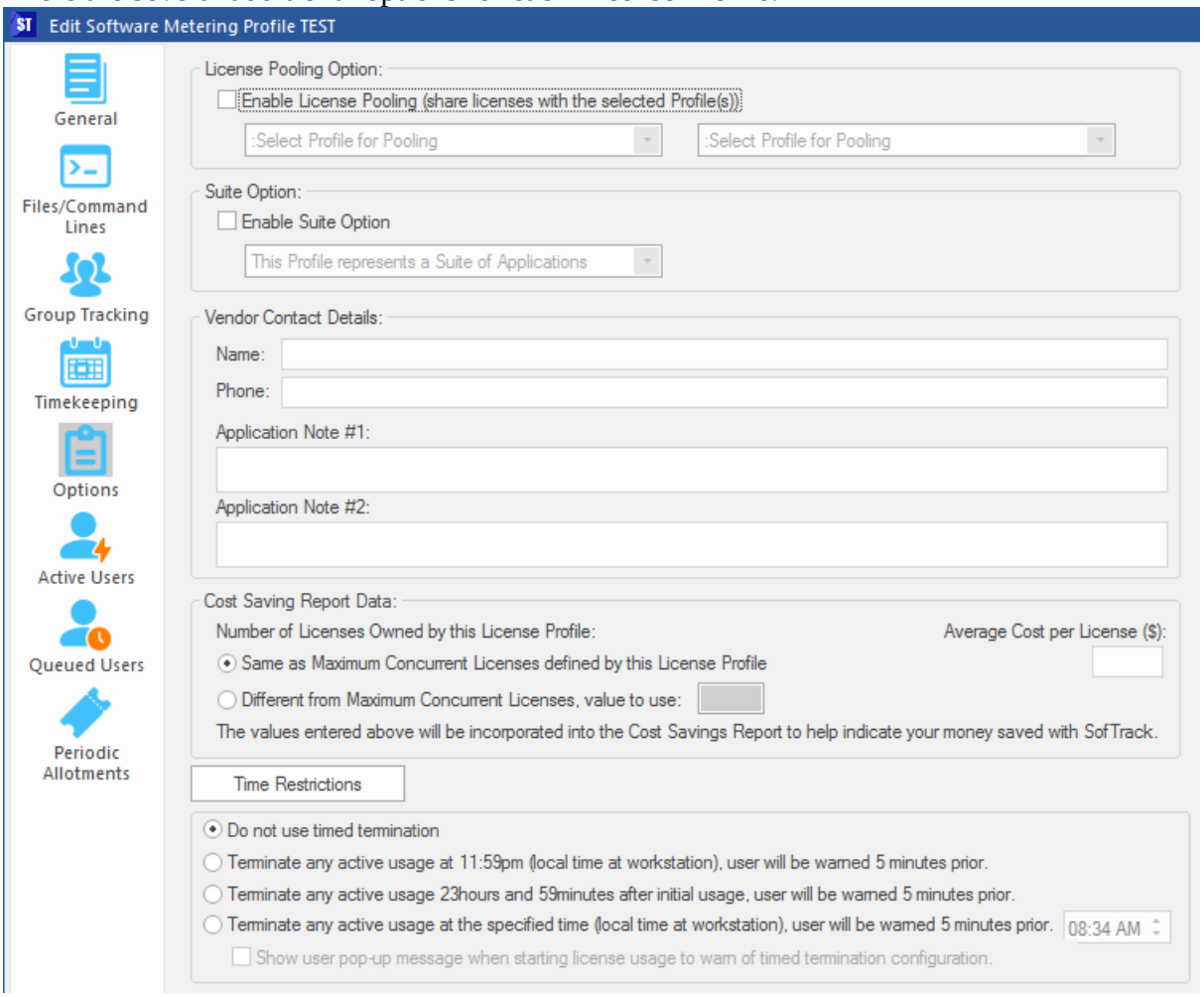


Figure 5-7

License Pooling

With SofTrack you have the ability to share licenses between two or three License Profiles. To configure the License Profile for license pooling, click the **Options** section tab, and you will see the option as shown in the figure above

Click the checkbox "Enable License Pooling (share licenses with the selected Profile)". And then use the drop down list to select the License Profile to pool licenses. You can choose to pool licenses between two or three license profiles. When saved, the selected License Profile(s) (to share / pool licenses with) will automatically be configured for License Pooling with the recently configured License Profile. The same is true if disabling License Pooling, once saved, the previously configured License Pooling partner License Profile(s) will also have its License Pooling option disabled.

When engaged, pooling licenses will share (and set) the "*Maximum Concurrent Users*" value. For instance, if one License Profile has 10 as its *Maximum Concurrent Users*

value and the other License Profile has 15 as its *Maximum Concurrent Users* value, a total of 25 licenses will be available to be used concurrently.

Each License Profile will retain its independence in every respect including reporting, only the value of *Maximum Concurrent Users* will be affected.

When one License Profile has zero available licenses and a user opens an application that is defined to be metered, SofTrack will detect the license pooling option and if a license is available in the configured License Profile(s) (to share / pool licenses with) SofTrack will automatically move one license. The *Maximum Concurrent Users* value will be decreased by one from the donating License Profile and increased by one in the receiving License Profile. This ensures the maximum combined used between the two (or three) License Profiles never exceeds 25 (example value) and automatically moves licenses where needed. The *Maximum Concurrent Users* value will, over time, change in the two (or three) License Profiles, for instance, one may show 4 licenses and the other 21 depending on the level of usage of each License Profile.

If no licenses are available, the user will be blocked or queued as defined. And, if queued, when a license becomes available in either License Profile it will be moved to the License Profile containing the queued user(s) and the user(s) will be notified that a license is available. The queue notification process can take up to 60 seconds to notify the queued user that a license is available.

If either License Profile is configured to "Block License" its usage will still be blocked, however, if its Maximum Concurrent Users value is greater than zero, its licenses will be moved to the configured License Profile (to share / pool licenses with) as needed (even though its is set to Block usage, its licenses remain available to be moved as needed.)

The type of License Profile does not matter (Standard, Calender Hour, Calendar Day, Calender 10-minute), however, there is one exception, each License Profile configured for License Pooling must define at least one file to be metered. If no files are defined to be metered then that License Profile's licenses will not be shared.

Suite Metering

With SofTrack you can also meter product suites. This **Suite** option can be used for any suite of applications or for standalone licenses.

For example, if you have 10 copies of a word processing application and 30 copies of an office suite, and you want to define two (2) License Profiles: one standalone for the word processing application and one for the office suite (which includes the word processing application), the **Suite** option allocates the **StandAlone** licenses before the **Suite** licenses. Thus, if a user were to begin use of the standalone word processing application, and then while still using the word processing application begins using the spreadsheet application from the office suite, the use of the **StandAlone** license would be relinquished as the user is automatically transferred to the **Suite** license.

Once a user has been automatically switched from a **StandAlone** license to the **Suite** license, he or she will not be downgraded to a **StandAlone** license at any time. Only

upon releasing the **Suite** license will the user be eligible to use the **StandAlone** license again.

Defining Suite Metering

You will be defining at least 2 License Profiles—one for the suite of applications and one for each standalone application.

1. Create a new License Profile.
2. Select the **Option** section.
3. Click on the **Enable Suite Option** check box.
4. Select what sort of suite you are defining:
   a. If defining a single application, (i.e., a **StandAlone** License), select the first option and in the dropdown list, choose the License Profile that provides the matching suite. If you have not yet defined a License Profile that represents the **Suite,** you can select this later.
   b. If defining the **Suite** of applications, i.e., the License Profile that contains all the suite's application files, select the second option.
5. Click the **Files/Command Lines** section and enter the appropriate file(s). In the StandAlone License Profile you will likely have a single executable. In the Suite License Profile, you will have at a bare minimum the exact same file(s) defined in the StandAlone License Profile(s).

Vendor Contact Information

This section has two fields, one for the vendor name and one for the vendor phone number. These fields are free form, and you can enter any text you require. The vendor information you define will appear in the License Profiles Definition Report.

Application Notes

The **Application Note 1** and **Application Note 2** fields are free form, giving you the ability to enter up to 120 characters of data you define. The notes you define will appear in the License Profiles Definition Report.

Cost Savings Report Data

The **Costs** section where you can optionally enter data to be used when generating the Cost Savings Report. The default screen shows the **Number of Licenses Owned** as being equal to the number of **Maximum Concurrent Users**. If these numbers differ, click the **Different from Maximum Concurrent Users** radio button and enter the appropriate number in the adjacent field. Next, enter the application's cost per license.

Time Restrictions

With SofTrack you have the power to restrict when someone can *begin* to use an application. Within the License Profile, click the **Options** section, and you will see a button labeled **Time Restrictions**.

Click this button and you will be presented with the following screen.

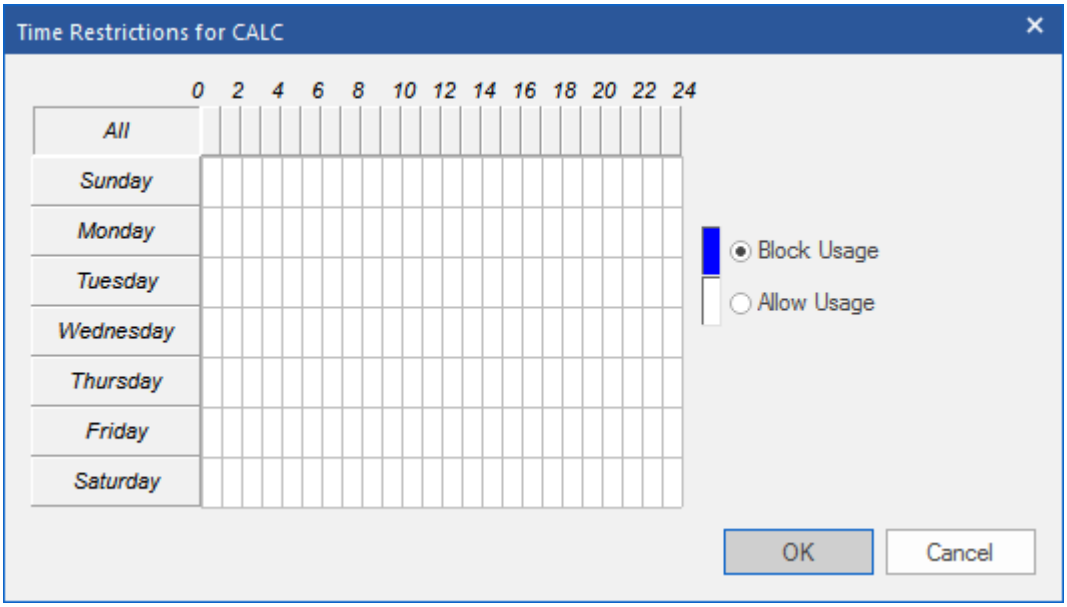


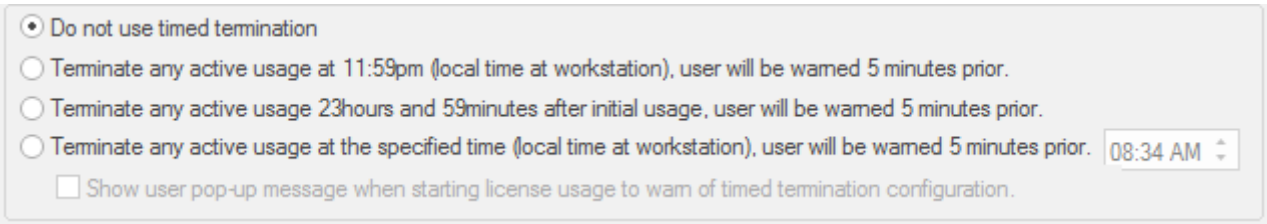
Figure 5-8

You will notice that the each hour of the week is represented within the grid. Initially the grid is empty; that is, there are no restrictions. Click the appropriate grid box for each hour in which you want to block usage for any file defined in the License Profile. Grid entries displayed in **blue** represent restricted hours. If users attempt to use any files defined in the License Profile during a restricted time, their request will be blocked. Queuing, if enabled, will not occur for those usages blocked by a time restriction.

The server's local time and not the local workstation's is used to determine when to restrict usage.

Timed Termination Events

In the **Options** section of the License Profile, under the Time Restrictions button are several Timed Termination Event options:



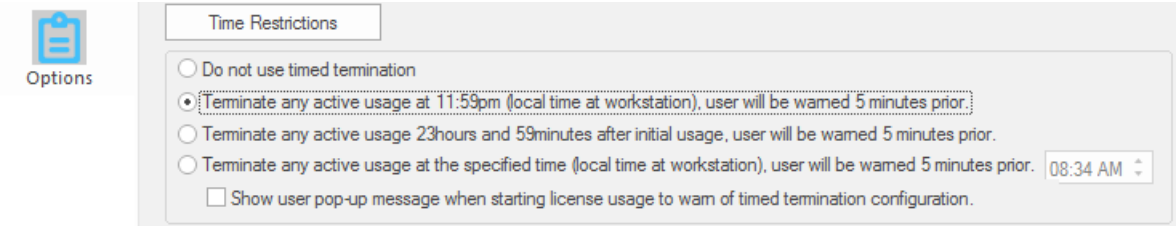
- Terminate all usage at 11:59pm
- Terminate all usage at 23 hours and 59 minutes after initial usage
- Terminate all usage at specified time

Each Timed Termination Event option includes a 5-minute warning to the user of any active applications that will be terminated. The only exception is if the user starts a

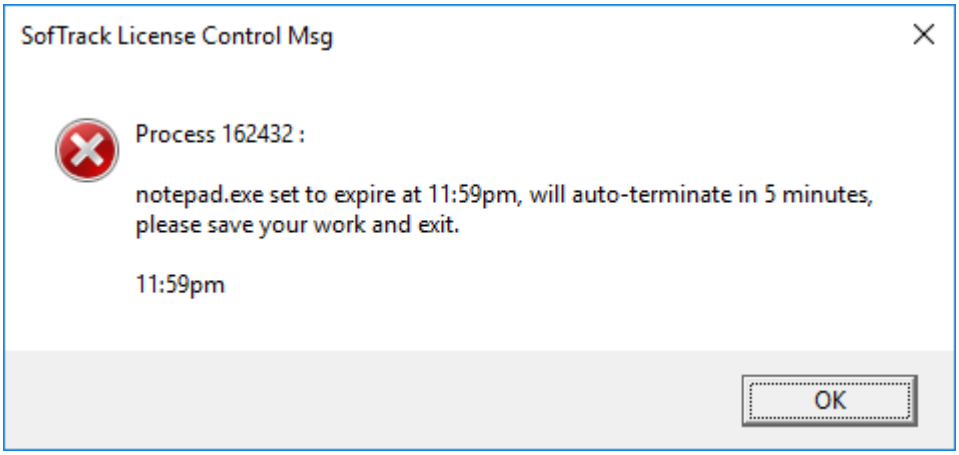
controlled application when there is less than 5 minutes remaining before the timed termination event. There is an additional user warning option that can be applied to any of the timed termination events, specifically, the *Show user pop-up message when starting license usage to warn of timed termination configuration*. This message will popup during startup of a controlled application that is being tracked for timed termination.

Terminate any active usage at 11:59pm

In the **Options** section of the License Profile, under the Time Restrictions button is the checkbox **Terminate any active usage at 11:59pm (local time at workstation), user will be warned 5 minutes prior.**



This feature requires SofTrack workstation agent version 7.27b or later. The second option to show a pop-up message requires agent verion 7.28u or later. When engaged, this option, for any currently active application defined to be metered by the selected profile, will notify the user at 11:54pm that the application will be terminated at 11:59pm with a popup message similar to the following:



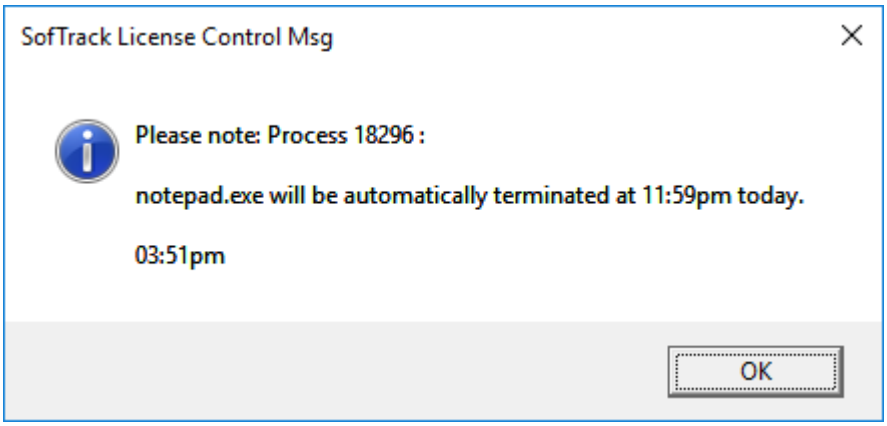
The 5-minute warning provides the user with time to save and exit their work prior to the application being terminated. If the user initially starts the application after 11:54pm there will be fewer than 5 minutes until termination.

If the user is actively using the application, after the timed termination event at 11:59pm, the user can re-start the application at midnight.

This option is completely independent of the Idle Detection and Termination option. This option is for the fixed time of 11:59pm

(time is based upon the local workstation's time).

If the sub-option checkbox is enabled to show the user a pop-up message, the user will be shown a message similar to the following when usage begins:



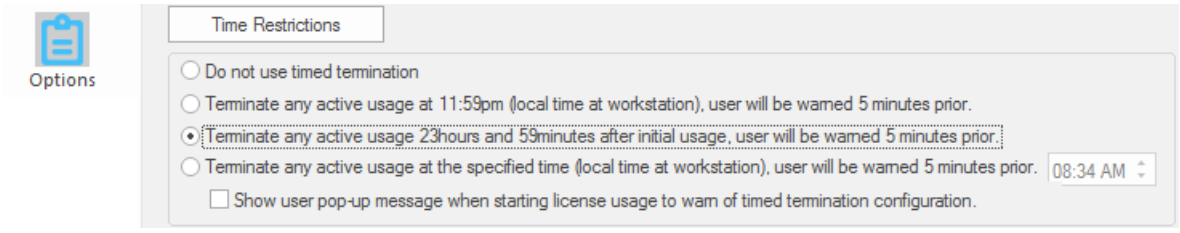
The message is customizable.

The time at lower left "03:51pm" indicates the time the message shown to the user.

This message is optional and will only be shown if enabled.

Terminate any active usage 23hours and 59minutes after initial usage

In the **Options** section of the License Profile, under the Time Restrictions button is the checkbox **Terminate any active usage 23hours and 59minutes after initial usage, user will be warned 5 minutes prior.**

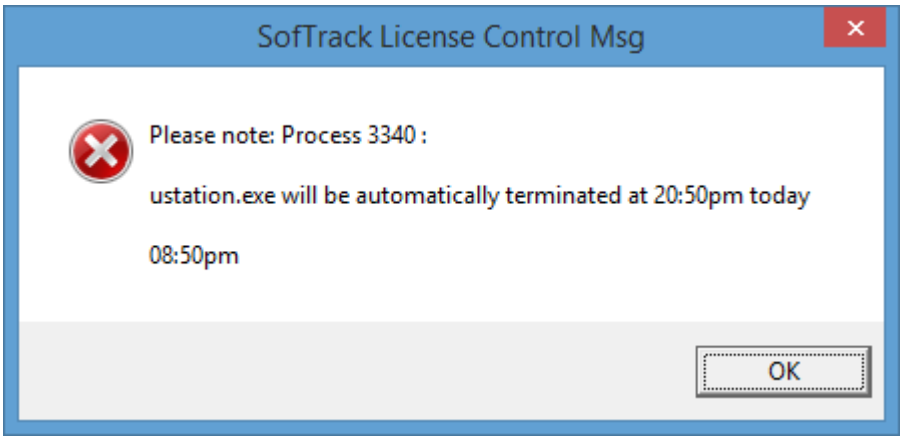


This feature requires SofTrack workstation agent version 7.30m or later. The intention of this Timed Termination option is to ensure usage of any application defined by the License Profile can only be used, in aggregate, for 23 hours and 59 minutes plus a 2 minute 'isolation period' where no usage will be allowed, thus controlling usage for each 24-hour time interval.

This option will allow usage of the application(s) defined by the License Profile for 23 hours and 59 minutes. The timer for this period starts with the first usage of any application defined by the License Profile where there has been no usage for the previous 24 hours. The application(s) being tracked by this License Profile can be opened and closed as often as needed during the 23 hour and 59 minute time period. When the end of

the 23 hour and 59 minute time period is reached any applications actively in-use will be terminated. And, if the user attempts to open any application controlled by the License Profile at the end of the 23 hour and 59 minute "time period" the usage will be immediately terminate for a period of up to 2 minutes. This 2-minute period is meant to ensure no usage occurs that could be considered active usage before the overall 24-hour time interval has completed. After the 2-minute time period the user will again be able to start any application controlled by the License Profile.

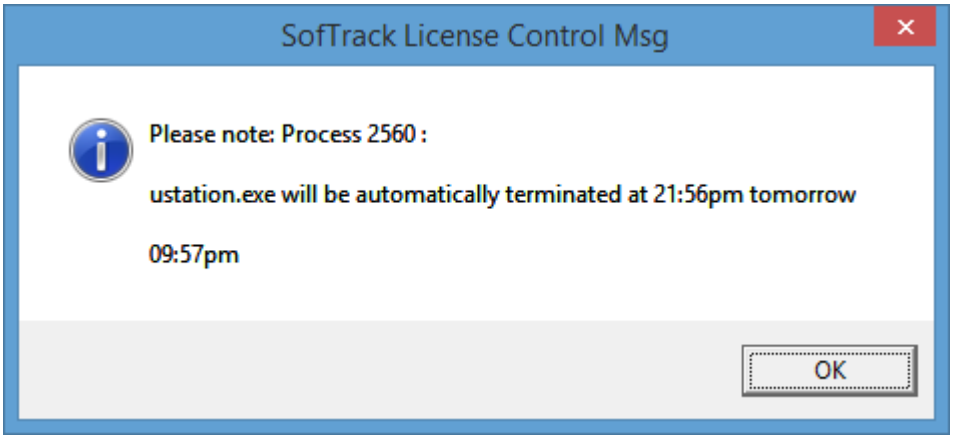
When engaged, this option, for any currently active application defined to be metered by the selected profile, will notify the user 5 minutes prior to that the application's timed termination with a popup message similar to the following:



The 5-minute warning provides the user with time to save and exit their work prior to the application being terminated. If the user initially starts the application when there are fewer than 5 minutes until termination the message will still occur but be less than a 5-minute warning.

This option is completely independent of the Idle Detection and Termination option.

If the sub-option checkbox is enabled to show the user a pop-up message at application start, the user will be shown a message similar to the following when usage begins to alert the user of the timed termination configuration:



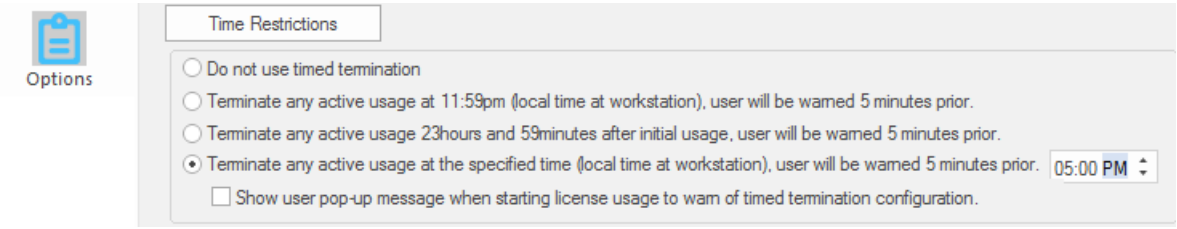
The message is customizable.

The time at lower left "09:57pm" indicates the time the message shown to the user.

This message is optional and will only be shown if enabled.

Terminate any active usage at the specified time

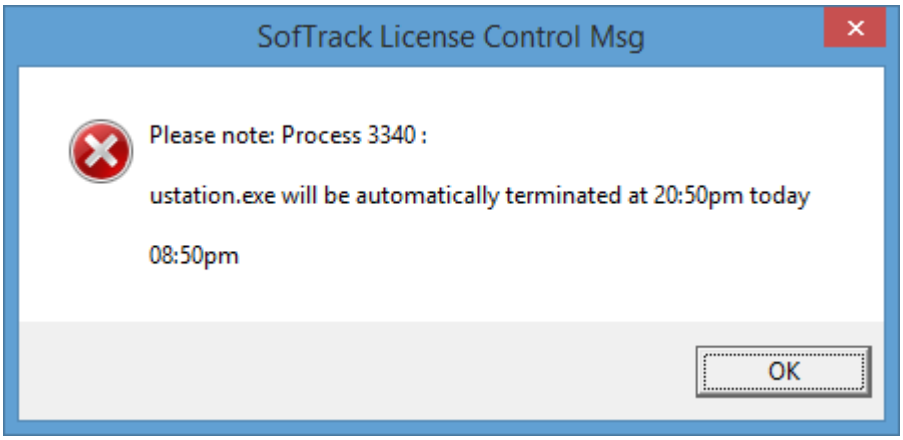
In the **Options** section of the License Profile, under the Time Restrictions button is the checkbox **Terminate any active usage at the specified time (local time at workstation), user will be warned 5 minutes prior.**



This feature requires SofTrack workstation agent version 7.30m or later. The intention of this Timed Termination option is to ensure usage of any application defined by the License Profile is terminated at the specified time. When combined with the Time Restrictions and Group Tracking features, this option will allow different timed termination time periods enabling different groups of users to share/utilize the same applications defined by the License Profile without overlapping usage. One potential usage scenario would be to have "day shift" and "night shift" users – to ensure no overlapping usage.

This feature only terminates any active applications being controlled by the License Profile at the selected time. After that time, the user can immediately re-start the application. Use Time Restrictions to prevent usage from being started during selected time periods.

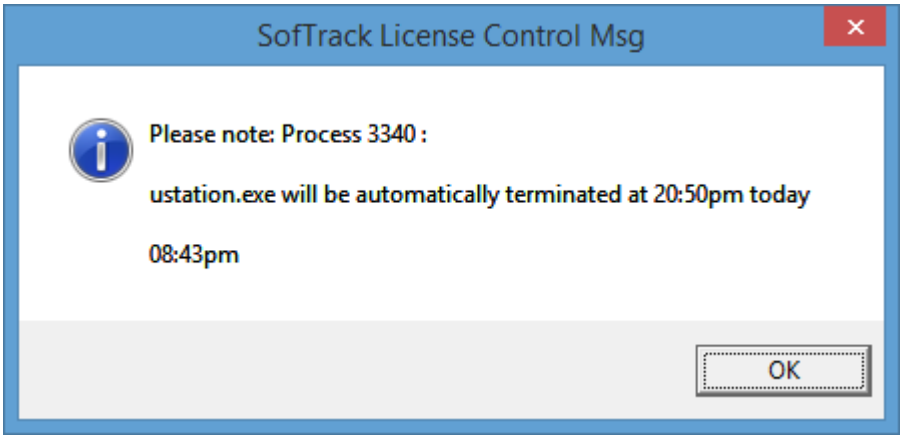
When engaged, this option, for any currently active application defined to be metered by the selected profile, will notify the user 5 minutes prior to that the application's timed termination with a popup message similar to the following:



The 5-minute warning provides the user with time to save and exit their work prior to the application being terminated. If the user initially starts the application when there are fewer than 5 minutes until termination the message will still occur but be less than a 5-minute warning.

This option is completely independent of the Idle Detection and Termination option.

If the sub-option checkbox is enabled to show the user a pop-up message at application start, the user will be shown a message similar to the following when usage begins to alert the user of the timed termination configuration:



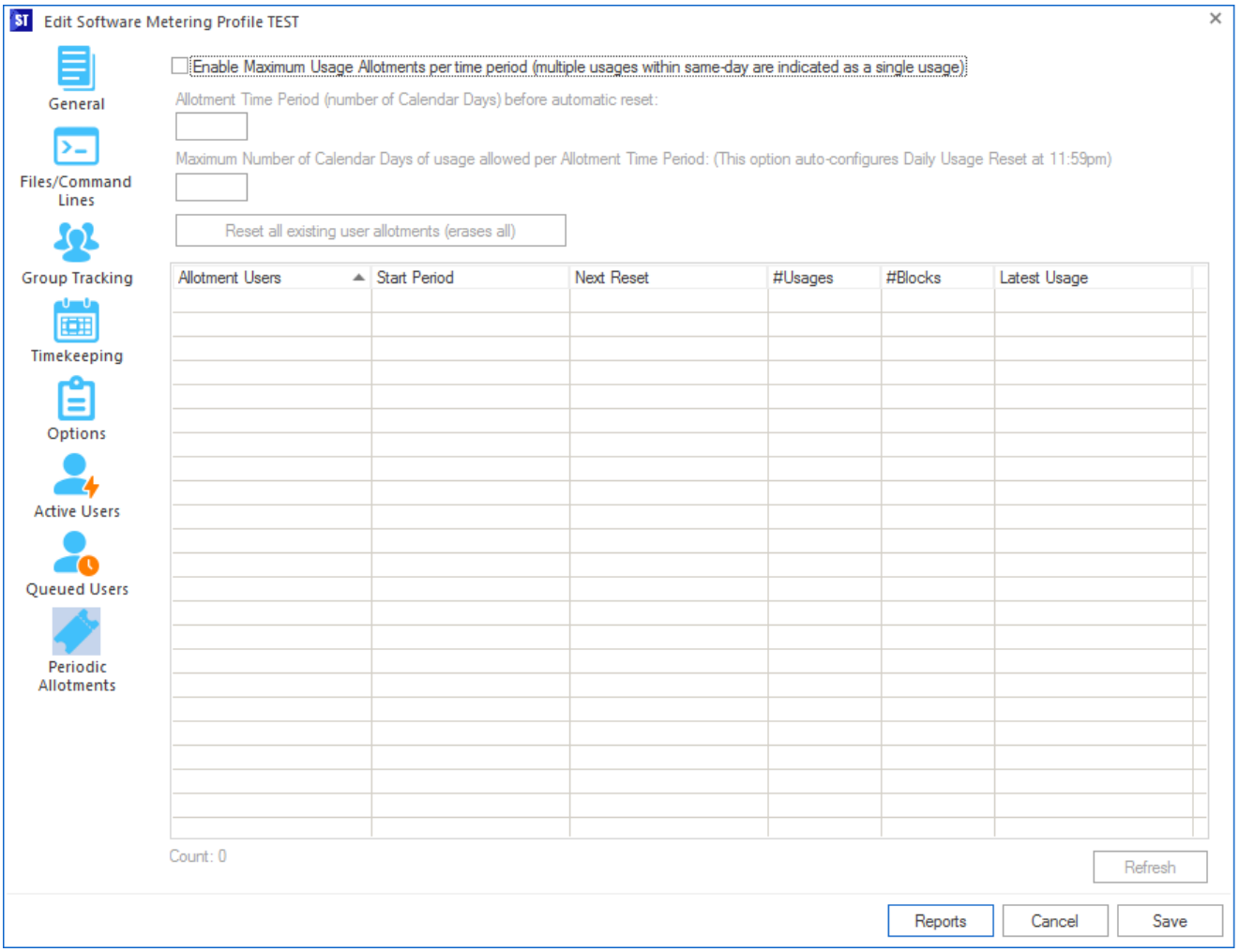
The message is customizable.

The time at lower left “08:43pm” indicates the time the message shown to the user.

This message is optional and will only be shown if enabled.

Periodic Allotments

The Periodic Allotments configurable option will limit the number of days per an overall time period a license can be utilized by each user that uses any application defined by the license profile.



When enabled each user engaging any application defined by the profile will first be verified that access is to be allowed based on the rules defined. And, when enabled, the Terminate 11:59pm option will automatically be enabled (and it cannot be disabled while this option is configured).

Rules:

- Allotment Time Period (in Calendar Days)
  - This field identifies the number of days the usage period includes.
  - For each specific user, the start date will be equal to that user's first usage, thus different users can have different start dates (shown as Start Period in the Allotment Users list).
  - The usage period for each user will automatically reset after the number of days defined (shown as the Next Reset in the Allotment Users list).
  - If the Allotment Time Period is changed, it will only affect new users, existing users will continue to use the period that was configured at their first usage.

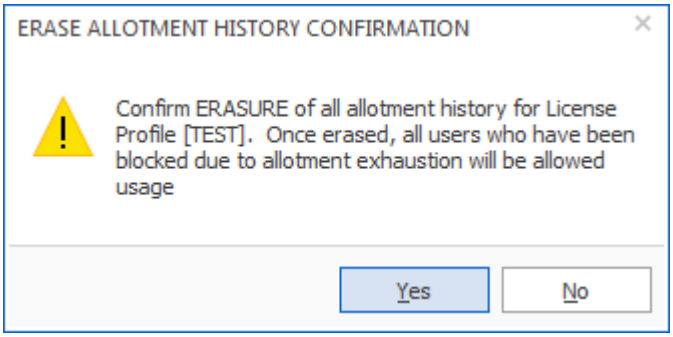
- Maximum Number of Calendar Days
  - This field identifies the maximum number of days each user will be allowed before being blocked within the Allotment Time Period

- Multiple usages within the same day are counted as a single value (shown as the #Usages in the Allotment Users list) thus, if a user uses any application defined by the profile, only the number of Calendar Days where any such usage occurred will be tallied.
- The most recent date of usage is shown in the Latest Usage column of the Allotment Users list.
- When a specific user has no remaining usage, their usage will be blocked and the user shown a blocked message. Even if queuing is defined for the profile, the user will be blocked and not queued. Each blocked usage will be tallied. The #Blocks column is the actual value of the number of times usage was blocked by the Periodic Allotments option.
- If this value is equal to or greater than the Allotment Time Period then this option (Periodic Allotments) will have NO EFFECT as it will not block any usage.
- When this value is changed it will have an immediate effect for existing users and new users

The button:

`Reset all existing user allotments (erases all)`

Requires the SofTrack Server Agent (SSA) to be active as the actual reset is performed by the SSA. When clicked, there will be a confirming prompt:



If **Yes** is clicked, the usage history will be purged and completely reset. This has the effect of resetting all users so access will be allowed as defined, starting without regard for previous history, even if it occurred on the same day.

The **`Refresh`** button will refresh the Allotment Users history list.

The following is an activity sample; notice the user NICK has a different Allotment Time Period (was 1 day) than user RED_J (was 30 days) as indicated by the Next Reset value:

Allotment Users	Start Period	Next Reset	#Usages	#Blocks	Latest Usage
RED_j	2023-02-26	2023-03-27	1	0	2023-02-26
NICK	2023-02-26	2023-02-27	1	0	2023-02-26

Calendar 10-minute Licensing: Overview

Figure 5-13

With SofTrack you have the ability to use **10-minute concurrent access** to control software usage. This SofTrack License Profile type will allow up to 9 minutes of *free usage* when all regular licenses are in-use.

This feature was introduced in SofTrack in June 2016 to specifically assist those using Bentley Software's new policy for the *trust licensing* feature of Bentley's SELECT Open Access license policy. In short, *trust licensing* is used by Bentley to allow its customers to use licenses of its products in excess of what is owned by the customer. Then, each quarter (or month depending on customer specifics), Bentley sends a billing for the overage to its customers.

Calendar 10-minute Licensing: How it works

SofTrack's Calendar 10-minute Licensing allows you to control (Bentley®) software usage on a 10-minute basis rather than a real-time basis. The following is the theory of operations:

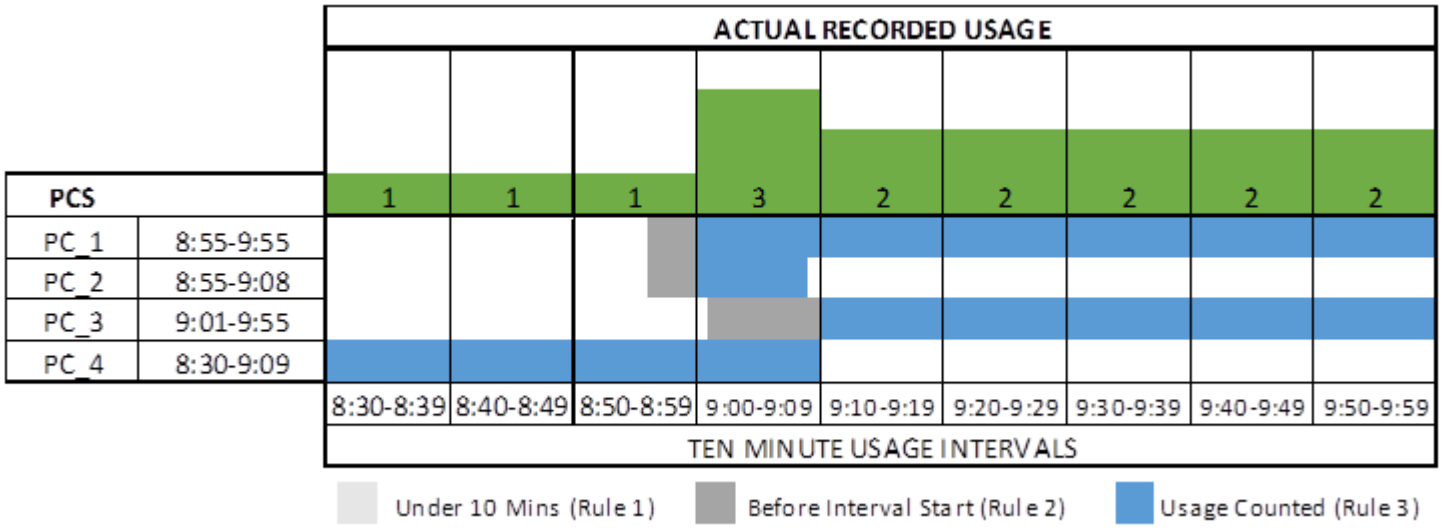


Figure 5-14

The chart presented in Figure 5-14 provides a visualization of Bentley's new licensing policy (Bentley introduced this new policy in May 2016). Notice the chart does not show any 'free usage', however, if any usage were to be less than 10 minutes, Bentley will automatically ignore it for determination of concurrent usage. Notice the gray areas in the chart above, each show usages that will not be included by Bentley in determination of concurrent usage. The green shaded area shows concurrent usage per Calendar 10-minute period as determined by Bentley per their new licensing policy.

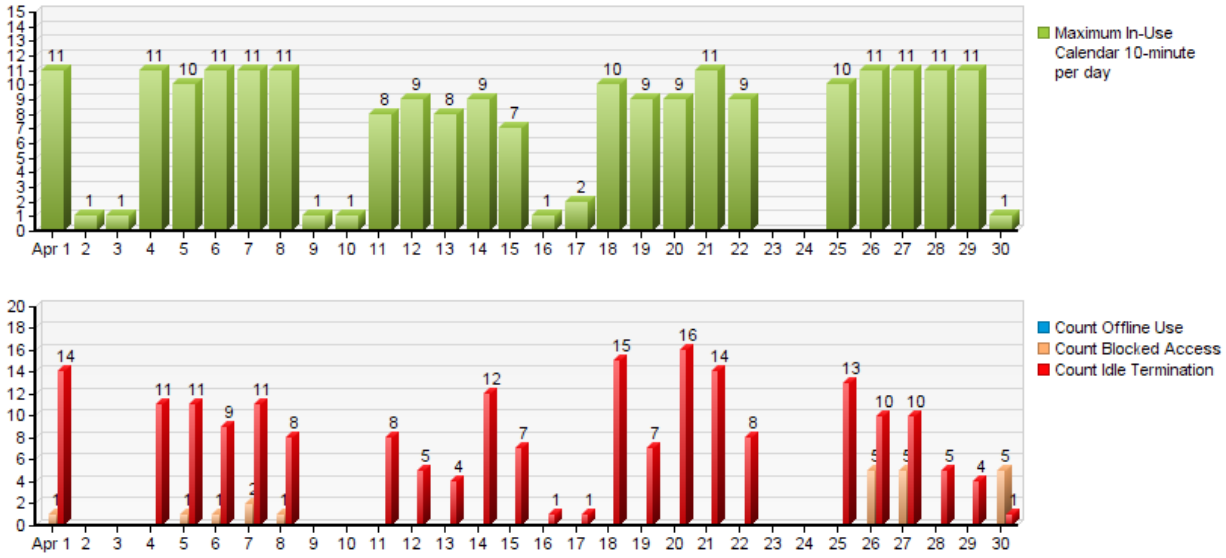
Please note that Bentley® does not provide a method to control concurrent usage.

SofTrack's implementation of Bentley's licensing policy is as follows:

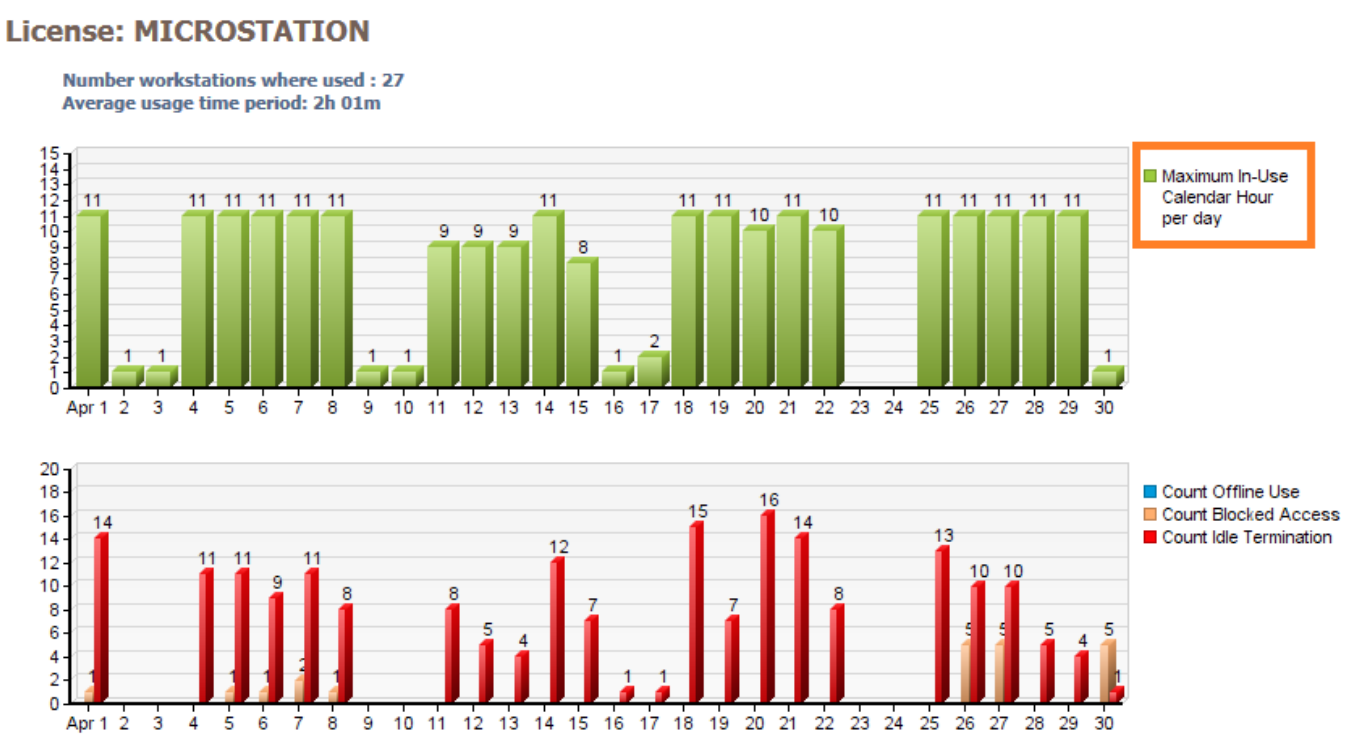
(i) When a metered application is started, if a regular license is available it will be set as being in-use from the time the application is started. This is different from Bentley where only usages beginning at an even 10-minute boundary as immediately counted as being in-use from the time the application is started. The reason SofTrack counts usage immediately regardless of the "minute" started is because of solicited customer feedback. If SofTrack were to exactly mimic Bentley's licensing policy shown in Figure 5-14, where usage is only determined at an even 10-minute boundary, then it would be possible, for purposes of concurrent license control, active users would have their application spontaneously terminated. Because of the disruption this would cause to employee(user) work, SofTrack instead immediately counts usage when started. However, SofTrack's Administrator Reports do implement Bentley's concurrent usage rules as shown in Figure 5-14 so SofTrack's reporting will correctly align with Bentley's licensing policy. Specifically, ignoring initial usage until an even 10-minute boundary occurs (if application start occurs on anything other than an even 10-minute boundary). Sample result:

License: MICROSTATION

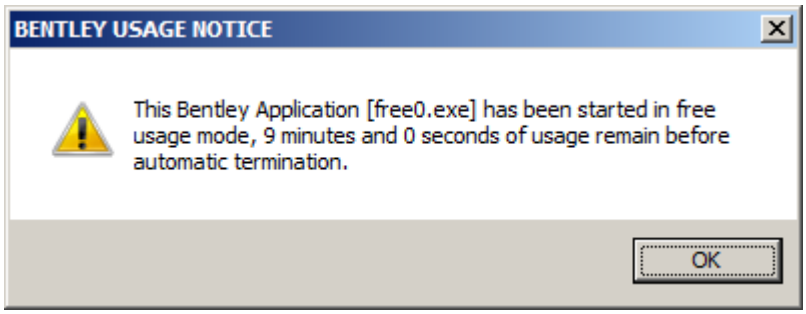
Number workstations where used : 27
Average usage time period: 2h 01m



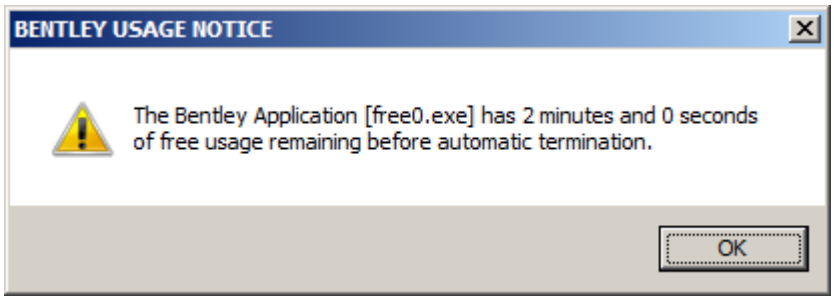
for comparison, here is the same graph using Calendar Hour rules:



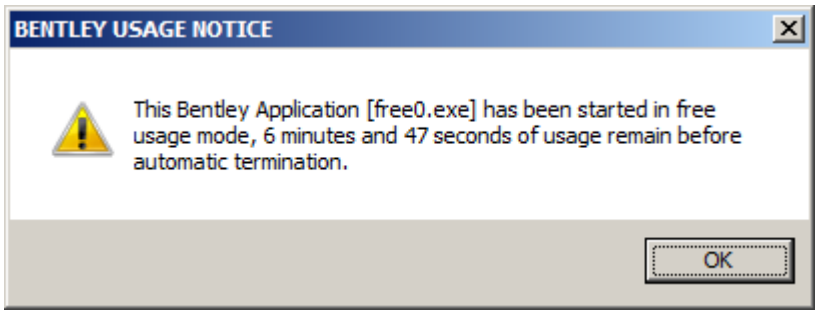
(ii) When a metered application is started, if no regular license is available and the profile does not define a minimum usage time, instead of blocking (or queueing) the user the user will automatically be given 9 minutes of usage. Because Bentley does not count usages less than 10 minutes, the value of 9 minutes was created. When this occurs the user will be presented with a pop-up message indicating this and at the 2-minute mark the user will receive one more pop-up message warning them the application will be terminated in 2 minutes and to save their work. Because this usage is occurring when all licenses are in-use, the user is automatically granted 9-minutes of free usage.



Because this usage is occurring when all licenses are in-use, it is automatically granted 9-minutes of free usage. When 2 minutes of free usage remain the user will receive an automatic pop-up:



If the user were to exit and re-launch the application (or launch multiple instances) during the 9 minute free usage period the user will receive a pop-up message displaying the remaining amount of free usage time and will not "restart" the free usage counter. For example:



Please note that the pop-up message presented is "fixed" and is not customizable. The filename of the executable launched is included in the pop-up message. In the examples shown, the name free0.exe is the name of the application, this would be the actual filename of the Bentley application, for instance, ustation.exe.

When viewing Active Users times will show "Free Usage Ends" and "Safety Period Ends".

The Safety Period is internally (no option to change) set to be 20 minutes from time free usage began. This means no usage will be allowed for 11 minutes after the free usage period ends. The reason for this is specific, we have often found that when a Bentley application is launched/exited and subsequently re-launched within 10 minutes of the prior "exited usage", the two usages, though occurring separately, will be counted as being the same by Bentley's reporting. Thus, to avoid this potential issue, and inadvertently "allow" a free usage to be combined with a regular usage and thus creating an overage situation (since SofTrack's free usage mechanism is only engaged when all licenses are in-use) we created the Safety period for SofTrack. During this Safety period, the user, if attempting to launch the application, will receive a blocked message and usage will not be allowed.

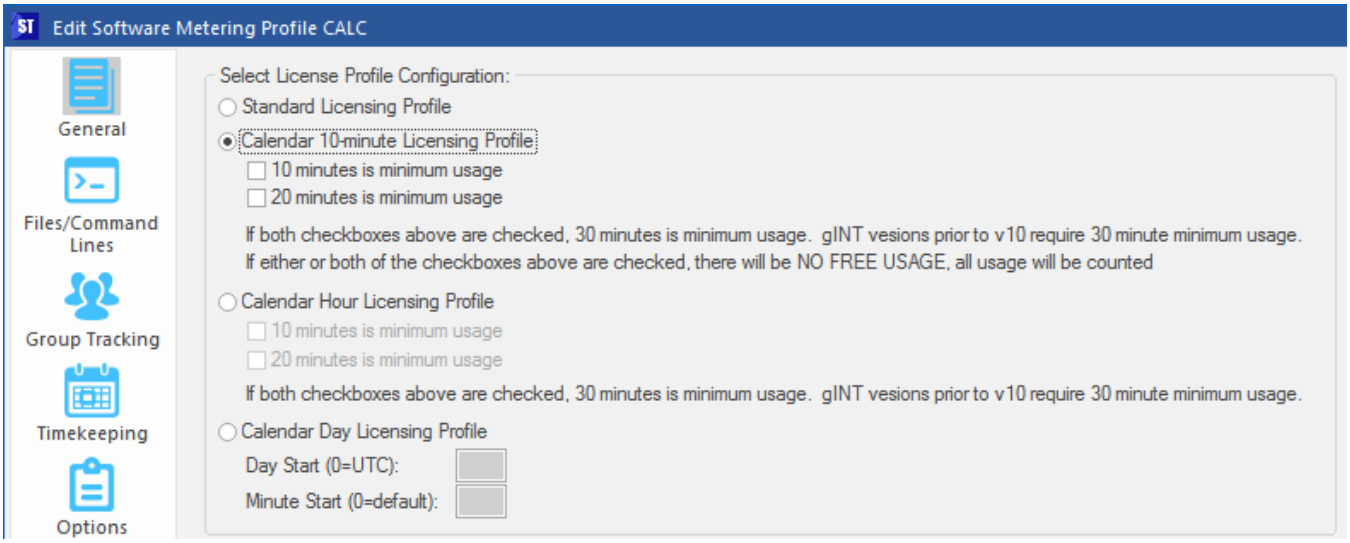
(iii) When a regular license is exited (not a free usage license) SofTrack will automatically hold the license until the end of the current 10-minute period (or as defined if using 10 minutes or 30 minutes minimum usage). Thus, if a regular license is exited prior to 10 minutes of usage, instead of receiving a Safety period the license will be held until the end of the next Calendar 10-minute period.

(iv) When a free usage license is exited (including multiple launches and exits) the usage will be recorded as a special free usage record. Also, if a regular usage is exited prior to 10 minutes of usage, it will be recorded as a free usage record. Because free usages will not be used to determine concurrent usage, a special record type was created. A report of free usages is only available via the Details of License Usage report.

To receive graphical reports showing concurrent usage per the rules shown in Figure 5-14, please configure the automatic software metering reports.

Calendar 10-minute Licensing: Defining a Calendar 10-minute Licensing Profile

After you create the license profile, click the Calendar 10-minute License Profile button:



After selecting the Calendar 10-minute option, determine whether your license requires the "10 minutes is minimum usage" checkbox to be engaged.

The "10 minutes is minimum usage" is a checkbox, that, if clicked will be used to determine when the "license usage" is actually to be completed. This option exists because many if not all Bentley® product licensing is performed in such a way that the license use initially set to be 10 minutes regardless of amount of time the application was actually used. Specifically, at a minimum, any usage will be held until the end of the next Calendar 10-minute period.

If the license profile has been created to control usage of gINT versions prior to version 10, you must also check the "20 minutes more minimum" checkbox. This is because all versions of gINT prior to version 10 are internally configured to use 30 minutes as the minimum usage time regardless of actual usage. If only the "20 minutes more minimum" is checked, then SofTrack will automatically check the 10 minute minimum usage as well (once you save the change and re-edit you will find both checkboxes being checked).

When either or both minimum usage checkboxes are checked there will be **no free usage** period since all usages will automatically take 10 or 30 minutes of usage. In this configuration, the user, when all licenses are in-use, will be blocked or queued as defined by the profile.

When no minimum usage checkbox is checked, when all licenses are in-use, the user will be granted 9 minutes of free usage that will not be counted towards concurrent usage. In this configuration, the user will never be queued for future usage. This is further described in the previous section.

Please refer to Chapter 11 for the preferred method to track your Bentley® applications.

Calendar Hour Licensing: Overview

Figure 5-15

With SofTrack you have the ability to use **hourly concurrent access** to control software usage. This feature was introduced in April 2014 to specifically assist those using Bentley Software's *trust licensing* feature of Bentley's SELECT Open Access license policy. In short, *trust licensing* is used by Bentley to allow its customers to use licenses of its products in excess of what is owned by the customer. Then, each quarter, Bentley sends a billing for the overage to its customers.

However, Bentley does not provide a method to restrict *trust licensing* usage and it defines *trust licensing* as any its software used per customer computer within a calendar hour period counts as a usage. A calendar hour being the period between and including :00 past the hour to and through the :59 minute Therefore, even if a customer's real-time usage is never more than what is owned, but their hourly usage exceeds what is owned, the customer will be billed for the overage. For exact details refer to your Bentley Account Representative.

As an example, if the customer owns one license of a Bentley product and is shared between 4 users there can never be more than one computer that has used the Bentley software per calendar hour. If the software is used on ComputerA from 8:10am until 8:20am and then used on ComputerB from 8:30am until 8:45am then the customer will be charged for using an additional license despite the real-time usage never exceeded the single license owned. SofTrack's Calendar Hour Licensing solves this situation by providing the ability to restrict concurrent software usage on an hourly calendar basis rather than a real-time basis as is used by SofTrack's Standard Licensing option.

To add further complexity, many if not all Bentley® products consume a minimum usage default of 10 minutes. Use the "10 minutes is minimum usage" checkbox to allow for this license policy. Specifically, what this means is if usage starts between :50 minutes and :59 minutes past the hour, the license, at a minimum, will be held until the end of the next Calendar Hour.

Additional complexity is provided by the Bentley® product gINT (all versions prior to v10) because it consumes a minimum usage default of 30 minutes. In the SofTrack License Profile check **both** the "10 minutes is minimum usage" checkbox **plus** "20 minutes more minimum usage" checkbox to allow for this license policy. Specifically, what this means is if usage starts between :30 minutes and :59 minutes past the hour, the license, at a minimum, will be held until the end of the next Calendar Hour.

Calendar Hour Licensing: How it works

SofTrack's Calendar Hour Licensing allows you to control software usage on an hourly basis rather than a real-time basis. The following is the theory of operations:

- Software is used (i.e. Launched) by a user on a specific computer. If a license is available, that user obtains the right to use the software (a "license") and it launches normally.

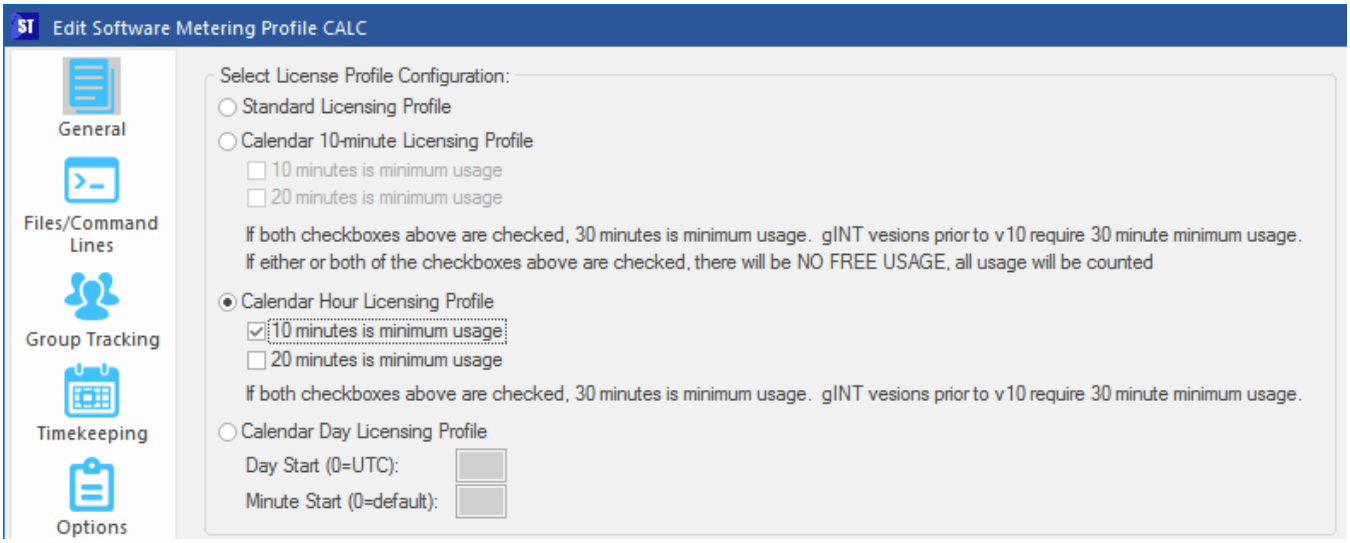
- When the user exits the software a usage record is saved so you will be able to receive a report on what actual usage was, and, instead of entirely freeing their usage license, the SofTrack Server Agent puts a "hold" on their usage license that will automatically expire at the top (:00 minute) of the "next hour", this "hold" is for any user on the indicate workstation, not just for that user. This is done because Bentley® determines usage on a "workstation basis".

- If the user logs out before the "License held through" period is expired, the license will remain "held" for that computer, if they or other user logon again from that workstation they can still use the software:

- If all licenses are in-use when a user attempts to launch the software, and queuing has been defined, they will be queued. If not, the user is blocked. Both Queued and Blocked access is recorded for later reporting. And, at the top of the next hour (or later) when licenses are again available they will be notified. Notice in the image below the "License held through" column specifies a time that is not necessarily ending with :59 minute. This is because this is a queued notification and it conveys the "right" to use a license as it is being held but since the user has not yet actually run the software, a license is not actually used. If the notified user does not start using the software, once the "License held through" time passes the next queued user will be notified and so on. Per SofTrack License Profile, up to 8 users can be queued at the same time.

Calendar Hour Licensing: Defining a Calendar Hour Licensing Profile

After you create the license profile, click the Calendar Hour License Profile button:



After selecting the Calendar Hour option, determine whether your license requires the "10 minutes is minimum usage" checkbox to be engaged.

The “10 minutes is minimum usage” is a checkbox, that, if clicked will be used to determine when the “license usage” is actually to be completed. This option exists because many if not all Bentley® product licensing is performed in such a way that the license use initially set to be 10 minutes regardless of amount of time the application was actually used. Specifically, what this means is if usage starts between :50 minutes and :59 minutes past the hour, the license, at a minimum, will be held until the end of the next Calendar Hour.

For example, when checked, if a user begins using the metered application at 9:53am the exits at 9:54am the time 10:03am will be used as the actual end of the license usage period. The license will be held through 10:59am. If not checked, the license use will be held through 9:59am.

Please refer to Chapter 11 for the preferred method to track your Bentley® applications.

Once you define the Maximum Concurrent Users value and the file(s) to meter and other desired options such as Queue Hold Time, your License Profile is ready to be used.

Use the **Active Users** section to see real-time usage.

Calendar Day Licensing: Overview

Figure 5-16

With SofTrack you have the ability to use **daily concurrent access** to control software usage. This feature was introduced in June 2014 to specifically assist those using Bentley Software's Enterprise License Subscription (ELS) policy. In short, *ELS* licensing is used by Bentley to allow its customers to use licenses of its products in excess of what is owned by the customer. Then, annually or other time period, Bentley sends a "true up" billing for the overage license use to its customers.

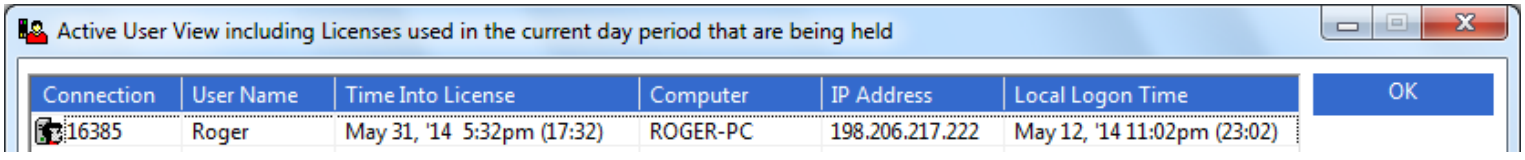
However, Bentley does not provide a method to restrict *ELS* license usage and it defines *ELS licensing* as any its software used per customer computer within a calendar day period counts as a usage. A calendar day being the period between and midnight (start of a new day) through the :59 minute of the 11pm hour of the same day. For many ELS license customers their "day" is based on UTC. Therefore, even if a customer's real-time usage is never more than what is owned, but their daily usage exceeds what is owned, the customer will be billed for the overage. For exact details refer to your Bentley Account Representative.

As an example, if the customer owns one license of a Bentley product and is shared between 4 users there can never be more than one computer that has used the Bentley software per calendar day. If the software is used on ComputerA from 8:10am until 8:20am and then used on ComputerB from 2:30pm until 3:45pm then the customer will be charged for using an additional license despite the real-time usage never exceeded the single license owned. SofTrack's Calendar Day Licensing solves this situation by providing the ability to restrict concurrent software usage on a daily calendar basis rather than a real-time basis as is used by SofTrack's Standard Licensing option.

Calendar day Licensing: How it works

SofTrack's Calendar Day Licensing allows you to control software usage on a daily basis rather than a real-time basis. The following is the theory of operations:

- Software is used (i.e. Launched) by a user on a specific computer. If a license is available, that user obtains the right to use the software (a "license") and it launches normally.



- When the user exits the software a usage record is saved so you will be able to receive a report on what actual usage was, and, instead of entirely freeing their usage license, the

SofTrack Server Agent puts a "hold" on their usage license that will automatically expire at the beginning of the next "calendar day":

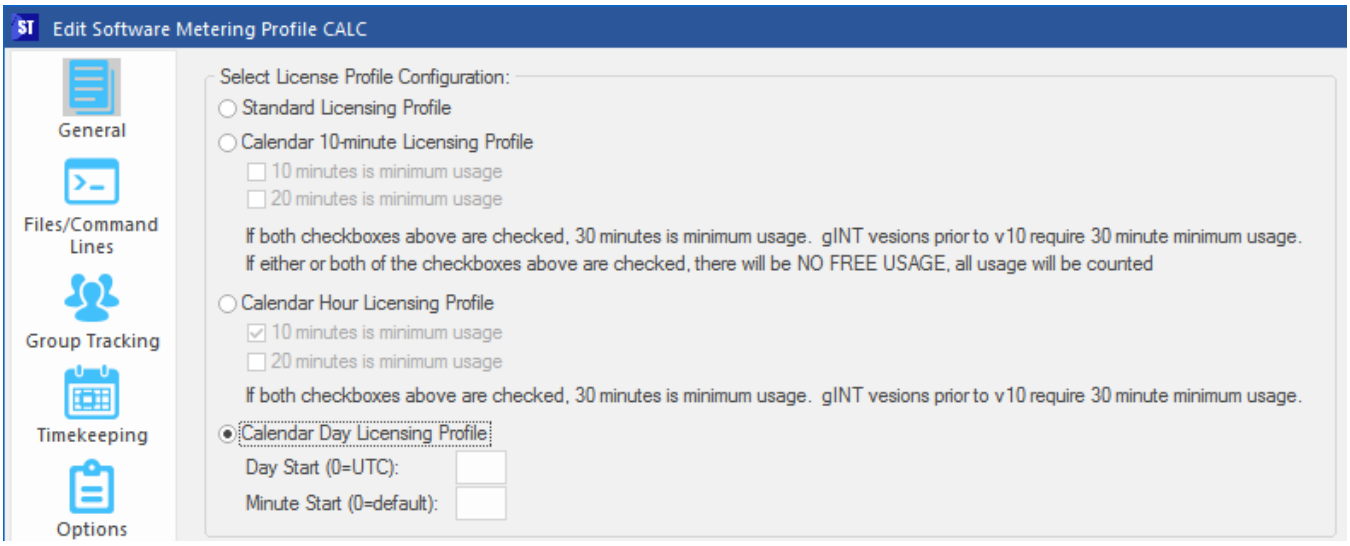
For the examples shown below, the SofTrack License Profile was set to 14 (UTC) as the time basis for the Calendar Day and the SofTrack Server Agent was located in Texas (UTC-6). If you look you will see the "License held through" being 3:59am because the next Calendar Day is 04:00 at UTC-6.

- If the user logs out before the "License held through" period is expired, the license will remain "held" for that computer, if that user or another user logon they can still use the software reserved for that workstation.

- If all licenses are in-use when a user attempts to launch the software, and queuing has been defined, they will be queued. If not, the user is blocked. Both Queued and Blocked access is recorded for later reporting. And, at the beginning of the next day (or later) when licenses are again available they will be notified. Notice in the image below the "License held through" column specifies a time that does not end with the :59 minute. This is because this is a queued notification and it conveys the "right" to use a license as it is being held but since the user has not yet actually run the software, a license is not actually used. Further, the maximum queue hold time is 30 minutes. If the notified user does not start using the software, once the "License held through" time passes the next queued user will be notified and so on. Per SofTrack License Profile, up to 8 users can be queued at the same time.

Calendar Day Licensing: Defining an Calendar Day Licensing Profile

After you create the license profile, click the Calendar Day License Profile button:



Day Start / UTC

Notice the "Day Start (0=UTC)" edit field under the Calendar Day option. This field defaults to 0 (zero). The value selected will be used by *this profile only* and will serve to indicate when the Calendar Day starts.

The default value of zero indicates the "Calendar Day" is synchronized to that of the Universal Time Coordinate (also sometimes referred to as Greenwich Mean Time) or the current time in Greenwich England. You can make this value anything from 14 to -10. For instance, the value of -6 would be used for Chicago and –8 for Los Angeles. The value of 1 would be used for Amsterdam and the value of 10 for Sydney. The value used should be exclusive of daylight savings time settings, in other words, enter the value of the observed time zone when daylight savings time is not being observed.

Files to be metered

Please refer to Chapter 11 for additional details on controlling Bentley application use. After selecting Calendar Day option and Day Start value, add your application files to meter, *EXE or *.DLL files. We **do not recommend** you place both EXE and DLL files in the same SofTrack License Profile. For instance, RAMcontainer.exe and RAMconcAnalysis.dll or RAMFrameAnalysis.dll. Because RAMcontainer.exe is used to launch either of those DLLs files, the DLL file must be used instead of the EXE.

Many Bentley® applications are metered with a combination of the initial executable file run and portions of its command line. Please refer to the Command Line metering section for additional details.

Some applications such as RAMcontainer.exe are apparently used to launch different Bentley licenses where you will need to know which DLL file(s) to define. For this determination, we recommend you use the free VMMAP tool from Microsoft:

http://technet.microsoft.com/en-us/sysinternals/dd535533.aspx

To use, run VMMAP.EXE and select the currently running Bentley application from the list presented. Next, click on the "Image" selection, which is the "purple" row. In the lower list use the "Details" column at the far right side to view the individual DLL files. From there it is a matter of reduction to determine the unique Bentley DLL file(s) to define in the SofTrack License Profile.

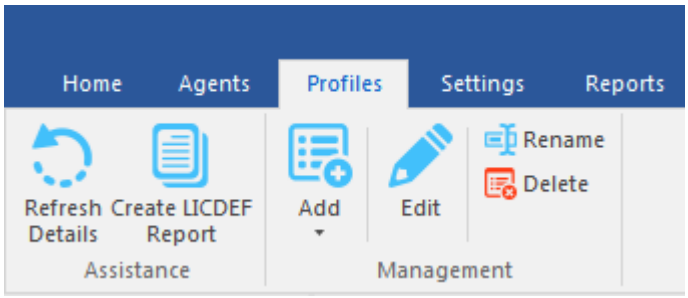
Once you define the Maximum Concurrent Users value and the file(s) to meter and other desired options such as Queue Hold Time, your License Profile is ready to be used.

Use the **Active Users** to see real-time usage.

Implementing License Profile Definitions

When you are finished defining the License Profile, click **Save** in the lower right corner of the License Profile edit screen. After you click **Save**, you will be returned to the list of License Profiles window.

Normally when you click **Save**, you will also receive a popup message indicating whether the SSA has been refreshed or not. The term *refreshed* indicates the SSA has been directed to rescan and update its internal processes with the modified License Profile definitions. If you do not see the Refreshed message, or you just want to make sure, you can always, within `SOFTRACK_CONSOLE.EXE`., click on the **Refresh Details** button at the upper left:



When License Profile Changes Take Effect

The options you set in a License Profile, whether in a new License Profile or as changes to an existing profile, take effect as soon as the SSA is refreshed (see above). Metering of the application(s) defined by the License Profile will take place for all usages that *begin after* the SSA has been refreshed. As a result, if a user is *already* using the metered application at the time its filename is added to the License Profile, he or she will *not be metered* until the *next time* he or she opens the application.

If you manually decrease the **Maximum Concurrent Users** count, any currently active users may not be viewable in the Active User list however their activity will be properly recorded.

If you STOP and RESTART the SSA while users are actively using metered applications, you will probably notice that metering becomes inaccurate until the next time the users log in to the server hosting the SSA. However, starting with LWA v7.20t the LWA will automatically terminate any such metered usage. Click here for details.

NOTE: Our recommendation is that you edit License Profiles that have active users at a time when the number of active users is low.

When License Usage Data is updated

For each use of a metered application, SofTrack creates a single entry in the `METER.LOG` file. For more information, see Chapter 7. This entry is created when the use of the metered application *has been completed*. Thus, if you try to generate a

metering report at 10 a.m., you will not see any activity for the current day unless users have already exited the metered application(s). To view current metering activity, use one of the methods defined in the following section.

Monitoring Active License Use

SofTrack provides two applications for monitoring active license use. SofTrack also provides automatic web pages to view real-time active license usage, please refer to Chapter 7 Automatic Software Metering Reports. Finally, the SofTrack console provides two direct methods to view active users of any License Profilee.

The first application is `SOFTRACK_CONSOLE.EXE`. After opening it, select the server and then the "Profiles" tab select the desired License Profile by double clicking it and click on the **Active Users** section. The **Active Users** window opens, see Figure 5-19.

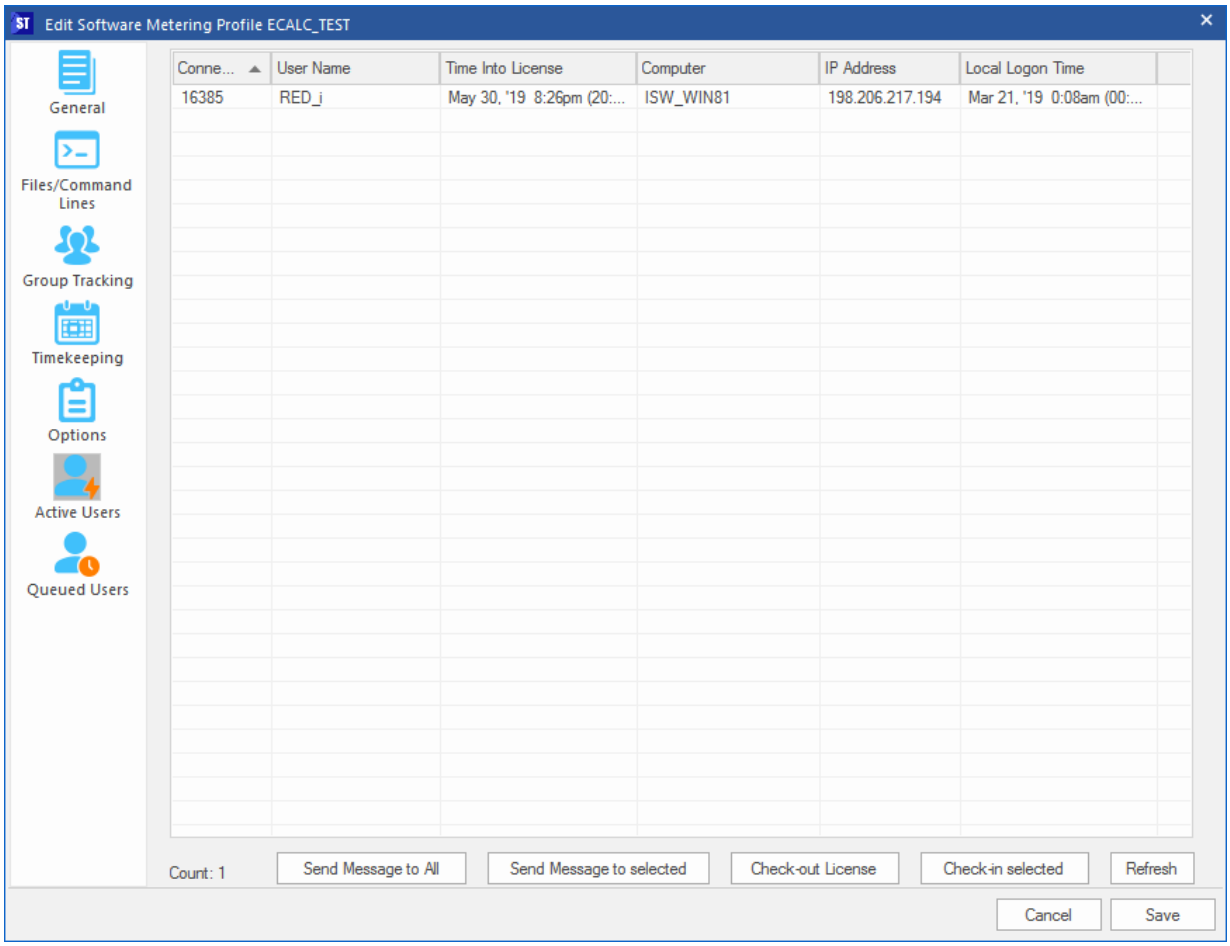
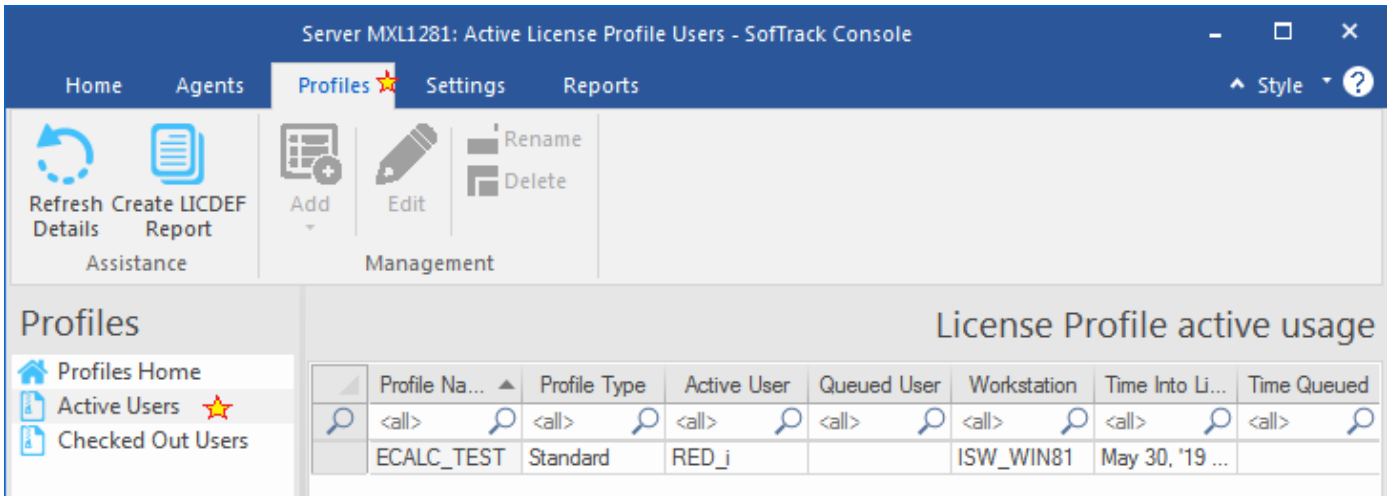


Figure 5-19

The list of users is periodically updated. For an immediate update, use the **Refresh** button to obtain the current entries.

Also within `SOFTRACK_CONSOLE.EXE` is the ability to view all active users across all profiles. To view, select the “Profiles” tab and then the **View Active Users** shortcut:



This view provides the ability to view all active users across all license profiles and all workstations. You can use the search bar located at the top of each column to further filter the results.

The second application you can use to monitor active license use is `STUSER.EXE`. STUSER is fully detailed in Chapter 7.

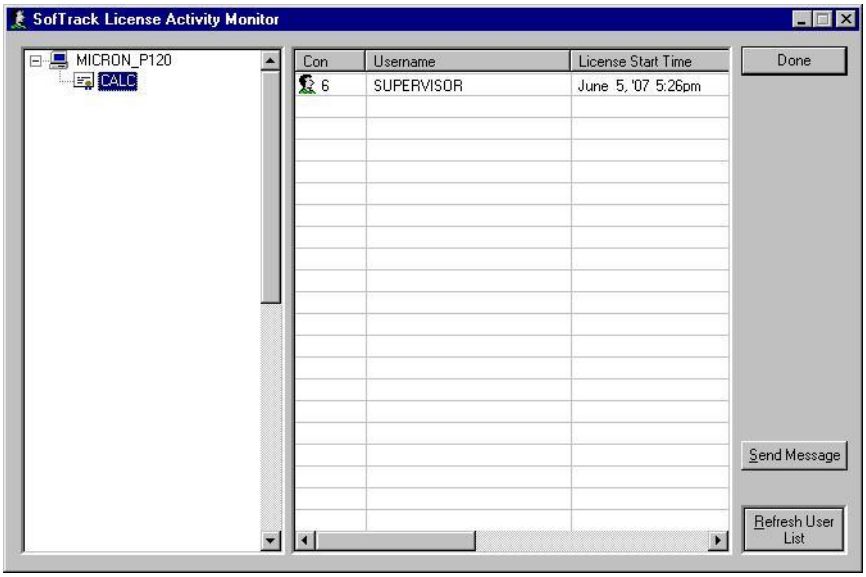


Figure 5-20

`Note that SOFTRACK_CONSOLE.EXE` provides two additional administrative features that STUSER does not. The first is found by clicking the **Queued Users** section in the **License Profile** window (See Figure 5-19). This option will display the list of users who have been temporarily denied access to the metered application and are waiting to be notified that a license is available. The list of Queued Users is auto-refreshed every 10 seconds. The second is the **Send Message to All** button in the **Active Users** section of License Profile window. This option will prompt you for a message to deliver to the current License Profile's active users.

Checking Licenses In and Out for Offline Use: Overview

SofTrack provides the ability to check out a license for a specific workstation and user.

There are two (2) methods licenses can be checked out. The first is always available and must be performed within the SofTrack Console by a SofTrack administrator. The second method requires the use of LWATRAY.EXE (part of the SofTrack LWA) by the user and allows a user to perform self-checkout and self-check-in of licenses. Users can only checkout licenses that have been enabled for self-checkout. However, users can checkin any license that has been checked out on their behalf by a SofTrack Administrator via the SofTrack Console.

NOTE: To allow profile license checkout and checkin abilities, the SSA must be active.

NOTE: Whenever a license checked out occurs, the actual **Maximum Concurrent Users** count for the License Profile is reduced by one (1), except when the License Profile is set to **Allow Overflow**. If the License Profile is set to **Block License**, then no checkout can occur. Finally, **Time Restrictions** and **Group Tracking** are ignored for checked out usage. However, **Valid Time Period** if configured will prevent use during checkout if use is attempted outside of the valid time period.

NOTE: When a license is checked in or out, the workstation must be currently connected to the SSA for at least 5 minutes after check in or check out. This provides time for the SofTrack LWA at that workstation to receive the current license checkout list. This list will be required if/when the workstation is disconnected from the SSA to ensure the metered application defined by the checked out license can be used while offline. If the workstation (LWA) is not connected to the SSA at the time the checkout or checkin activity occurs the LWA will be unaware of the checkout (or checkin) until it next connects to the SSA for at least 5 minutes. It is possible for the SofTrack Administrator to checkout a license for a workstation that is offline, however the LWA will function as configured, for instance, if configured, block use of all metered applications will continue to deny acccess

Checking Licenses Out for Offline Use: How It Works (Administrator)

As an administrator, open `SOFTRACK_CONSOLE.EXE` and select the desired License Profile. Next, click the **Active Users** button. The following or similar screen appears:

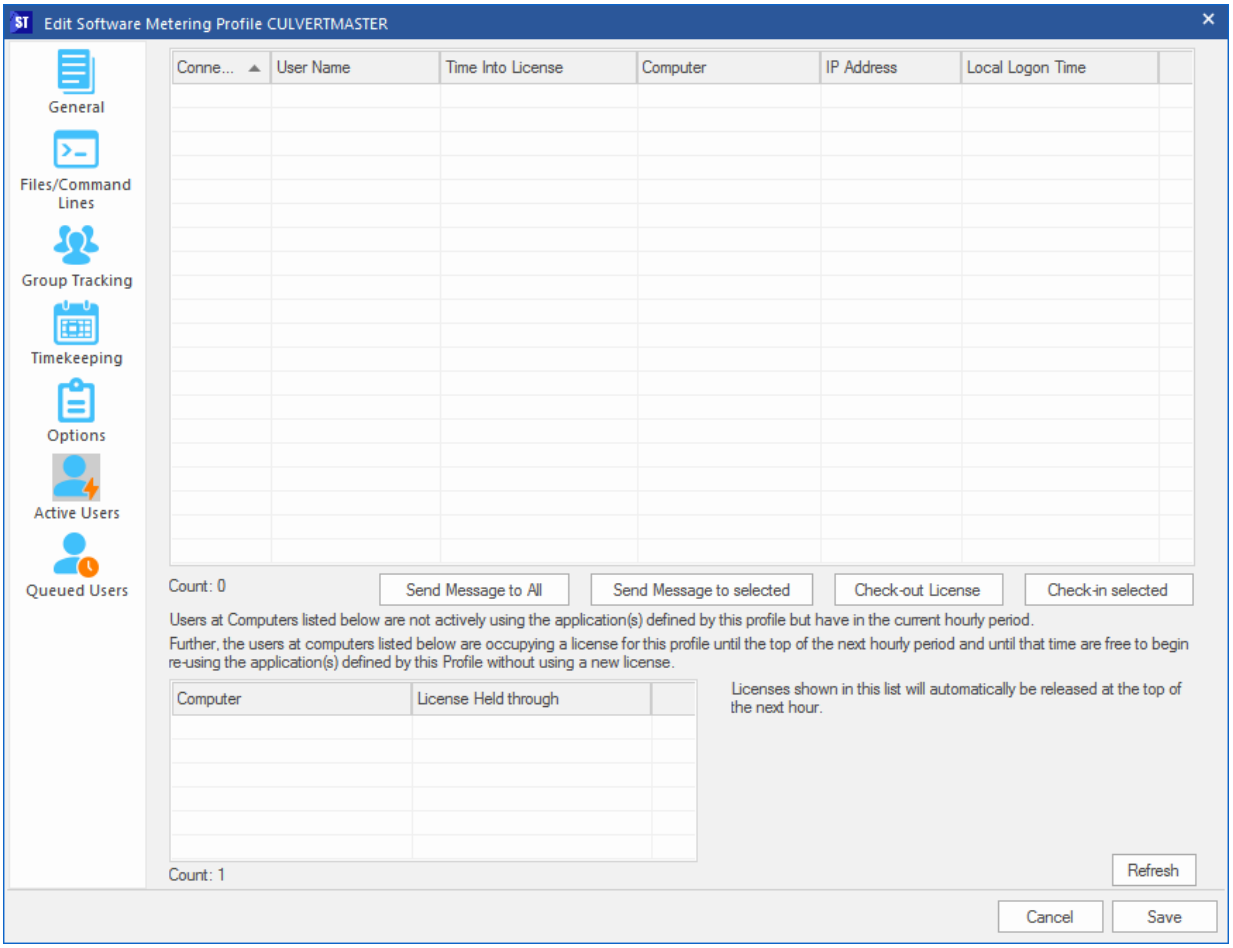


Figure 5-21

Click **Check-out License** button**.** The following screen appears.

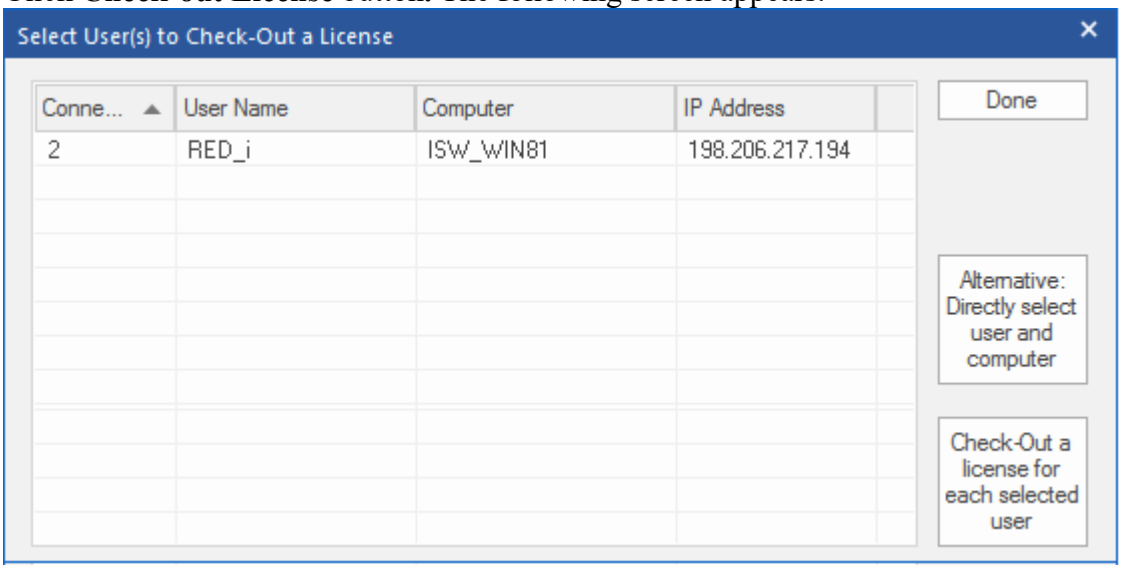
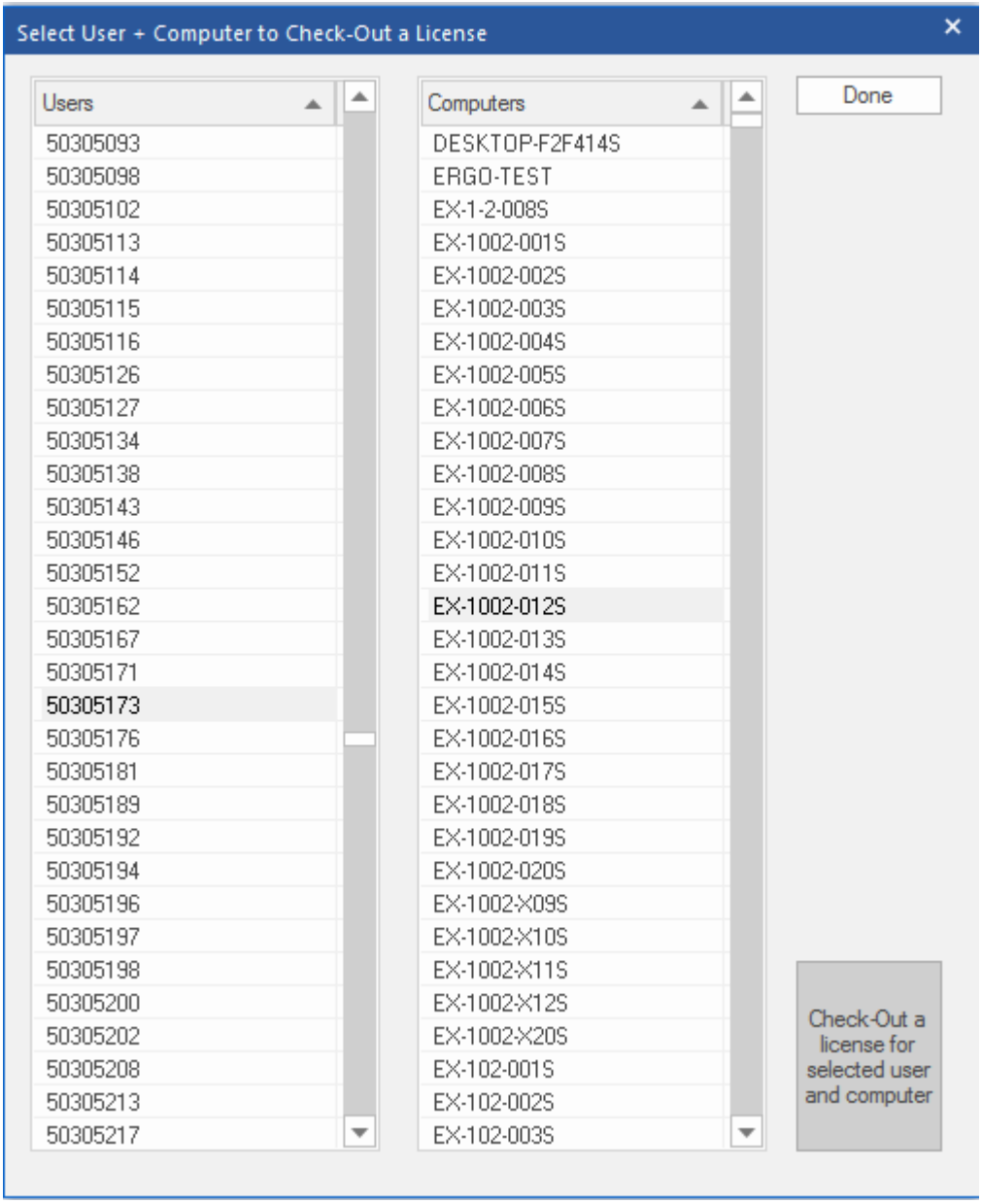


Figure 5-22

Select the desired user to check out.

If the selected user is not currently logged in, the user will not be shown in the list (Figure 5-22). To directly select the user and workstation click the button **Alternative: Directly select user and computer** and the following screen will appear:



Select the user and the workstation for check out and then click the button **Check Out License for selected user + computer**". When finished checking out users, click **Done**.

When you return to the list of active users you may need to click the **Refresh** button to see the newly checked out user(s).

Checking Licenses In from Offline Use: How It Works (Administrator)

As an administrator, open `SOFTRACK_CONSOLE.EXE` and select the desired License Profile. Next, click the **Active Users** section. The following screen appears:

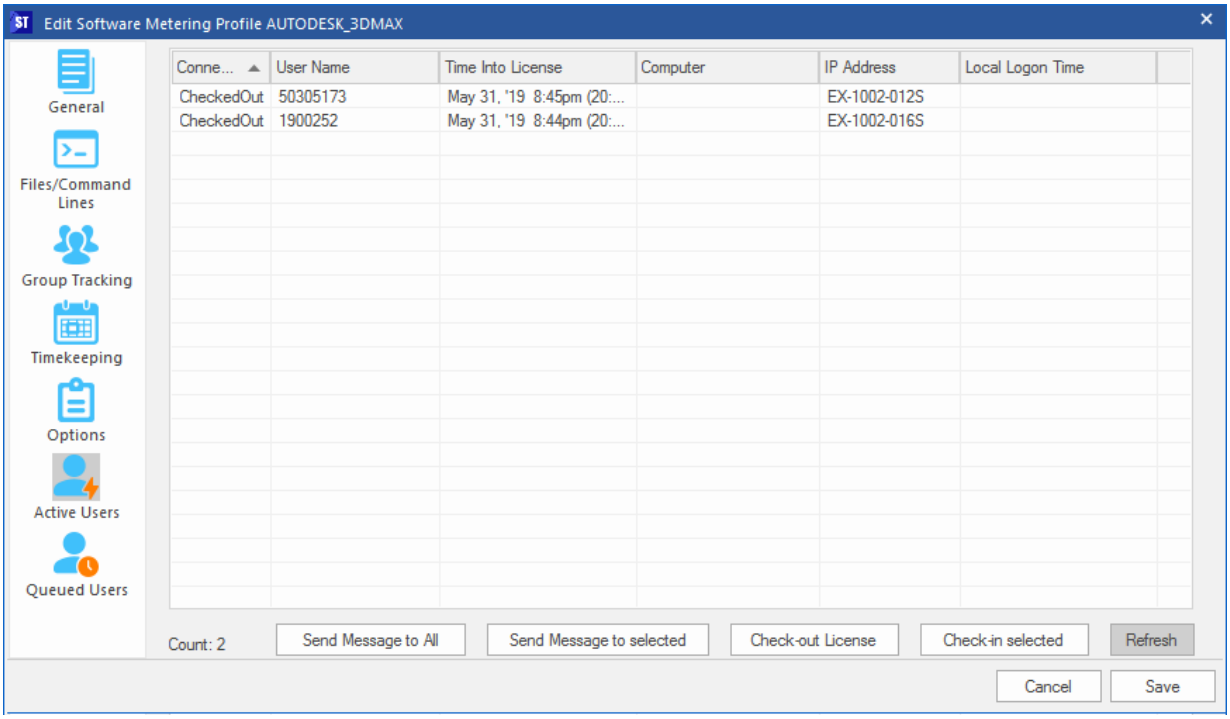


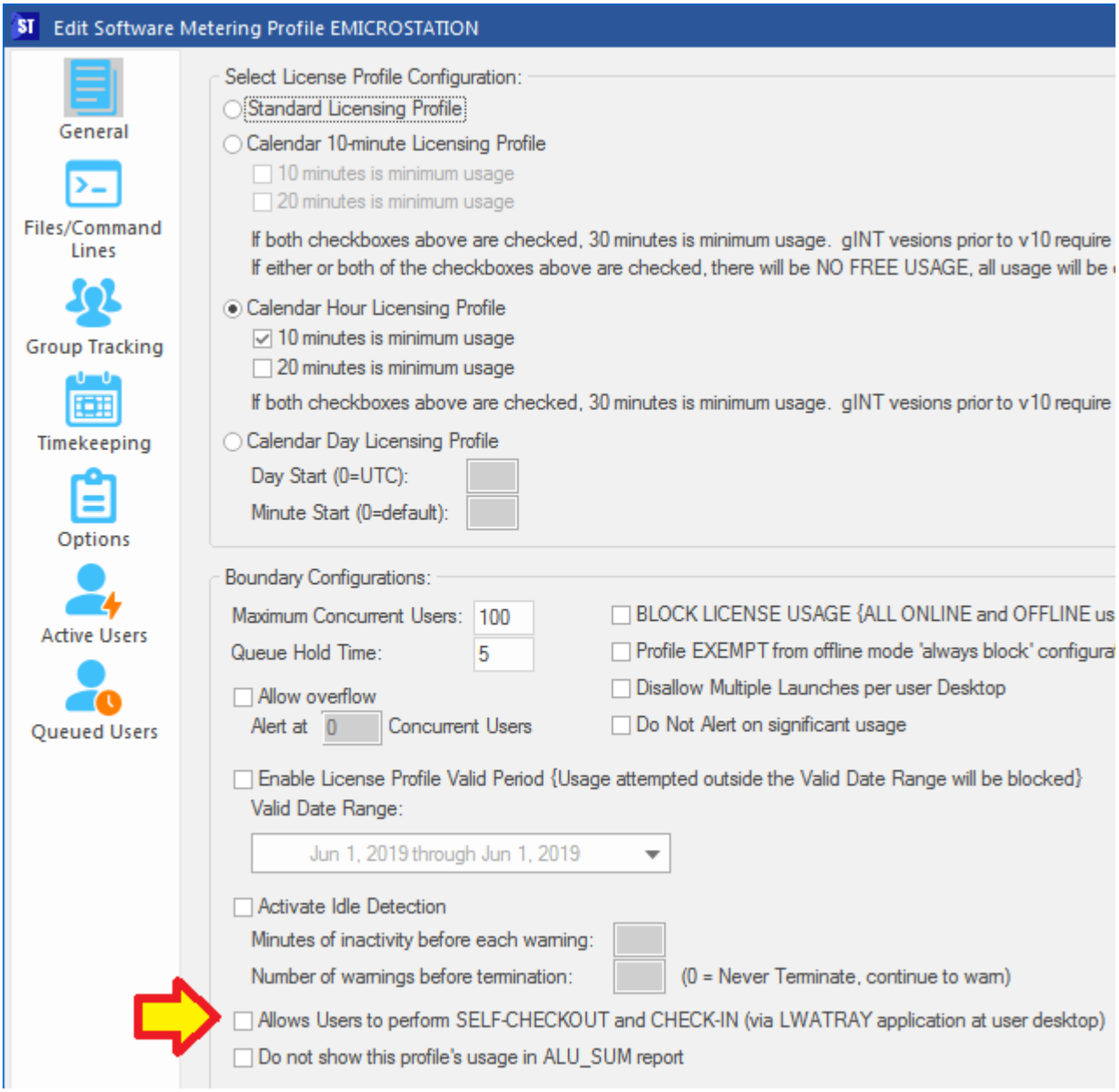
Figure 5-23

Select the desired user to check in and click **Check-in selected**. The user's license will be checked back in.

NOTE: The SSA must be active for the list of checkout users to appear.

NOTE: Whenever a user checkin occurs, the actual **Maximum Concurrent Users** count for the License Profile is incremented by one (1) except when the License Profile is set to **Allow Overflow**.

Checking Licenses Out for Offline Use: How It Works (Self-Checkout via LWATRAY.EXE)



The SofTrack LWA includes a supplemental application named LWATRAY.EXE. This application is automatically engaged by the LWA if any SofTrack License Profile is configured to allow user self-checkout (see image above). Please review the linked section in the previous sentence for complete details.

Supplemental Licensing Profile: Overview (ESRI ArcMap tracking)

Figure 5-24

With SofTrack you have the ability to Supplement software licensing provided by other licensing systems. Currently this only includes ESRI's ArcGIS licenses. Specifically what SofTrack does, via the LWA, is track when ArcGIS licenses are checked out and checked in. SofTrack's Supplemental Profile will incorporate these actions within ArcGIS applications so each are recorded by SofTrack. Optionally, SofTrack can provide control of the ArcGIS license checkouts by blocking checkout requests and queuing users. SofTrack can also send alerts when usage of ArcGIS licenses exceeds a defined level.

Because SofTrack's Local Workstation Agent is directly obtaining license checkout data from the user application(s) as ESRI license(s) are checked out and check in, the usage can span multiple logon sessions as the ESRI license checkout process is independent of when a user is logged in. Because of the "real time" nature of tracking ESRI license checkout and checkin, SofTrack's Supplemental Licensing Profiles do not work SofTrack's LWA offline mode tracking.

Additionally, if the SofTrack Server Agent or SofTrack Local Workstation Agent (at the user's workstation) is stopped/restarted it does not affect Supplemental License Profile activity. Specifically, SofTrack does not "purge" Supplement Licensing Profile activity. There is a "forced check in" feature when viewing Active Users for cases when a user license checkin was not tracked, for instance, if the checkin occurs when either SofTrack agent is inactive.

To begin, a SofTrack *Supplemental Metering* License Profile is created for each ArcGIS license owned.

Start by creating a *Supplemental Metering* License Profile:

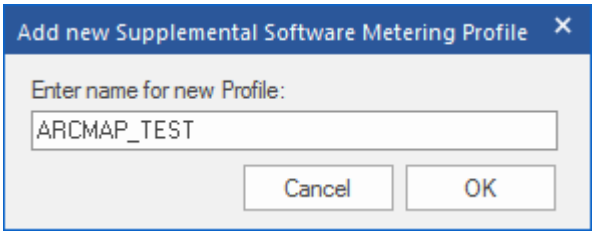


Figure 5-25

When you click OK the following Supplemental Metering Profile screen similar to the following will appear:

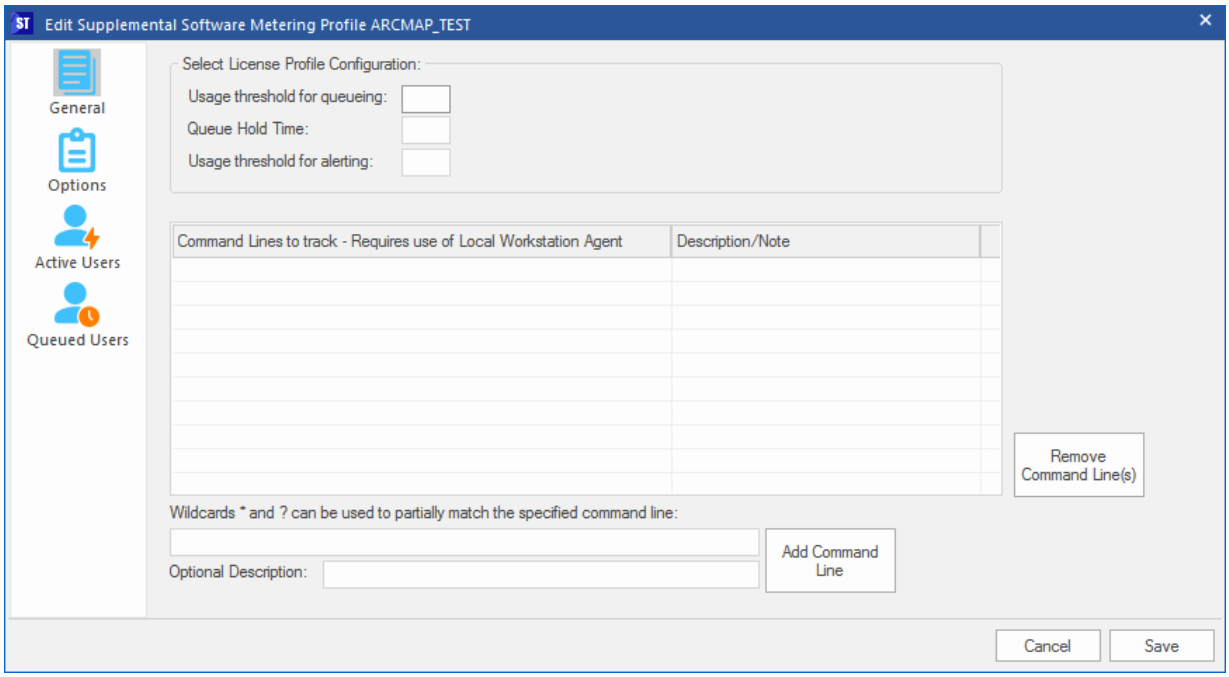


Figure 5-26

You might notice the similarity of the Supplemental Metering Profile and the regular Software Metering Profile. The Supplemental Profile is abbreviated and does not offer as many options because it is merely supplementing an existing licensing service. Specifically this is the licensing service utilized by ESRI applications.

In the General Supplemental Profile Settings section:

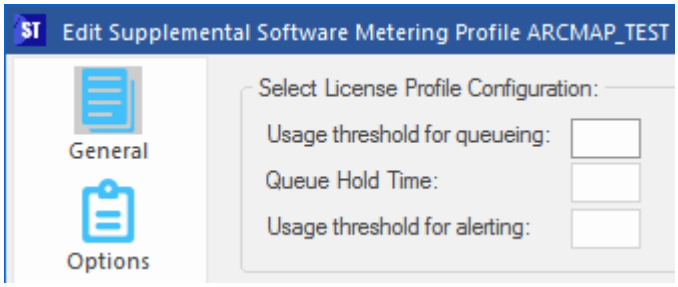


Figure 5-27

You will notice 3 fields.

Supplemental Profile: Usage threshold for queueing

The **Usage threshold for queueing** is analogous to the maximum concurrent user field in a standard software metering profile. If the value used is 0 (zero) there will be no queuing of users and SofTrack will never block an ESRI license. If the value of 0 is used, SofTrack will only record usage, including when usage is blocked by ESRI's licensing service. Also, if a value of 0 is used, SofTrack's automatic web page reporting of Active Users will not include the selected Supplemental software metering profile. If you want SofTrack's automatic web page reporting of Active Users to be included for the selected Supplemental

software metering profile, but never block usage, set the value to a high number such as 100.

If a non-zero value is entered for the Usage threshold for queueing field (18 is shown in Figure 5-25) then it is recommended that the value used is the same as the number of ESRI licenses owned for the specific product this Supplemental Profile will be tracking.

When a non-zero value is entered SofTrack will allow that number of licenses to be concurrently in-use and any further licenses will be denied a license by the ESRI service (SofTrack will instruct the ESRI license to deny the license). Additional users will be queued if Queue hold time field has a non-zero value.

If SofTrack blocks an ESRI license from being used the ESRI application is not terminated by the SofTrack Local Workstation Agent. Instead, the ESRI license service will report to the user that the license is not available.

If a non-value value is used for the Usage threshold for queueing field, SofTrack will record usage, including when usage is blocked by ESRI's licensing service as well as providing queueing if the Queue hold time field has a non-zero value.

Supplemental Profile: Queue hold time

The **Queue hold time** field only has effect if the Usage threshold for queueing field contains a non-zero value. The value defined is the number of minutes to exclusively hold a license for a notified previously queued user. The maximum value is 30 (minutes).

When a license usage is blocked and the Queue hold time has a non-zero value defined the user will be queued. Up to 8 users can be simultaneously queued. The queue is FIFO (first in first out) so users retain their "queue position" for subsequent alerting. When a license becomes available the user, if they are currently connected and logged in, will be notified that the license is being held for them for the number of minutes defined by the Queue hold time. If the user is not currently logged in, the next queued user will notified and so on.

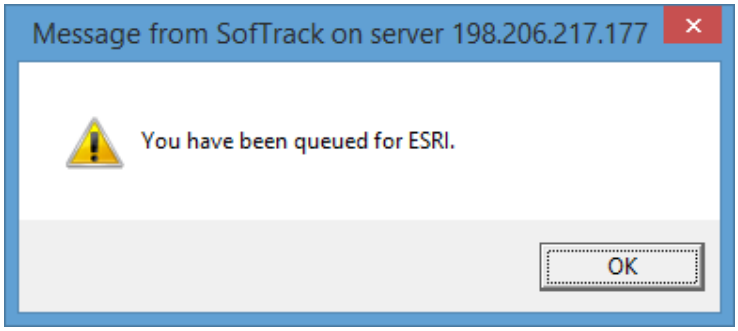


Figure 5-28

When a user is queued by SofTrack, a popup message similar to Figure 5-26 will appear and the user will likely also receive a popup message from ESRI's licensing service indicating the requested license is unavailable.

Supplemental Profile: Usage threshold for alerting

The **Usage threshold for alerting** value, if 0 (zero) has no effect and no alerts will be generated. Otherwise, the non-zero value defined indicates at what number of concurrent users to send an alert to Users to Notify and any connected SofTrack Alert Consoles.

If the Usage threshold for queueing field has a non-zero value, then the value used for the Usage threshold for alerting must be equal to or less than that value. If the alerting field value is greater than the queueing threshold non-value then no alerts will be generated. Recall when the Usage threshold for queueing is defined with a value of zero there is no queueing and no usage control, but there can be alerting.

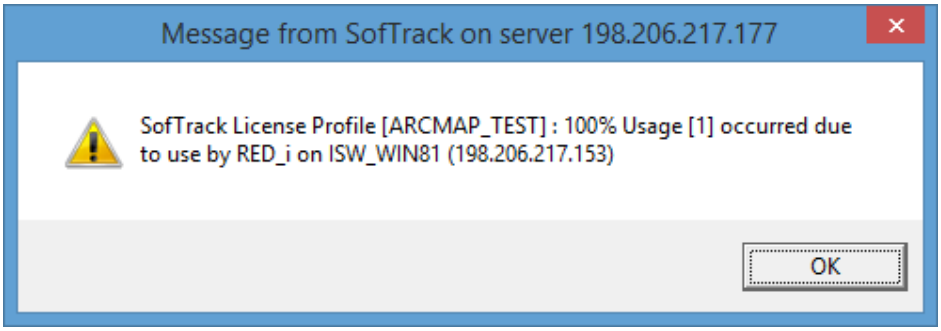


Figure 5-29

When the Usage threshold for alerting is reached an alert message such as the above is generated. Additional alerts will be generated for each additional usage over the defined threshold. If using the STALERT console the message will appear:

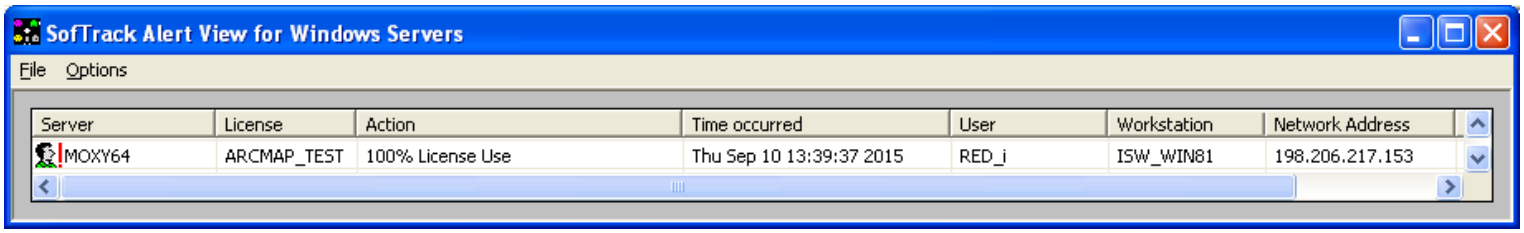


Figure 5-30

Supplemental Profile: Defining License Code to track

As shown in Figure 5-24, the License Codes to include section is where the specific license codes are entered. In Figure 5-31 (below) you will notice a value defined

ESRI*#11#
notice the license code must be enclosed in # symbols

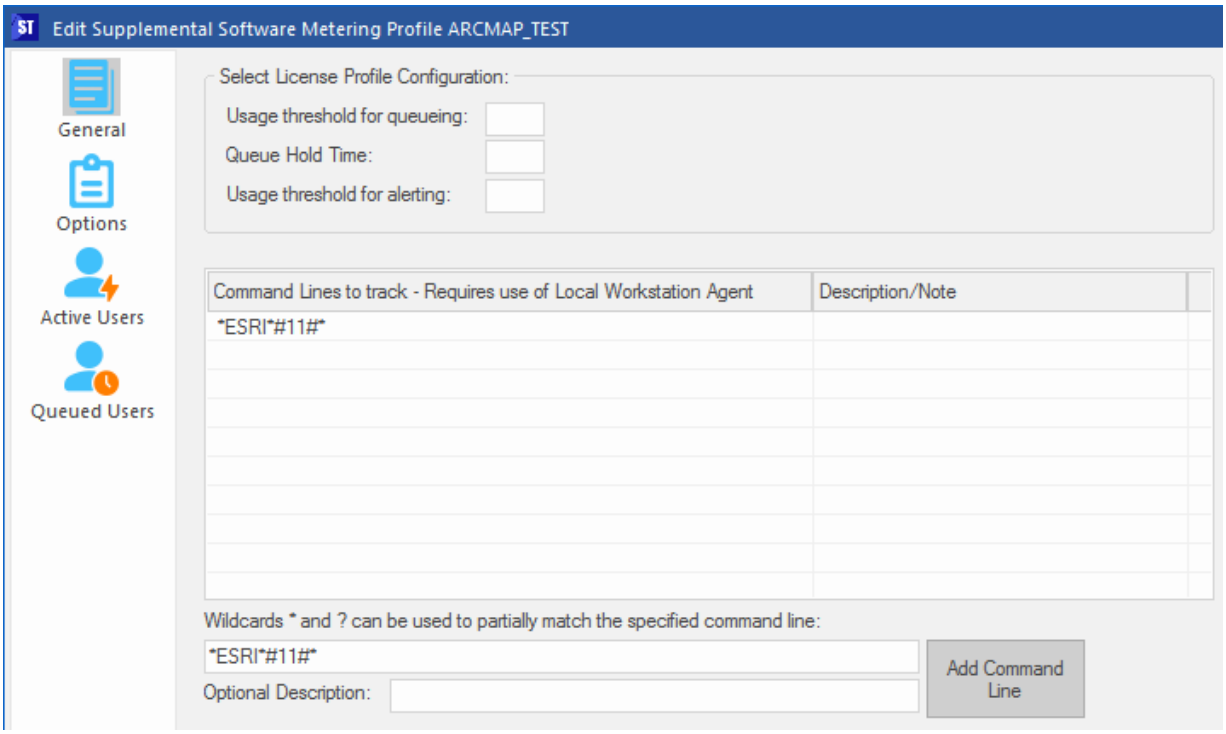


Figure 5-31

This value is obtained by reviewing the SofTrack workstation audit logs for your workstations. The following is a sample of what you will find in the workstation audit logs after ESRI applications have been accessed and licenses checkout and checked-in.

```
"LAUNCH","RED_i","198.206.217.153","ArcMap.exe",
"LAUNCH COMMAND LINE","RED_i","198.206.217.153","#+#ArcMap.exe#ESRI01#10#^!^",
"LAUNCH","RED_i","198.206.217.153","ArcMap.exe",
"LAUNCH COMMAND LINE","RED_i","198.206.217.153","#+#ArcMap.exe#ESRI02#10#^!^",
"LAUNCH","RED_i","198.206.217.153","ArcMap.exe",
"LAUNCH COMMAND LINE","RED_i","198.206.217.153","#+#ArcMap.exe#ESRI04#10#^!^",


"LAUNCH","RED_i","198.206.217.153","ArcMap.exe",
"LAUNCH COMMAND LINE","RED_i","198.206.217.153","#+#ArcMap.exe#ESRI01#14#^!^",
"LAUNCH","RED_i","198.206.217.153","ArcMap.exe",
"LAUNCH COMMAND LINE","RED_i","198.206.217.153","#+#ArcMap.exe#ESRI03#14#^!^",
```

Figure 5-32

Notice in Figure 5-32 the "LAUNCH COMMAND LINE" values, the last component is a value such as:

```
#+#ArcMap.exe#ESRI01#10#^!^
```

This value is created by the SofTrack Local Workstation Agent to indicate that the named application (ArcMap.exe) has requested the use of License Code 10 (#ESRI01#10#).

The application filename is included in the value SofTrack provides in case you need to track ESRI license codes based on the accessing executable.

You might wonder what License Code 10 indicates. Please refer to the ESRI License Codes section. ESRI License Code 10 is SpatialAnalyst. Your ESRI system may include License Codes (numbers) not included in this section.

If you look closely you will notice the codes include a number following #ESRI, such as #ESRI01#, #ESRI02#, #ESRI03#, and #ESRI04#. These numbers indicate the nature of the code being sent by the SofTrack Local Workstation Agent.

The code #ESRI01# for the indicated license code (its number follows after the #) indicates the license is being requested but is not yet in use.

The code #ESRI02# for the indicated license code (its number follows after the #) indicates the license is now being used per ESRI license service (checked out).

The code #ESRI03# for the indicated license code (its number follows after the #) indicates the license is denied by the ESRI license service.

The code #ESRI04# for the indicated license code (its number follows after the #) indicates the license has been released (checked in).

Important:
If you are familiar with SofTrack's standard Software Metering License Profiles please note that these special command lines using the prefix #+# are not available for non-Supplemental License Profile types.

In Figure 5-31 you will notice the License Code defined is ***ESRI***#11#*, the use of wildcards (* symbol) is used to include all of the variations. However, you might want to define a SofTrack Supplement Profile that only tracks when ESRI has denied license use for SpatialAnalyst licenses (license code 10), to do so you would instead define ***ESRI03***#10#*.

Important:
If the Supplement Profile you create is intending to track and optionally control usage of a specific ESRI License Code then it **the correct definition** is ***ESRI***#nn#* where nn is the ESRI License Code, some license codes are a single digit.

Supplemental Profile: Tracking Concurrent versus Single Use license usage

Building upon the previous section, SofTrack will also track if an ArcMap Advanced [Code=1], Standard [Code=3] or Basic [Code=11] license is started using a "floating license" (concurrent, network) or a "fixed license" (single user).

This value is obtained by reviewing the SofTrack workstation audit logs for your workstations. The following is a sample of what you will find in the workstation audit logs after ESRI applications have been accessed and licenses checkout and checked-in.

```
"LAUNCH","davidw","172.16.5.214","ArcMap.exe",
"LAUNCH COMMAND LINE","davidw","172.16.5.214","#+#ArcMap.exe#ESRI01#11#^!^+++Concurrent+++",
"LAUNCH","davidw","172.16.5.214","ArcMap.exe",
"LAUNCH COMMAND LINE","davidw","172.16.5.214","#+#ArcMap.exe#ESRI02#11#^!^+++Concurrent+++",
"LAUNCH","davidw","172.16.5.214","ArcMap.exe",
"LAUNCH COMMAND LINE","davidw","172.16.5.214","#+#ArcMap.exe#ESRI04#11#^!^+++Concurrent+++",

"LAUNCH","davidw","172.16.5.214","ArcMap.exe",
"LAUNCH COMMAND LINE","davidw","172.16.5.214","#+#ArcMap.exe#ESRI01#1#^!^+++SingleUse+++",
"LAUNCH","davidw","172.16.5.214","ArcMap.exe",
"LAUNCH COMMAND LINE","davidw","172.16.5.214","#+#ArcMap.exe#ESRI02#1#^!^+++SingleUse+++",
"LAUNCH","davidw","172.16.5.214","ArcMap.exe",
"LAUNCH COMMAND LINE","davidw","172.16.5.214","#+#ArcMap.exe#ESRI04#1#^!^+++SingleUse+++",
```

Notice in above Figure the "LAUNCH COMMAND LINE" values, the last component is a value such as:

```
#+#ArcMap.exe#ESRI01#11#^!^+++Concurrent+++
```

This value is created by the SofTrack Local Workstation Agent to indicate that the named application (ArcMap.exe) has requested the use of License Code 11 (#ESRI01#11#) (Basic License of ArcMap) using a **Concurrent** License.

In the second portion of the above Figure, License Code 1 (#ESRI01#1#) (Advanced License of ArcMap) using a **SingleUse** License has been launched.

Thus, in the Command Line portion of the SofTrack Profile being defined, you can either specify:

ESRI#11#*concurrent*

or

ESRI#11#*singleuse*

In the examples above, the first defines to track ArcMap Basic license (code=11) for Concurrent license activation. The second to defines to track ArcMap Basic License SingleUse activation.

By creating two SofTrack Supplemental License Profiles you can separately track your Concurrent and SingleUse ESRI ArcMap licenses.

Supplemental Profile: Forced License Checkin

When viewing active users of a Supplemental Profile you will notice a button to Force Checkin of a selected workstation..

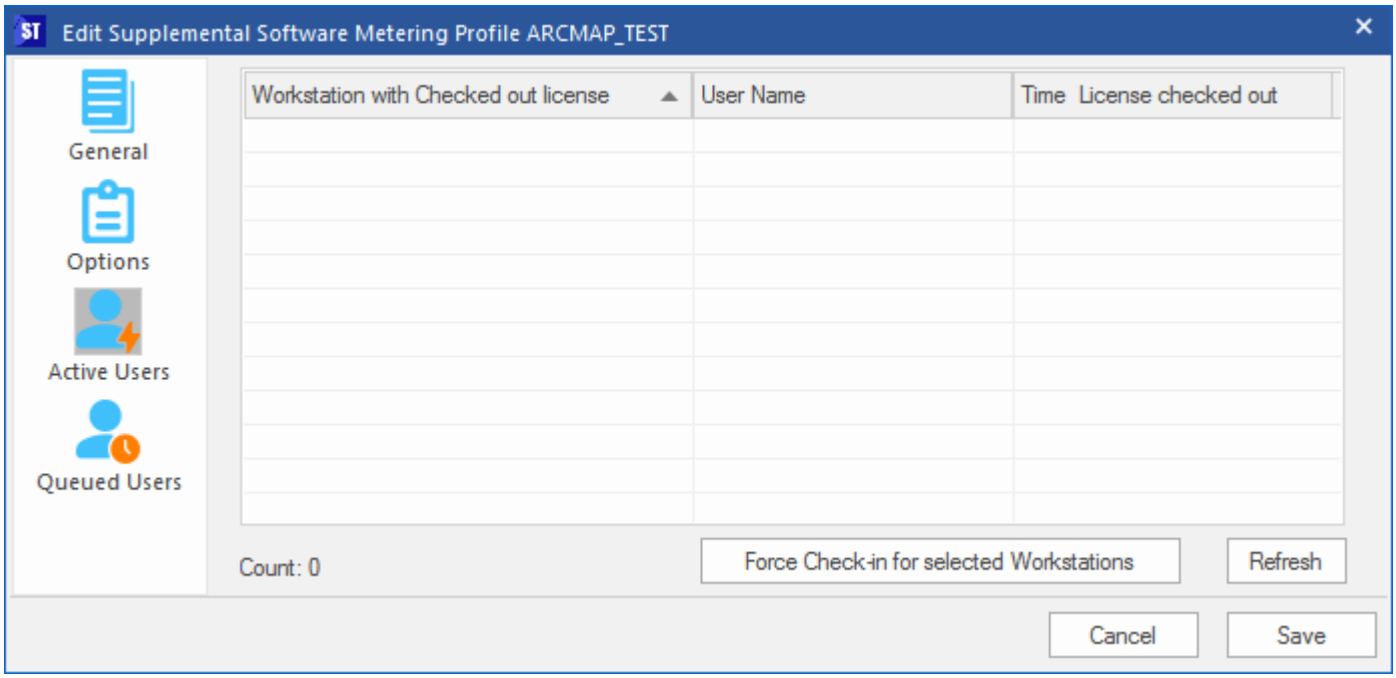


Figure 5-33

To Force Checkin, select the workstation + user and click the **Force Check-in for selected Workstations** button. The result is not instantaneous but should complete within 15 seconds. Use the Refresh List button to confirm the entry is removed. Once removed you can Force Checkin any others required, one at a time. Each entry removed by the Force Checkin button will have its usage recorded for later reporting using the time of the Force Checkin as the end time for the license usage. Typically it is expected you would only use the Force Checkin button if a user was unable to checkin the license, for instance, their workstation is lost.

Linking Profile: Overview

Figure 5-34

With SofTrack you have the ability to LINK Software Metering License Profiles in a specific order. This feature was originaly created to assist Autodesk customers in monitoring usage of ***Cascading Sequences*** for Autodesk products. However, it can be used for any licenses that require a specific sequence of usage detection to locate the appropriate license profile.

When using Linking Profiles, the SofTrack Server Agent will ensure that a specific user on a specific workstation only uses a single license and that license in-use will be the "highest level" license that has been requested. This mimics the Autodesk licensing policy.

The following is historical content that Autodesk® no longer utilizes:

The Autodesk website (September 2015) includes the following link that describes Cascading Licensing for Autodesk Products:

http://knowledge.autodesk.com/customer-service/network-license-administration/managing-network-licenses/cascade-licensing

The following is an excerpt from Autodesk's website link above:

Cascade Licensing is implemented for mixed-product environments where a single license manager is servicing multiple Autodesk products and is most effective in a large user group when the Network License Manager (NLM) has a pool of different license types available for distribution.

Maximizing License Availability
With Cascade Licensing, lower ranking product licenses can be used before higher ranking product licenses; when all lower ranking product licenses are in use, a product will cascade up to use the license of a higher ranking product, maximizing license availability.

For example, if the pool includes product-specific licenses for several products, some licenses for a standard suite, and some licenses for an ultimate suite, the NLM has many options for efficient license management:

Single Product Assignment: *NLM assigns a single-product licenses as individual products start up*

Suite License Assignment: *NLM releases the single-product licenses and replaces it with a suite license if a user runs multiple products in a suite*

Ultimate Version Assignment: *NLM releases the standard suite license and uses an*

ultimate license if a user invokes an advanced operation that requires a product from the ultimate suite

Linking Profile: Implementation

To begin, a SofTrack *Software Metering* License Profile is created for each Autodesk product or product group with the maximum number of users set to the same as what is owned.

Important:

Typically each Software Metering License Profile defined for use in a Linking Profile must be defined to include all applications (executable paths+command lines) relevant to the real world licenses you are using. The exact details of your situation may differ based on the specifics of your Autodesk Licsense Agreement(s).

Example:

If you have 3 Software Metering License Profiles you will link in a Linked Profile, named AA, AB, and AC where AC is the last profile in the sequence to be searched, then the following must be true:

Each file+command line defined in License Profile AA must also be defined in License Profile AB.

It is expected that License Profile AB will define additional file(s)+command line(s) not found in License Profile AA.

Each file+command line defined in License Profile AB must also be defined in License Profile AC.

It is expected that License Profile AC will define additional file(s)+command line(s) not found in License Profile AB.

Additionally, SofTrack allows you to define Suites of applications and licenses can be implemented the same as Autodesk defines.

Once each SofTrack *Software Metering* License Profile is created for each Autodesk product group create a new SofTrack Linking Profile:

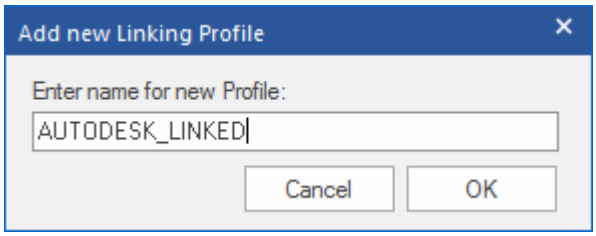


Figure 5-35

When you click **OK** the following Linking Profile screen will appear:

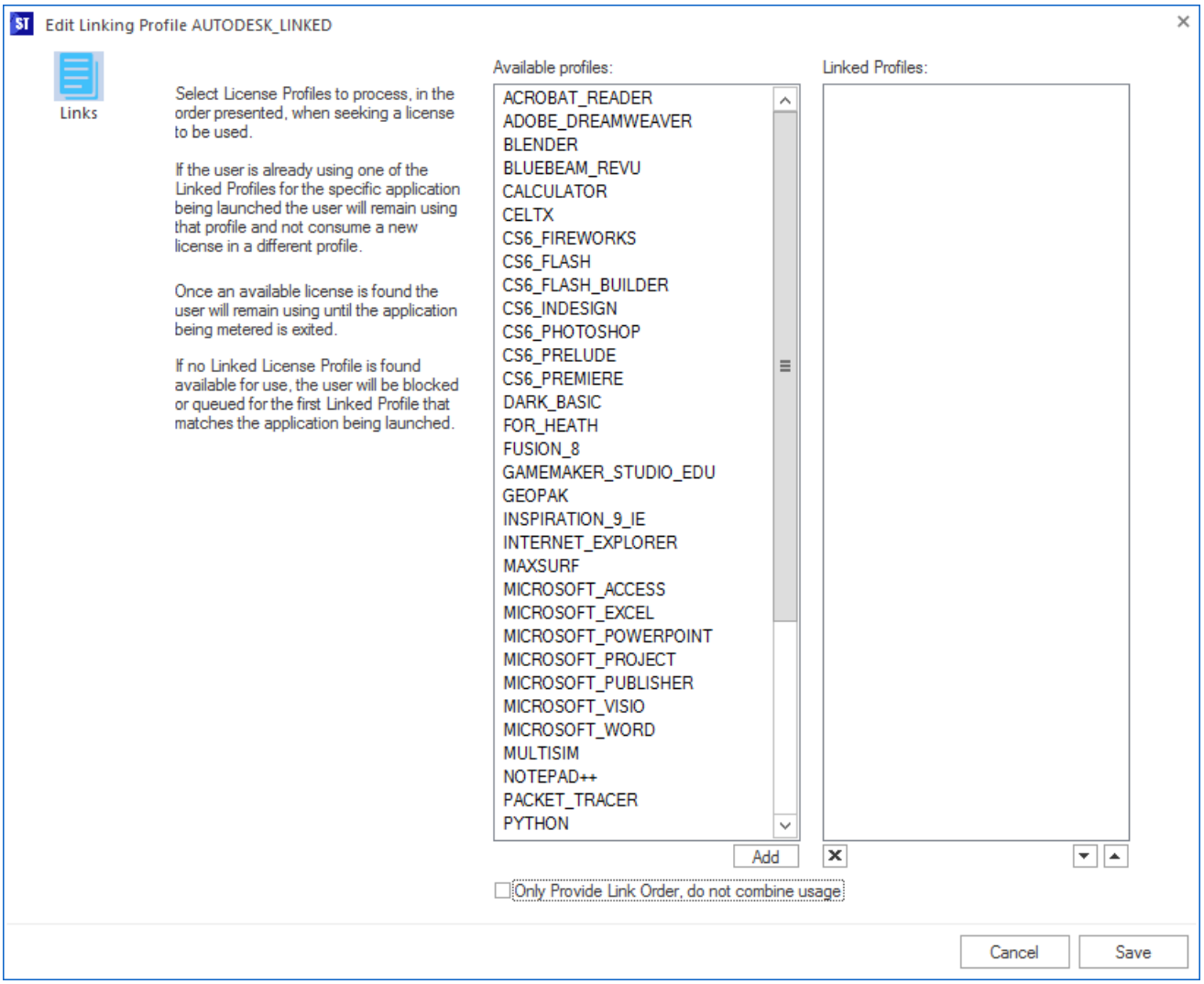


Figure 5-36

Notice the list of Software Metering Profiles under the Available Profiles header at the left side of the above image. The Linked Profiles list is initially empty. Select each (one-by-one) Available Profile you want to include in this Linked Profile. Please note that you can create multiple Linked Profiles with overlapping Software Metering Profiles, however, if you do this it is possible for user "usages" to be tracked by an unintended Linked Profile – thus we recommend you do not use the same Software Metering Profile(s) in more than one Linked Profile.

For this example we will include the AUTOCAD* and AUTODESK* Software Metering Profiles as shown in the following image:

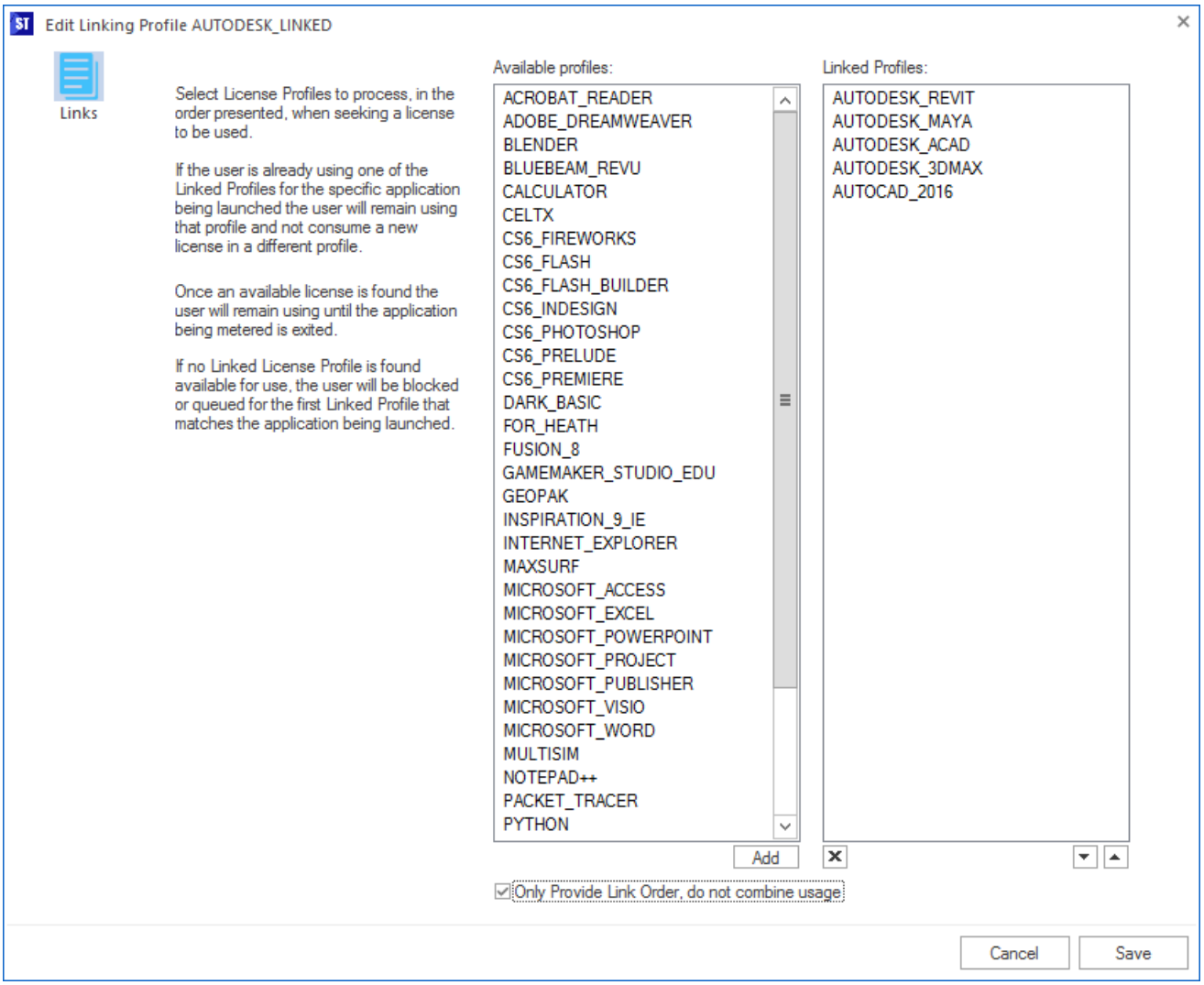


Figure 5-37

Notice, in the image above, at lower right the ▲ and ▼ symbols as well as the ✕ symbol. Use these buttons to rearrange the order of Software Metering Profiles. The order shown, from top to bottom, is the order the Software Metering Profiles will be searched for an available license for each applicable user request. As shown in Figure 5-37, AUTODESK_REVIT will be searched first and then AUTODESK_MAYA and so on.

Important:

Typically each Software Metering License Profile included in the list of Linked Profiles must be defined to include all applications relevant to that license group. This includes any Metering License Profiles defined as a Suite or Suite member. Please refer to your Autodesk License Agreement(s) for details specific to your installation and usage.

For instance, the AUTODESK_REVIT profile would be the only one in the list of profiles shown to include REVIT.EXE as a metered application (i.e. because its usage requires a certain level of Autodesk license). However, each profile would include (lower level applications), for instance using partial paths:

AutoCAD 2014\acad.exe

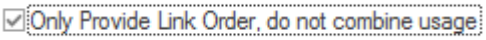
AutoCAD 2015\acad.exe

It is important to include all relevant application names (including partial paths where necessary) because that is the only way an application will be associated with a specific Software Metering License Profile. In the case of Linked Profiles it is acceptable for multiple Software Metering License Profiles to include the exact same application file/pathnames. This is acceptable because the Linked Profile indicates the exact order the Software Metering License Profiles will be examined and utilized. And, if the application a user is attempting to launch matches **any** of the Software Metering License Profiles defined in the Linked Profile then that user's usage will **only** be tracked by the profiles defined in the Linked Profile.

This means if there is another Software Metering License Profile defined that has a matching application file/pathname that is not included in the Linked Profile, it will never be used to track usage of that application because priority is given to Linked Profiles. And only those Software Metering License Profiles included in the Linked Profile will be used for any application that matches any defined in any such a Software Metering License Profile.

If the Software Metering License Profiles defined by the Linked Profile do not have an available license to match the user's request, the user will be queued for the first matching Software Metering License Profile - or blocked if queueing not defined or if the queue is full (the queue, which is per Software Metering License Profile, can simultaneously hold up to 8 users).

If the checkbox, *Only Provide Link Order, do not combine usage*:



is checked, then the linking profile will only provide guidance for the order of discovering a matching license profile and will not combine usage. This enables the ability to ensure a specific application usage is correctly associated with the best matching License Profile.

Per User Licensing Profile: Overview (Bentley Passport and Visa)

Figure 5-38

With SofTrack you have the ability to track application usage per-user. The Per User license profile type was specifically created to assist with licensing compliance of your Bentley CONNECTIONS Passports(Visa) applications.

Bentley's CONNECTIONS Passports are a collection of client licenses consisting of at least 36 different products.

Passports are per named user without regard for the device where used.

Once a Passport license is accessed by a specific user, any passport client product can be used as often as required for the remainder of the licensing term. The licensing term generally coincides with the SELECT Subscription term, the two most used are monthly and calendar quarter. Further, once the user has acquired a Passport license that user is considered to always be using that license until the end of the subscription term.

Passport usage is always billed by Bentley® in arrears.

SofTrack's Per User license profile provides the ability to track usage as Bentley describes.

Start by creating a *Per User* License Profile:

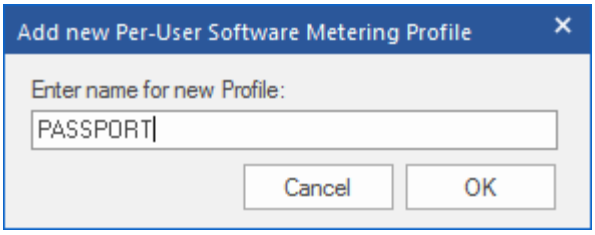


Figure 5-39

When you click **OK** the following screen or one similar to the following will appear:

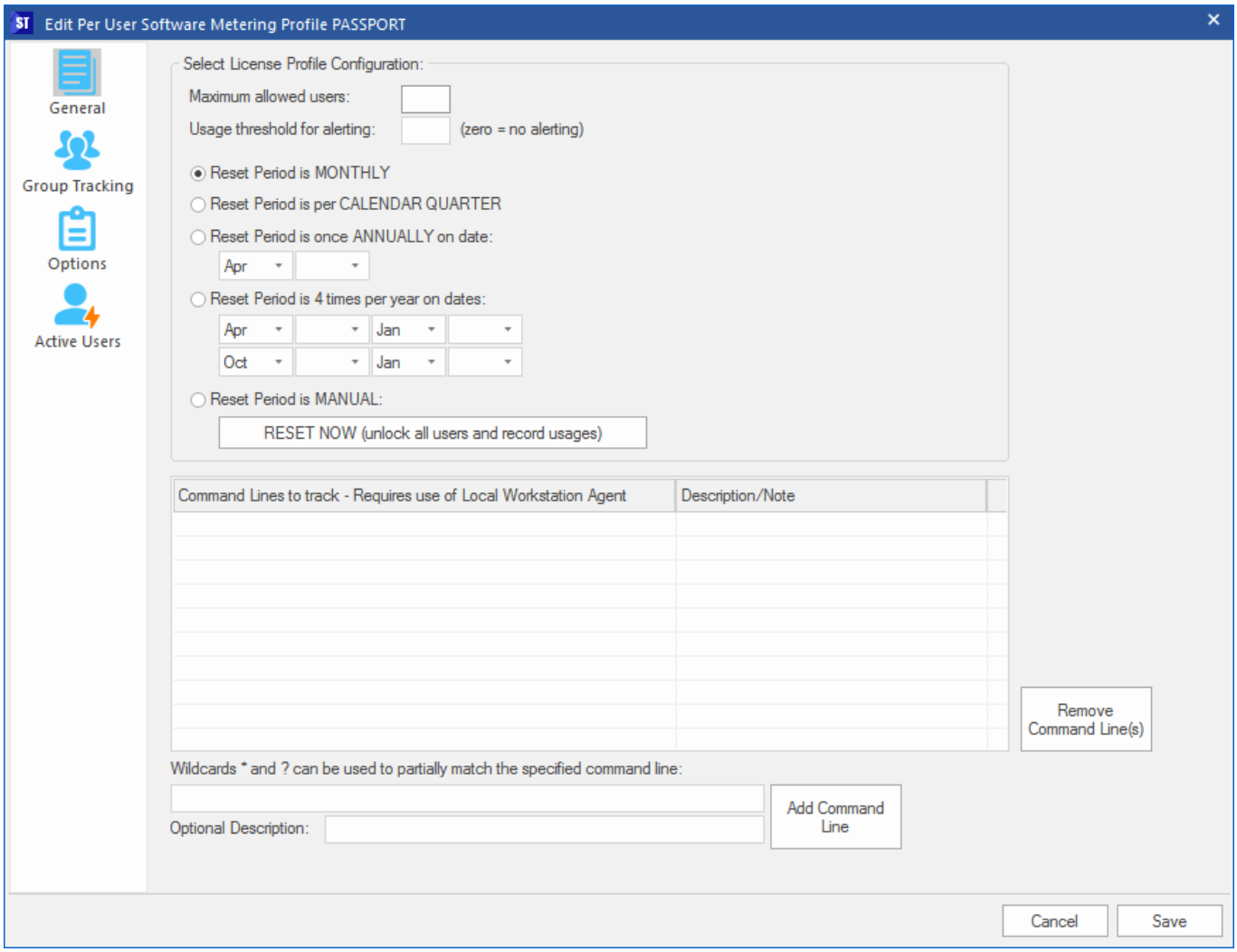


Figure 5-40

The Per User profile is abbreviated and does not offer as many options because it tracks per unique user and once in-use, the usage is only freed when reset.

The following details the Per-User Profile Settings section:

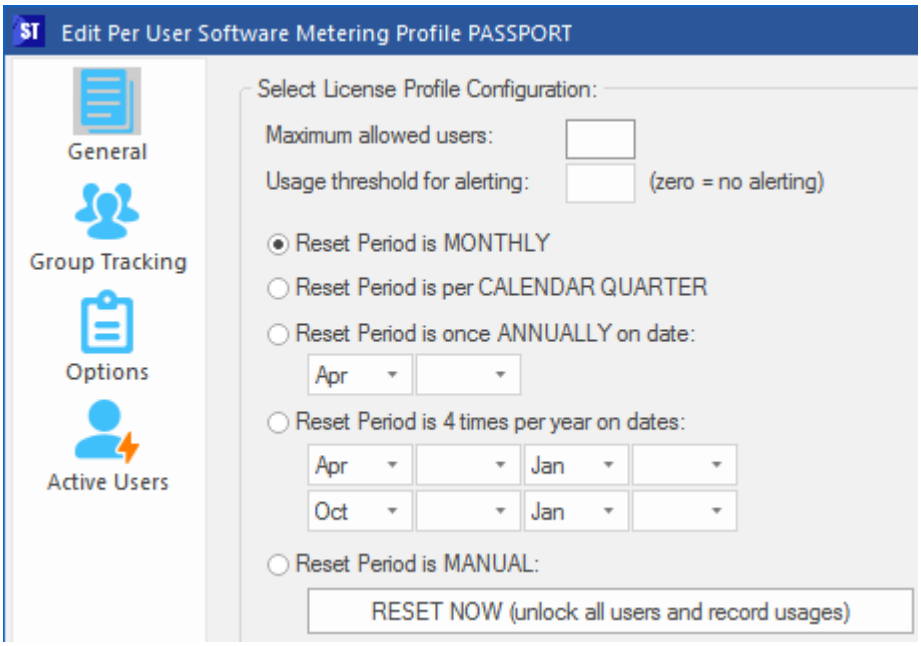


Figure 5-41

Per User Licensing Profile: Maximum allowed Users

The **Maximum allowed Users** is analogous to the maximum concurrent user field in a standard software metering profile. If the value used is 0 (zero) all usages will be blocked, there will be no queuing of usage. Set this value to the number of unique users allowed.

Per User Licensing Profile: Usage threshold for alerting

The **Usage threshold for alerting** value, if 0 (zero) has no effect and no alerts will be generated. Otherwise, the non-zero value defined indicates at what number of concurrent users to send an alert to Users to Notify and any connected SofTrack Alert Consoles.

When the Usage threshold for alerting is reached an alert message is generated. Additional alerts will be generated for each additional usage over the defined threshold. If using the STALERT console the message will appear.

Per User Licensing Profile: Reset Period

As shown in Figure 5-41, the Reset Period has 5 options and a button to force an immediate reset (button can only be used when the Reset Period is MANUAL is selected). When the reset period occurs, all users will be removed and record of their usage will be recorded for later reporting. For the MONTHLY, CALENDAR QUARTER, ANNUALLY and 4 TIMES options, the reset occurs at midnight on the first of the appropriate month/date. If the RESET NOW button is clicked, usage will be recorded and all users removed from being active in the license.

If the reset period is MONTHLY, CALENDAR QUARTER, ANNUALLY or 4 TIMES SofTrack will automatically begin usage for all users from any included group

memberships defined by the Per User profile

Per User Licensing Profile: Command Line Codes to include

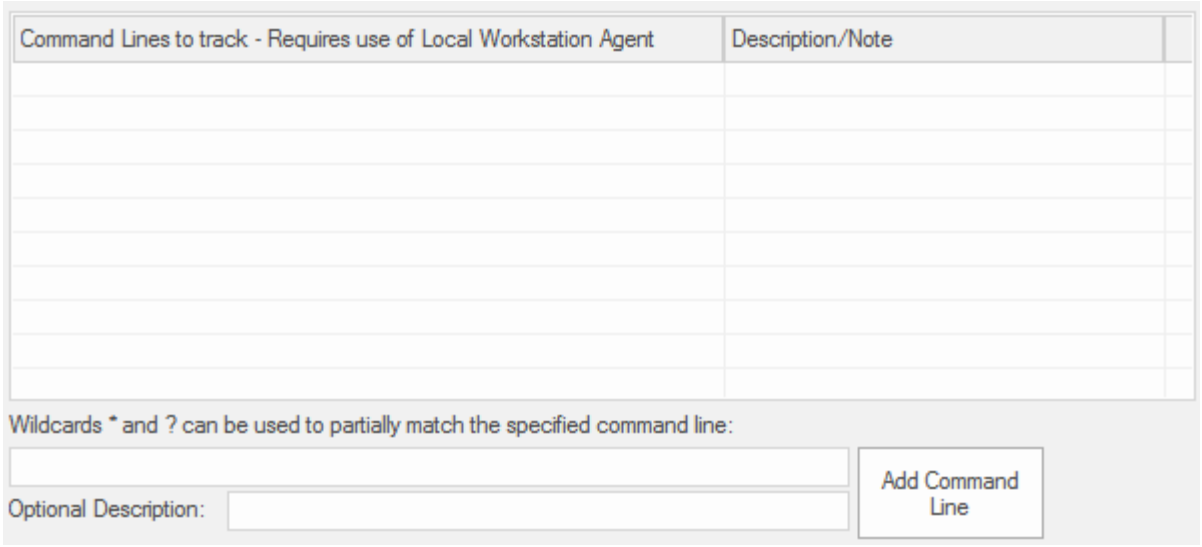


Figure 5-42

SofTrack's workstation agent will use application command lines to detect usage. This value is obtained by reviewing the SofTrack workstation audit logs for your workstations. Please see Chapter 11 for further details of how to determine the command lines to use.

Per User Licensing Profile: Group membership to automatically use license

SofTrack can auto-populate the list of active users to ensure specific users are granted a license. SofTrack provides this ability to identify users to automatically start using a license by Group Membership.

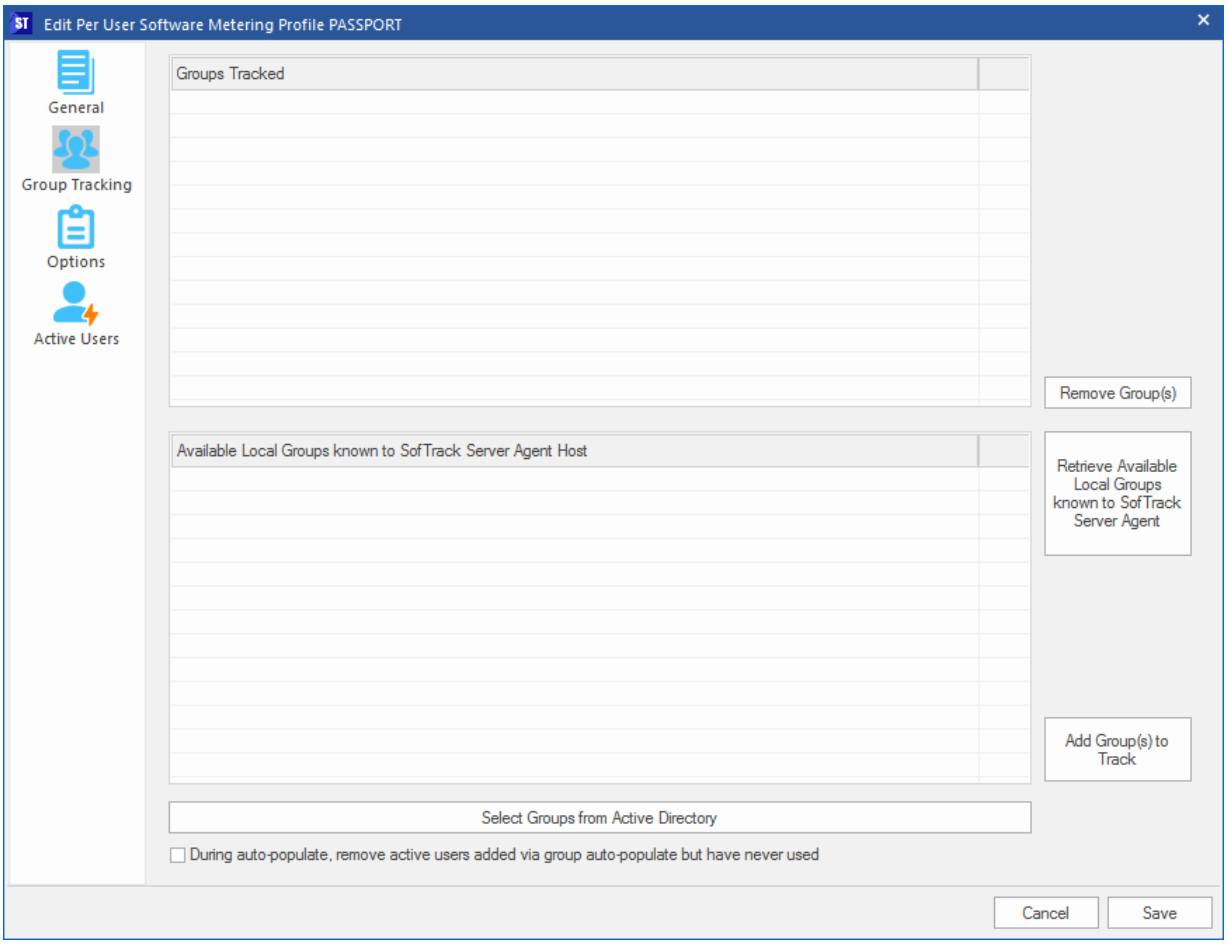


Figure 5-43

If using Active Directory, use the "Choose Groups by Location" button to select Active Directory Group(s) to include. All group members that are user objects will be automatically included as using a license.

If not using Active Directory, click the "Get Available Groups" button to obtain a list of Windows local groups whose user members will be automatically included as using a license. This button requires the SofTrack Server Agent to be active as it provides the list of available Windows local groups.

Users who are members of any included groups are added as active users everyday at 12:05am (this includes days where usage is automatically reset) and each time the SofTrack Server Agent is updated. For instance, editing a license profile and saving changes will automatically update the SofTrack Server Agent. You can also force the SofTrack Server Agent update by clicking the **Refresh Details** button at the top left section in the Profiles.

If there are more users than available licenses, a "rejected usage" record will be recorded for each affected user for later reporting.

The checkbox shown at the bottom of Figure 5-43,

During auto-populate, remove active users added via group auto-populate but have never used

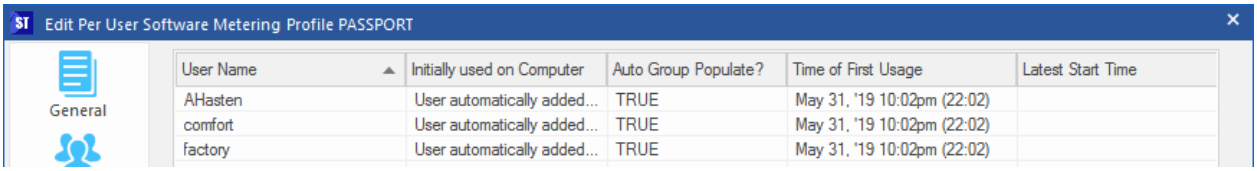
when enabled, will automatically clear/erase each user who was previously shown as an active user via group membership auto-populate but never actually used the metered application(s) defined by the currently selected Per User License Profile. Any users that are cleared/erased due to this option will not be recorded for later reporting.

This option is enaged each time group membership is used to auto-populate the list of active users.

This option is useful for group's whose membership changes (or when group(s) are removed from the profile) and for any users who never actually used the license will be removed to make room for other users.

Per User Licensing Profile: View Active Users

The active user view:



If a user is automatically added, the "Initially used on Computer" column will indicate "*User automatically added via Group Membership".* This value will be replaced by the name of the first computer where the named user has started any metered application defined by the profile. Additionally, the "*Auto Group Poplulate?*" column will include TRUE if the user was initially added via auto populate by Group Membership. For users that became an active user via directly using any metered application defined by the profile, this column will indicate FALSE.

If the user has accessed the license from multiple computers, only the first is shown.

The "*Latest Start Time*" column will only have value if the user has actually started any metered application defined by profile. The value will be updated each time the user starts any metered application defined by the profile.

Chapter 6 Administrative Options

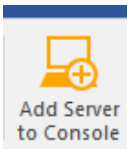
Starting SOFTRACK_CONSOLE.EXE

The SOFTRACK_CONSOLE.EXE Administrator tool is the central tool to configure and report SofTrack usage. SOFTRACK_CONSOLE.EXE can be run from any Windows desktop that has access to the servers(s) to manage. The file SOFTRACK.EXE is a sub-launch file that determines if the Novell Client is present and if so will launch SOFTRACK_CLASSIC.EXE and if not will launch SOFTRACK_CONSOLE.EXE. For documentation purposes, references to SOFTRACK.EXE also indicate use of SOFTRACK_CONSOLE.EXE.

When starting SOFTRACK_CONSOLE.EXE, it will refer to the following local workstation's registry key:

```
HKEY_CURRENT_USER\Software\Integrity Software, Inc.
```

This key is created and maintained by SOFTRACK_CONSOLE.EXE. Within this key the value of the last tab you viewed is stored. Also stored are all servers you have configured with SOFTRACK_CONSOLE.EXE. Therefore, if you use SOFTRACK_CONSOLE.EXE on a different workstation you may not see the expected list of servers. You can easily add servers by clicking the following button on the Home page, Home section:



The following prompt will appear:

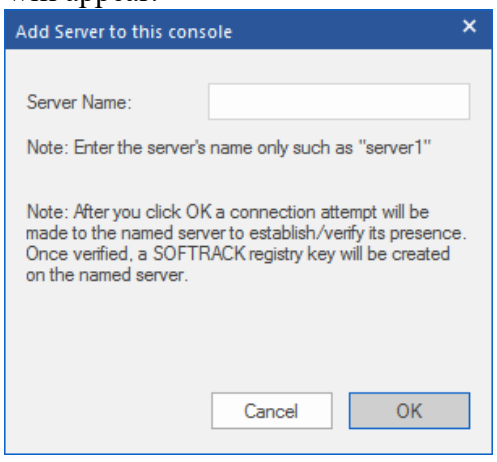


Figure 6-1

Registry Key Added at Server Host

When SOFTRACK_CONSOLE.EXE connects to a Windows server, it will automatically attempt to create a registry key. The key created will be

HKEY_LOCAL_MACHINE\Software\Integrity Software, Inc.

Several other keys will be created underneath this key. If the registry key already exists, it will not be recreated or otherwise altered.

Backing up SofTrack License Profile and Configuration Definitions and Activity Data

To back up/archive SofTrack's License Profile Definitions and other configuration details:

1. At the server host, open REGEDIT.EXE.
2. Open the registry key:

   HKEY_LOCAL_MACHINE\Software\Integrity Software, Inc.

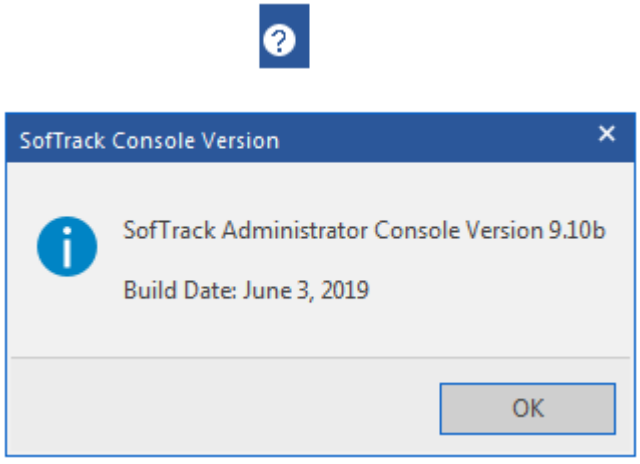
3. From the menu, select **File** and then **Export...**
4. Save to a file of your choice

To back up/archive SofTrack's Metering Activity Data:

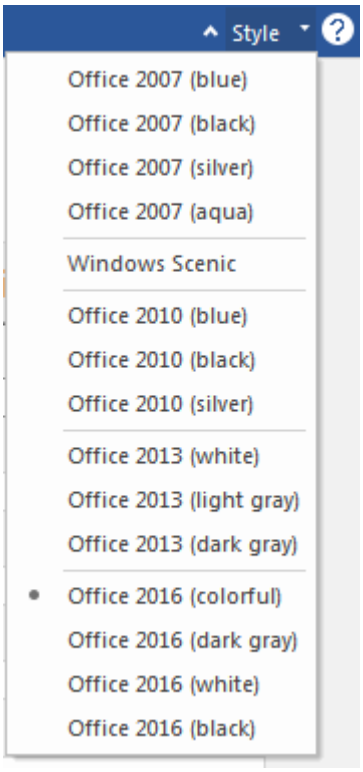
- Back up with WinZip or another archiving utility the contents, including all subdirectories, of the directory selected to be the METER.LOG path.

About and Visual Look

To view the version of the SOFTRACK_CONSOLE.EXE, click on the ? found at the upper right corner:

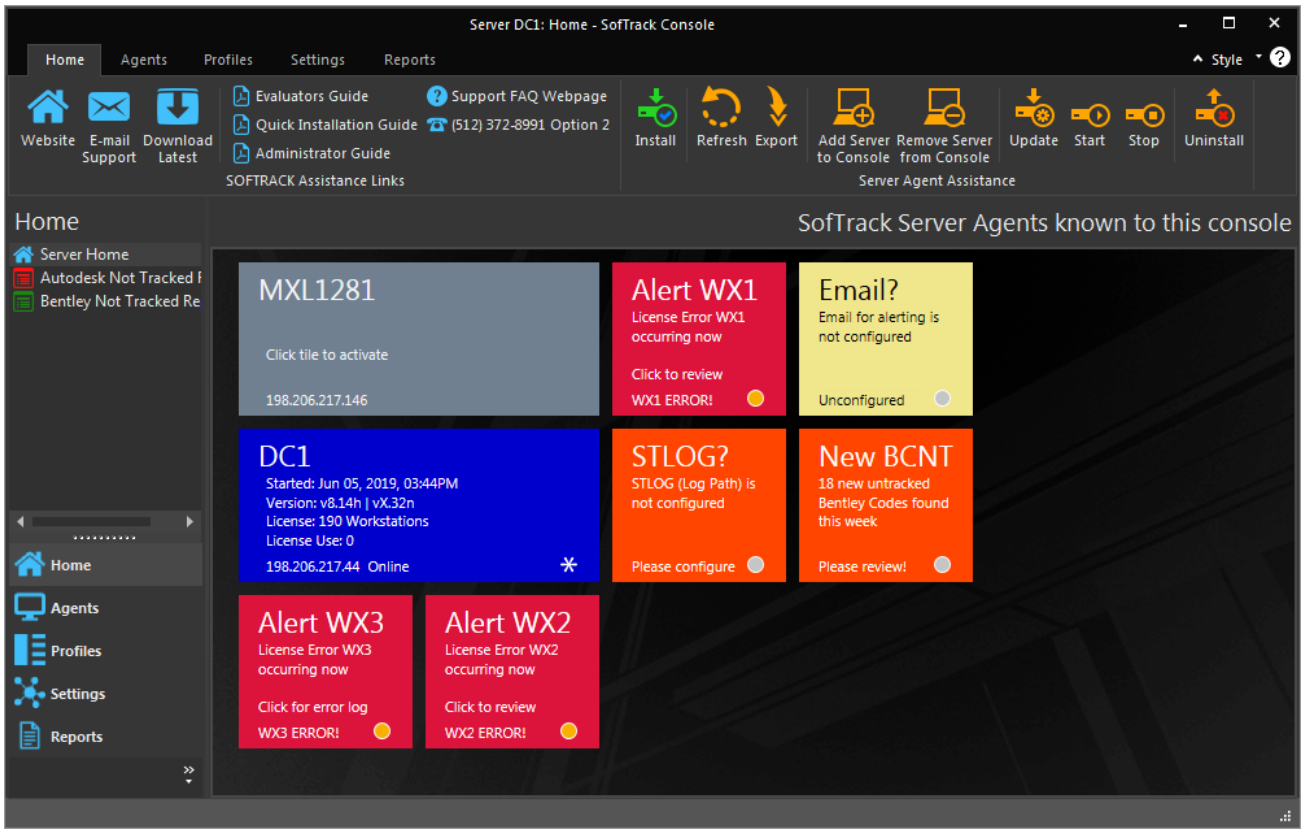


To adjust the Visual Style of the SOFTRACK_CONSOLE.EXE, click on the ^Style item at the upper right and a drop down menu will appear, select the visual look. The default look is "Office 2016 (colorful)".

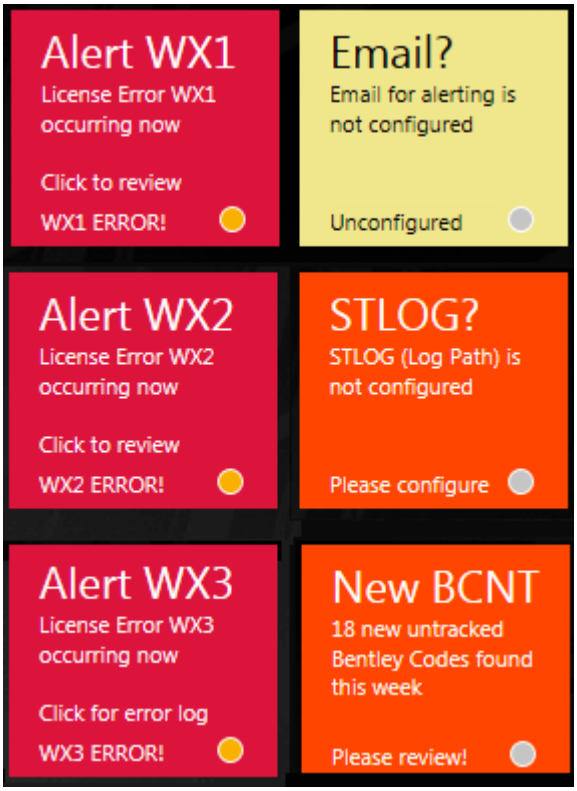


Alert Tiles

The SofTrack Console has several Alert Tiles that may appear in the Home section of the Home tab:



These Alert Tiles are clickable. Each will change the view to the appropriate section. If you find WX2 alerts occurring you can use the Archive selected Computers button at the top of the Agents tab to automatically archive the selected workstations including their Log Files



In addition to the Alert Tiles shown above, there is another that has a blue background that will remind you when your SofTrack License will expire in the next 30 days.

Administrative Options

The balance of this chapter will discuss the options required to configure the server host for use by SofTrack via the `SOFTRACK_CONSOLE.EXE` application.

Customize License Messages

Customizing License Messages: Overview

SofTrack includes several default messages that are sent to users to inform them of various actions that SofTrack is performing. For instance, a user who is being denied access to a license will receive a message to that effect. There are several reasons for customizing SofTrack's messages, including providing text for non-English speaking users.

SofTrack message customization is per SofTrack Server Agent and not per License Profile. That is, if you customize the message "you have been denied access" that is the message users will receive regardless of which License Profile's files are being denied access. SofTrack does not provide a mechanism for customizing messages at a License Profile level.

SofTrack's messages are sent to the user desktops via the SofTrack Local Workstation Agent. When the SofTrack Local Workstation Agent is installed, it will always receive and properly display all of SofTrack's messages. The SofTrack Local Workstation Agent

Customizing License Messages: How

1. Open `SOFTRACK_CONSOLE.EXE`.
2. Select the desired server and click the "Settings" tab and then click the "User Messages" section as shown below in Figure 6-2.

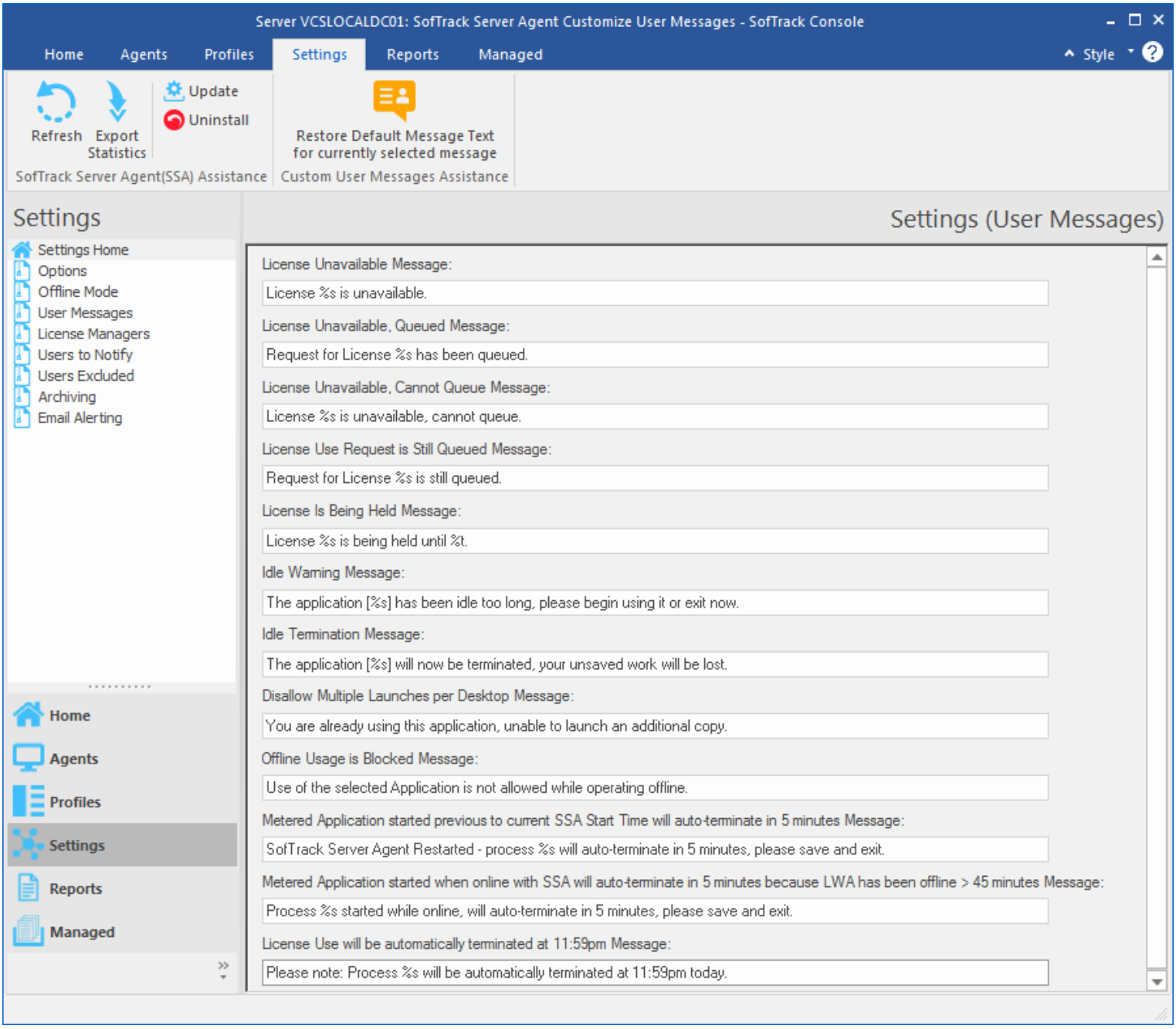


Figure 6-2

3. Edit the messages as required and changes are immediately saved after the edit is completed (i.e. another edit is selected or any other item in the interface is selected). The changes you

make are only implemented on the current server. To edit messages on other servers, simply select another server and repeat the process to edit the messages on that server. Each message can be up to 117 characters.

4 The **Restore Default Message Text** button replaces the selected text of the currently selected edit with the default SofTrack message.

Users to Notify of Significant License Usage

Users to Notify of Significant License Usage: Overview

SofTrack provides usage alerts that assist in proactive management of your License Profiles. SofTrack can be configured to notify selected users and will also notify anyone using the STALERT utility (SofTrack Alert Console), even if they are not on the selected users list. Users selected for notification must be using the SofTrack Local Workstation Agent or STALERT.EXE.

Specifically, SofTrack includes three alert levels for license usage: 90% of maximum, 100% usage, and overflow (i.e., maximum + 1). SofTrack will also send alerts for Idle Warnings and Idle Terminations.

SofTrack's alert messages are sent to the administrator desktops via one of the following methods:

- SofTrack's Local Workstation Agent (LWA) – See Chapter 3
- SofTrack's STALERT Utility
  The STALERT utility, included in the TOOLS\NT-2K folder of the product download found here:

  http://www.softwaremetering.com/outgoing/softrack_full.zip

STALERT is designed to operate on any version of Windows 2000 or later. Full usage instructions are included later in this chapter. Any use of STALERT will receive alerts for any alert level that is checked: 90%, 100%, and overflow - to enable STALERT to receive licensing type alerts you must define at least one user regardless of whether or not the user will be using STALERT. This requirement of defining at least one user to receive alerts of significant license usage is needed to engage the alerting process.

Users to Notify of Significant License Usage: How

1. Open `SOFTRACK_CONSOLE.EXE`.
2. Select the desired server and click the "Settings" tab and then click the "Users to Notify" section as shown in Figure 6-3.

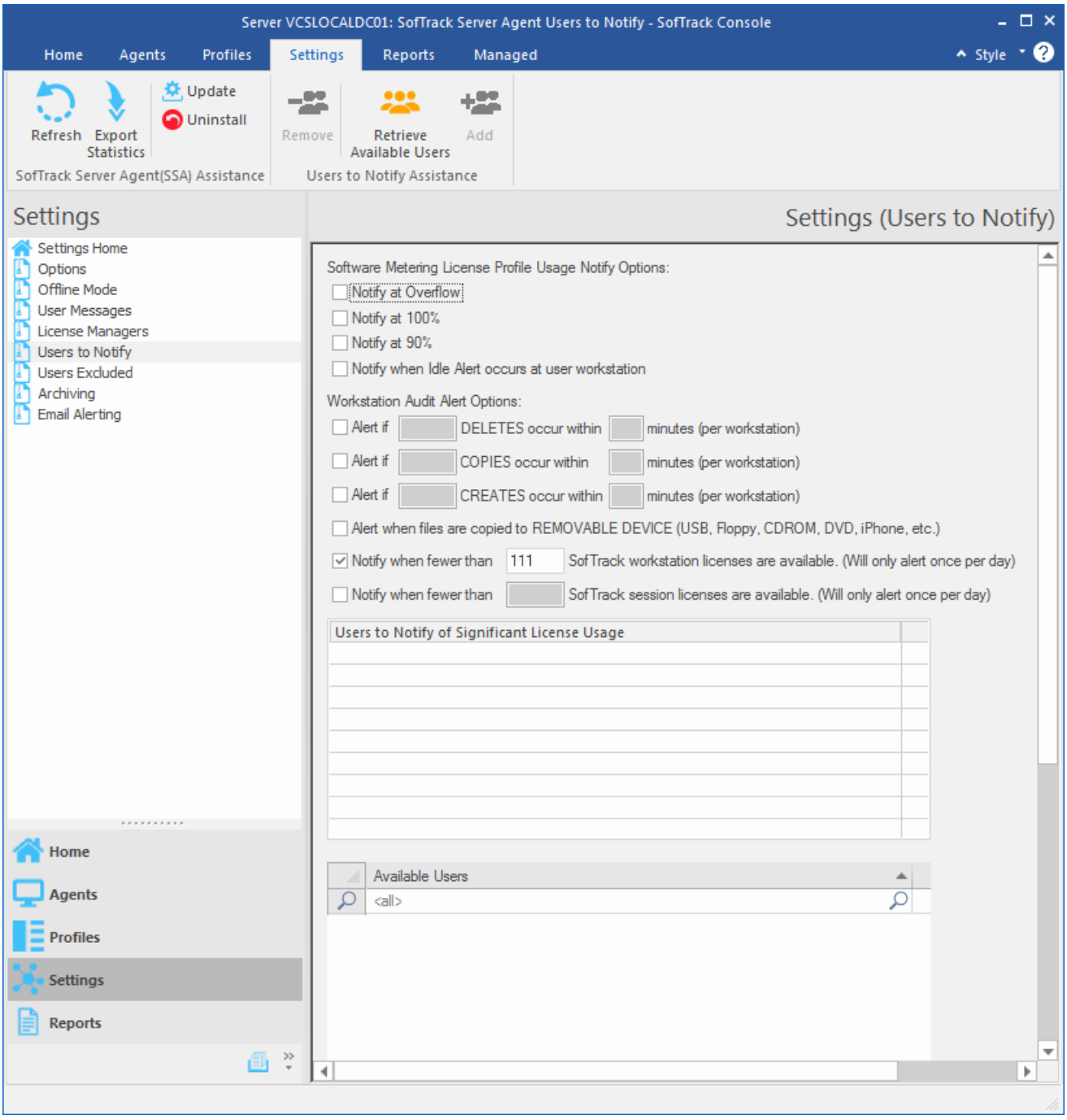


Figure 6-3

3 Click **Retrieve Available Users** and add the names of individuals to be notified. You can include as many users as you require. Also, you do not need to specify ***any users*** who will be using the STALERT utility, described below. The list of Available Users is provided by the selected Server and will show all users known locally to that server.

4 Click the Notification Level(s) to include. Additionally you can enable alerting for workstation Idle events (Warnings and Teminations). For details regarding the Workstation Audit Alert Options, please refer to Chapter 9.

Users to Notify of Significant License Usage: STALERT

The STALERT.EXE utility (SofTrack Alert Console) is included in the **TOOLS\NT-2K** folder of the product download. It has been designed to run in the background on the administrator's desktop and provide access to SofTrack Server-generated alerts as they occur. Usage of STALERT requires a Windows 2000 or later. Usage of STALERT does not require Administrator privileges, nor does it require the user to be a member of the list of **Users to Notify of Significant License Usage**, described above.

STALERT uses TCP/IP port 63884 on the workstation/server where it is used.

When first run, STALERT creates the following registry entry on the local machine:

```
HKEY_LOCAL_MACHINE\SOFTWARE\SofTrackAlert
```

Also, when first run, STALERT will not show its screen. Instead, its icon appears in the system tray.

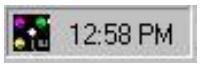


Figure 6-4

To activate STALERT, right-click the icon and select **View Alerts**. The following screen appears.

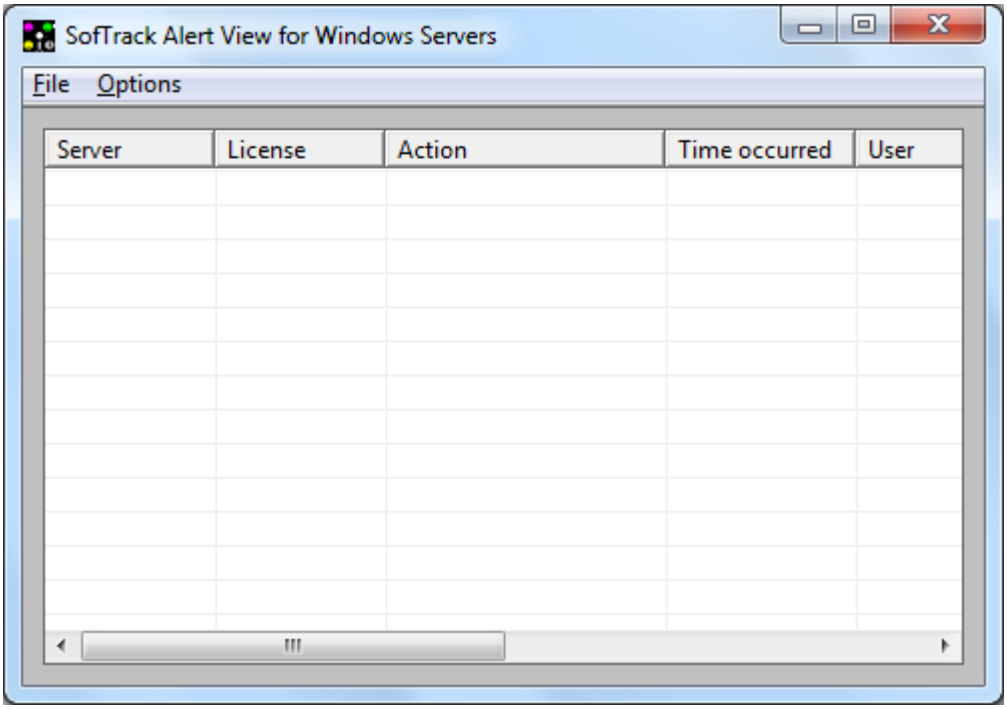


Figure 6-5

When you click the **File** menu item, the following options appear.

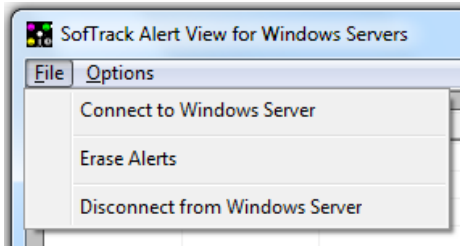


Figure 6-6

Click the **Connect to Windows Server** option and enter the server to connect to. You may repeat this step as often as needed for as many servers as you require. STALERT remembers the servers you enter and automatically connects to them when STALERT is restarted.

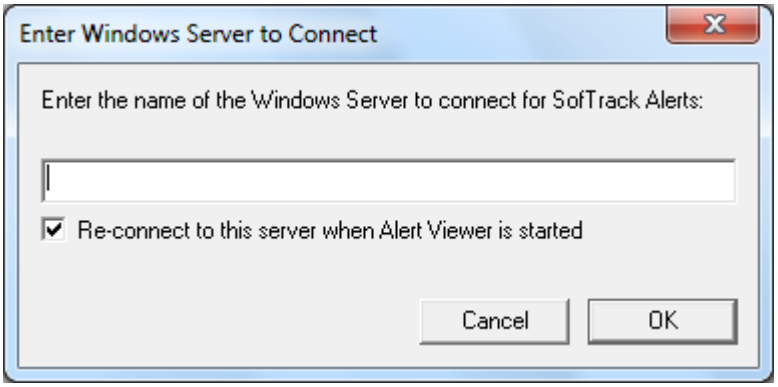


Figure 6-7

The **Erase Alerts** option clears the display's listing of alerts.

The **Disconnect from Windows Server** option stops the receipt of alerts from the named server.

When you click the **Options** menu, the following options appear.

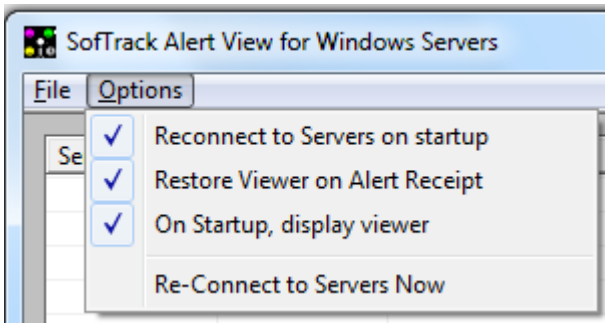


Figure 6-8

Each option is self-explanatory.

The STALERT **Alert Viewer** window is resizable, and its screen position and size will be remembered each time it is restarted.

The following is an example of the output of the **Alert Viewer** window.

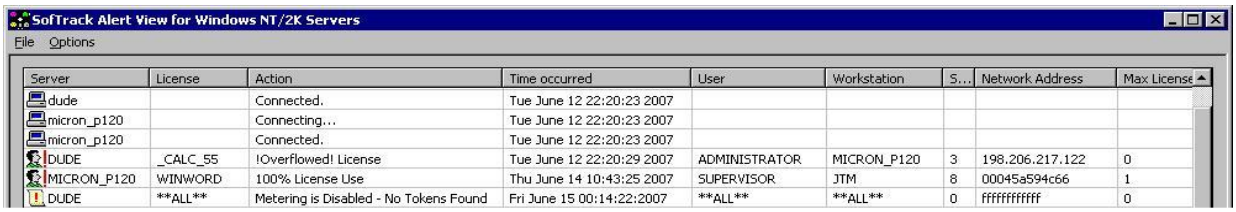


Figure 6-9

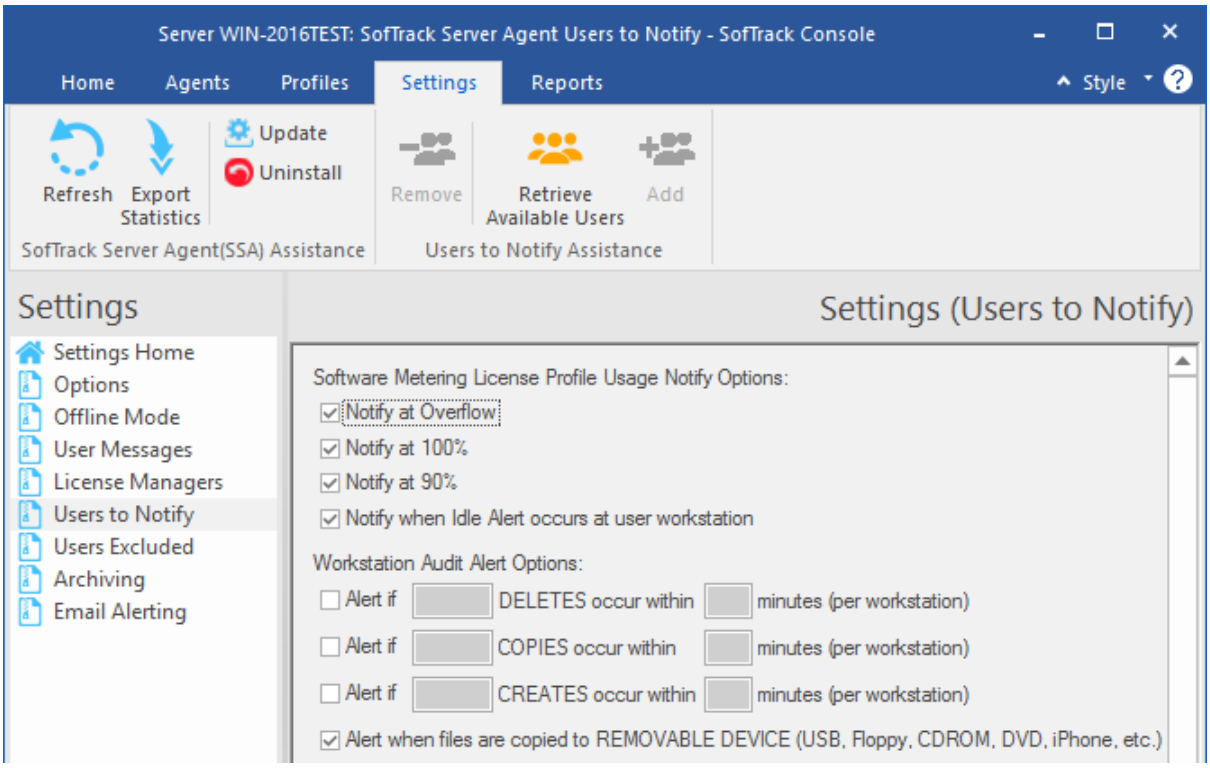
Closing the **Alert Viewer** window does not exit STALERT. Rather, the screen is only minimized. To stop STALERT, right-click its icon in the system tray and select **Close Alert Viewer**.

For STALERT to receive alerts of significant license usage regardless of level that is checked: 90%, 100%, and overflow - you must define at least one user to notify regardless of whether or not the user will be using STALERT. This requirement of defining at least one user to receive alerts of significant license usage is needed to engage the alerting process.

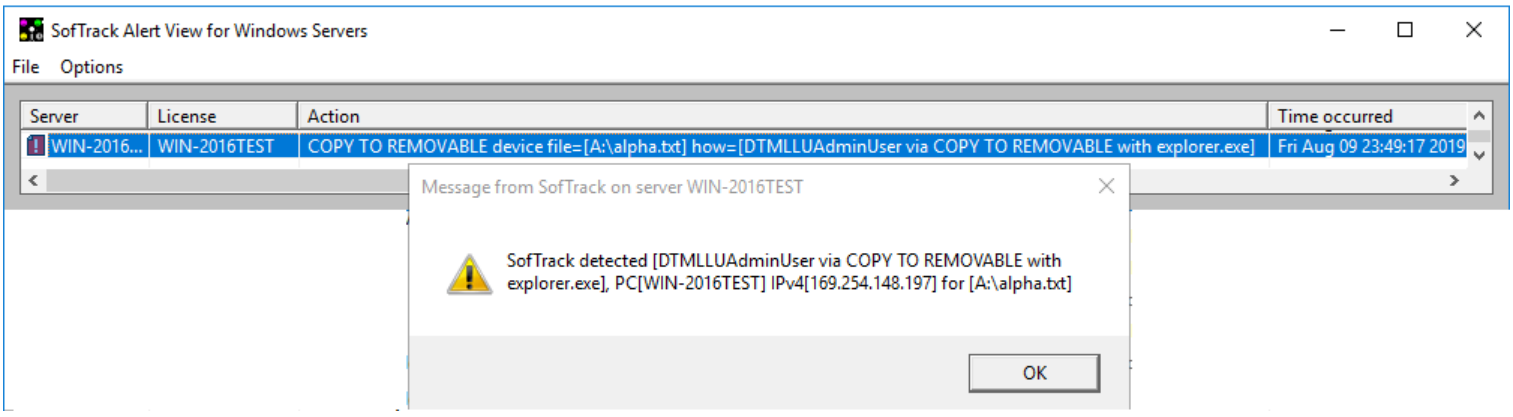
Workstation Audit Notifications

Excessive workstation file deletes
Excessive workstation file copies
Excessive workstation file creates
Files copied to Removable (USB) Device

SofTrack has several workstation auditing alerts. Each of these alerts requires workstation file activity auditing to be enabled.



Alerts generated are sent via email and to the STALERT console. And, if the SofTrack Local Workstation Agent is in-use and the currently logged in user is on the Users to Notify list a popup message will be shown. The image below combines the STALERT and popup message:



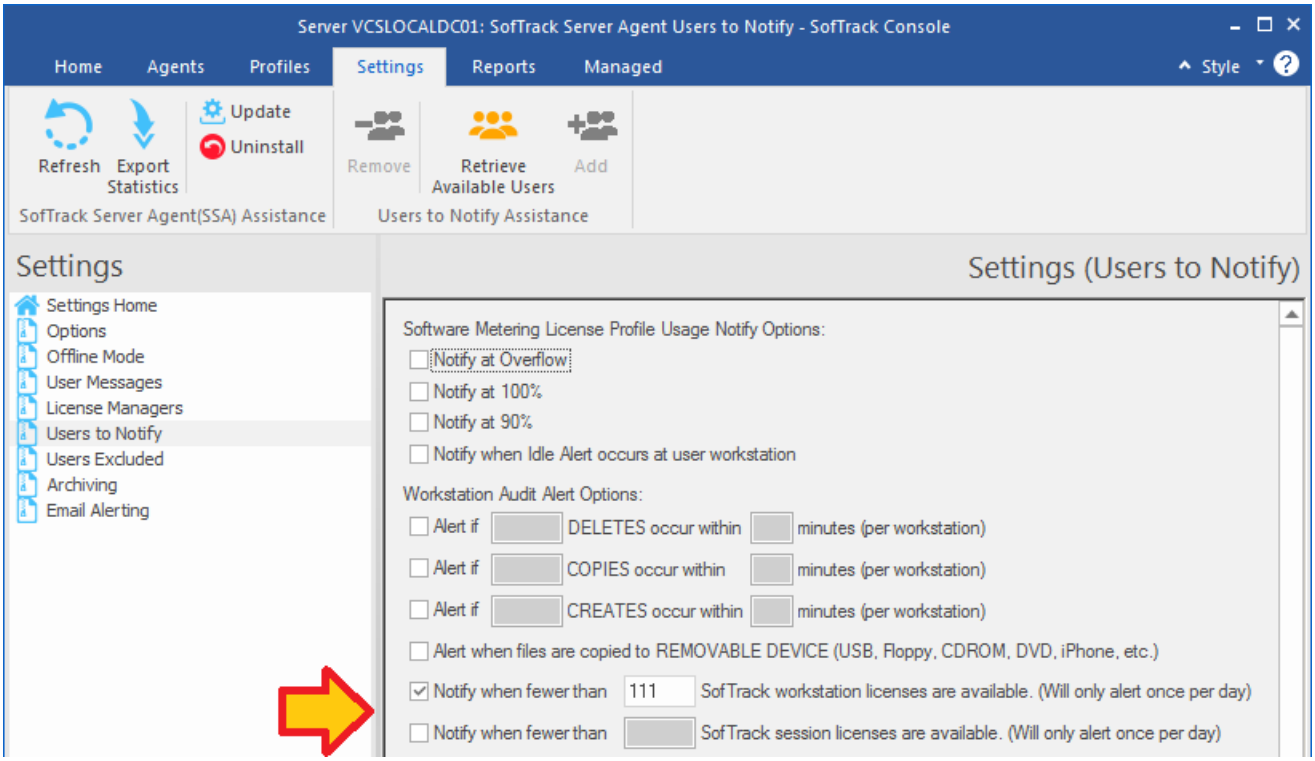
SofTrack License Alerts when nearing exhaustion

Two options can be engaged to send once-a-day notification when either workstation or session licenses are nearing exhaustion.

Notify when fewer than NNN SofTrack workstation licenses are available.

and

Notify when fewer than NNN SofTrack session licenses are available.



When SofTrack workstation licenses are exceeded a WX1 alert is generated. When SofTrack session licenses are exceeded a WX3 alert is generated.

These checkbox options, when engaged and an alert value provided, will generate an alert via email (and to the SofTrack Alert Console and SofTrack Alerts log) prior to the licenses being completely in-use. The alert threshold value entered is an absolute number. For instance, if the number 10 is entered, and 100 licenses are installed, the alert generated will occur when 90 or more licenses are currently in-use.

When engaged, each alert is generated once per day. The alert will be generated only if the current SofTrack license usage meets or exceeds the configured condition.

Set METER.LOG Path

Set METER.LOG Path: Overview

Be sure to review "Preparations for Defining a License Profile" in Chapter 4.

SofTrack's Reporting options use the information saved in `METER.LOG` files to generate activity reports according to your specification. Therefore, the `METER.LOG` path must be defined in order to generate reports.

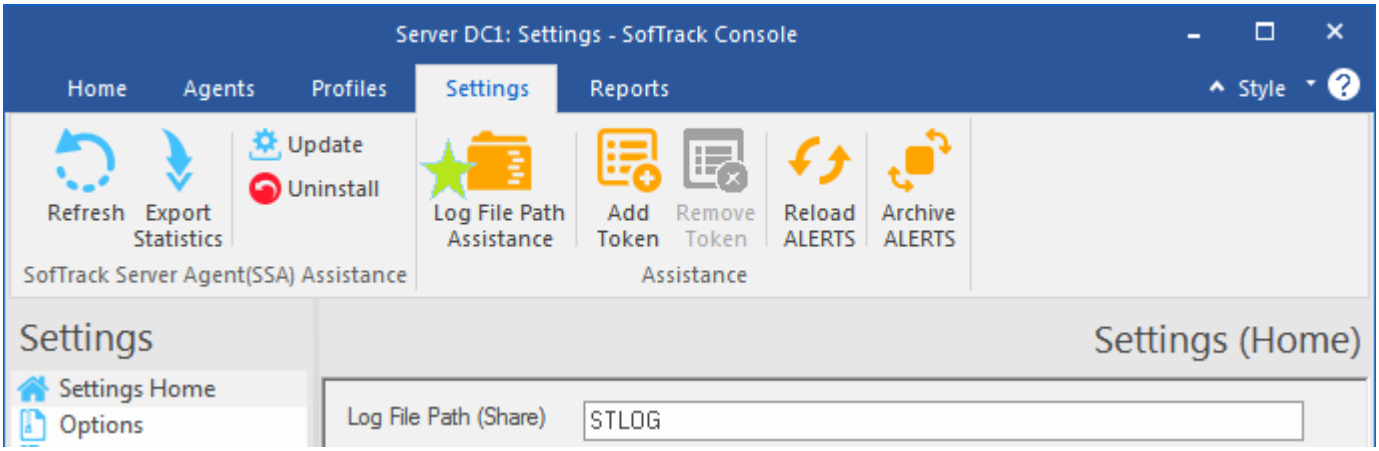
The `METER.LOG` file is the repository of SofTrack's metering activity for that server. SofTrack's Reporting options rely on the data stored in the `METER.*` files (`METER.001`, `METER.002`, etc.) to generate metering activity reports. If no path <default> is defined for the `METER.LOG`, then no metering activity data will be recorded for that server. The path selected *must be a* public share so that the `METER.*` files can be accessed remotely for reporting. *Do not* specify a local path such as C:\SOFTRACK for the `METER.LOG` path.

Entries are added to `METER.LOG` by the SofTrack Server Agent upon the ***completion*** of a metering event, that is, once the user has entirely exited the metered application. On average, each metering event record is approximately 60 bytes in length.

Set METER.LOG Path: How

Open `SOFTRACK_CONSOLE.EXE` and select the desired server then click the "Settings" tab, select the *Settings Home* section and enter the desired path the Log File Path (Share) edit field or use the Path Assistance button to locate the desired share.

- There is no default path.
- Be sure the path includes the Public Share name and, if required, directory path within that Public Share.
- If the path is erased, no metering event data is recorded.
- Path selected must be located on the server hosting the SofTrack Server Agent



Set METER.LOG Archive Rate

Set Workstation Audit Log Archive Rate

This section includes setting the archive rate for ***both*** METER.LOG and Workstation Audit log files.

Set METER.LOG Archive Rate: Overview

With no archiving option selected, the METER.LOG file will grow without limitation. The larger the METER.LOG becomes, the longer it can take to provide reports. The SofTrack Server Agent can be configured to automatically archive the METER.LOG file at a defined interval:

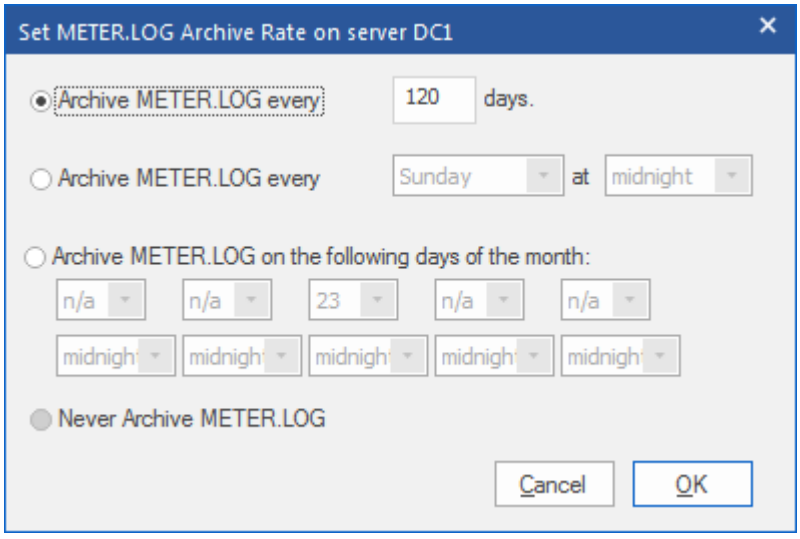


Figure 6-10

Archiving of METER.LOG is accomplished by renaming it to METER.001, METER.002, etc. After it is renamed, a new one is created automatically the next time a metering event occurs.

There is also an **Archive** option for workstation Audit logs. Audit log archive rate is set separately from METER.LOG.

Some files are not archived, including Quick Inventory Change Logs and other files including the ALERTS.LOG and TIMEKEEP.CSV.

The SofTrack reporting utilities, SOFTRACK_CONSOLE.EXE and ST2K_RPT.EXE, can be set to read only one METER.LOG file (i.e., METER.000, METER.001, etc.) or to read all METER.* files. For SOFTRACK_CONSOLE.EXE, this setting is accessed under the **Reports** tab. Select **License Profile Activity – Details and Summaries.** For ST2K_RPT.EXE, this ability is via its command line interface, which is further described in Chapter 7.

Set METER.LOG Archive Rate: How

Open SOFTRACK_CONSOLE.EXE and select the desired server then click the "Settings" tab, select the *Archiving* section use the **Meter.Log** button (shown below) to set the archiving configuration.

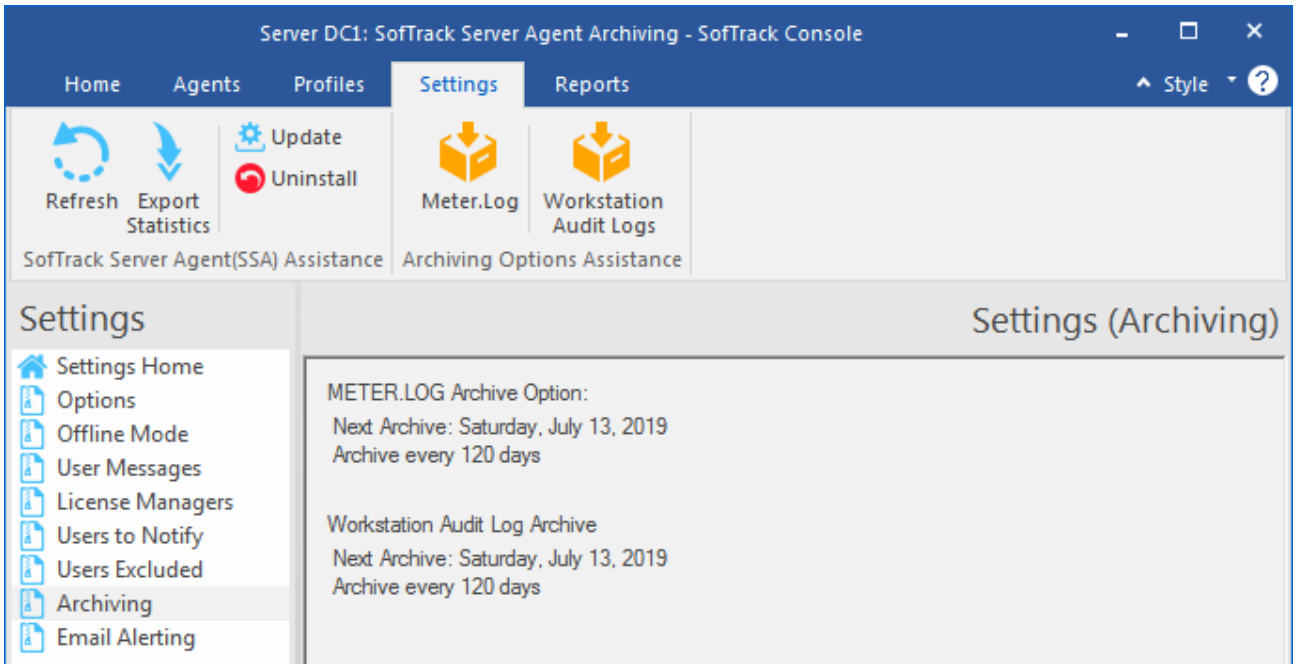


Figure 6-11

The Archive rate can be set to one of the following options (see Figure 6-10):

- Archive `METER.LOG` every [nn] days.
- Archive `METER.LOG` every [day of week] at [specific hour].
- Archive `METER.LOG` on the following days and specific hour of the month.
- Never Archive `METER.LOG`.

Set Workstation Audit Archive Rate: How

Open `SOFTRACK_CONSOLE.EXE` and select the desired server then click the "Settings" tab and then select the *Archiving* section use the **Workstation Audit Logs** button (shown below) to set the archiving configuration as shown in Figure 6-11a.

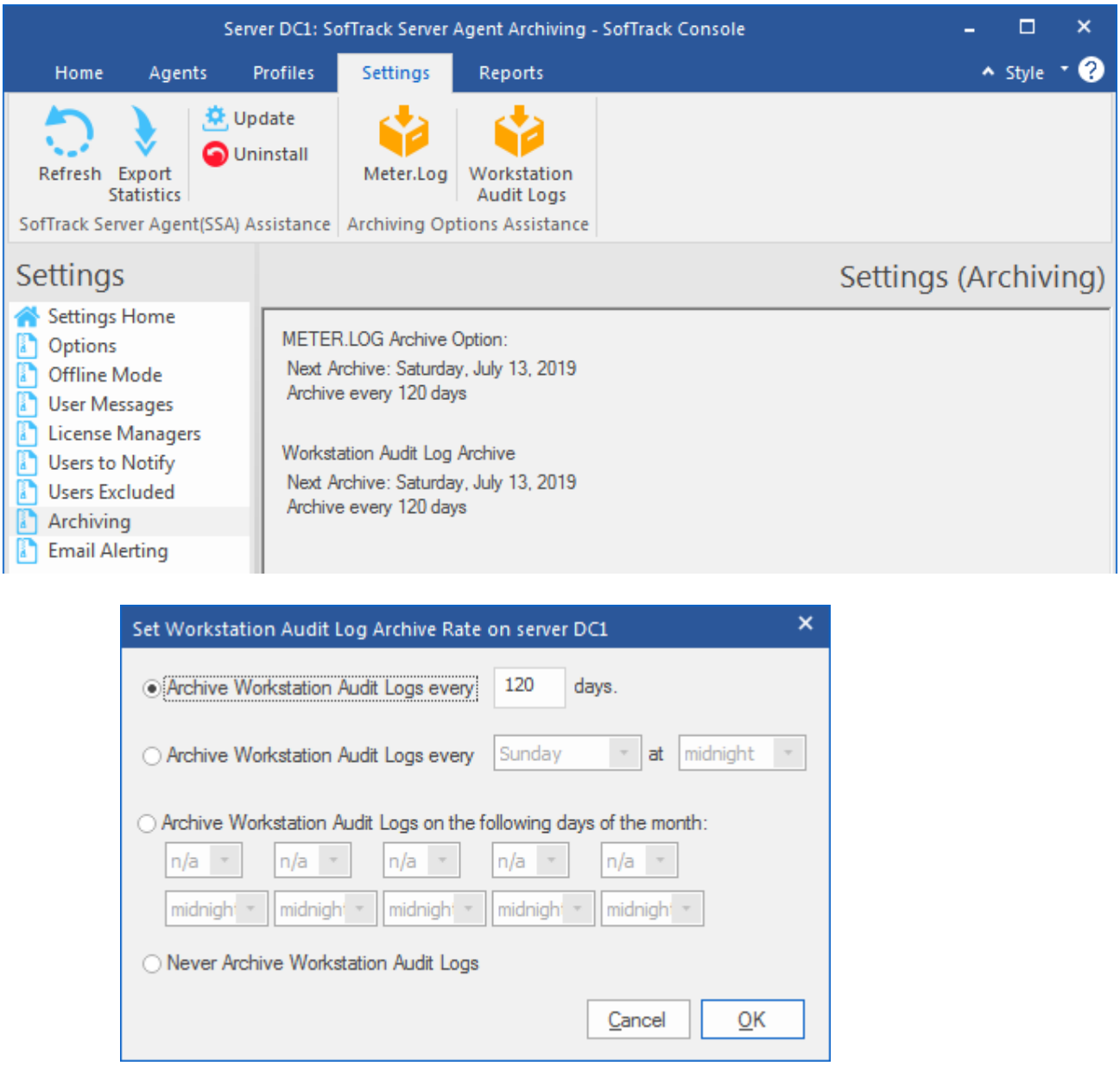


Figure 6-11a

The Archive rate can be set to one of the following options (see Figure 6-11a):

- Archive `METER.LOG` every [nn] days.
- Archive `METER.LOG` every [day of week] at [specific hour].
- Archive `METER.LOG` on the following days and specific hour of the month.
- Never Archive `METER.LOG`

Offline Mode

Please refer to Chapter 3 for details

Users to Exclude from Metering

Users to Exclude from Metering: Overview

This option allows you to designate users on the network to exclude from metering. Some entities on the network can skew SofTrack's metering results. Backup utilities, for example, can appear to be using an application during backup. Also, your usage reports would include the backup users along with real users.

NOTE: All user accounts used by backup products should be excluded from metering.

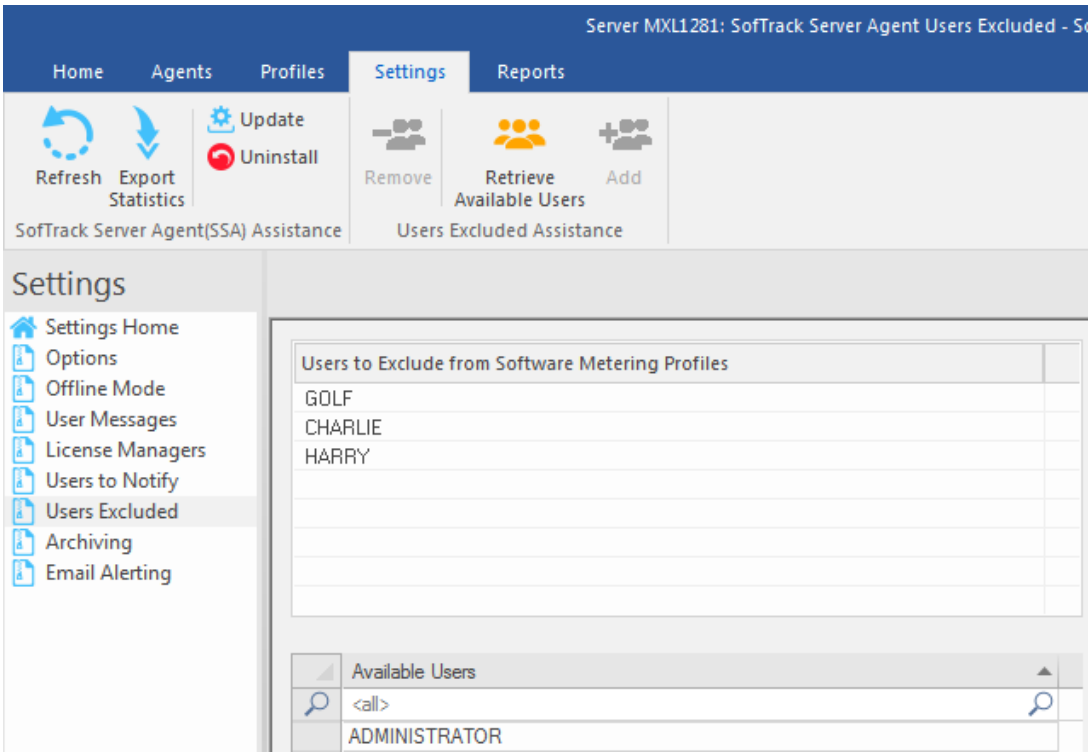
NOTE: Excluded Users are not recognized when a workstation agent is operating in offline mode. It is possible to exclude a workstation (and each user utilizing that workstation) from offline mode blocking.

Users to Exclude from Metering: How

To prevent these accounts from being metered:

1. Open `SOFTRACK_CONSOLE.EXE`.
2. Selected the desired server, click the "Settings" tab
3. Select *Users Excluded* section
4. Click **Retrieve Available Users** to obtain the list of users and select the desired users and click **Add** for each account you want to exclude.
5. Settings are automatically saved and the SofTrack Server Agent updated.

   Users will be excluded from metering beginning the next time they log in. If the users logged in when added to the exclude list, they must log out and log in again to be properly recognized as being on the exclude list.



Token Maintenance

Token Maintenance: Overview

SofTrack's usage rights are governed by the token you purchase. For SofTrack to recognize your token, you must install it on the server(s) it was purchased for, where the SofTrack Server Agent (SSA) is or will be in use. The SSA does not need to be active to install or remove the token(s). If you have previously installed an evaluation token, it will automatically be removed once it expires.

The SofTrack token only determines how the SSA performs. Maintenance of the SofTrack token does not affect or in any way modify the activity data SofTrack has recorded. Likewise, maintenance of the SofTrack token will not affect your License Profiles or any other definitions you have established.

IMPORTANT: Use of the SofTrack LWA on a Terminal Services host requires a specific TSE (Terminal Server Edition) token to authorize its use. This is in addition to or instead of a token for metering of non-TSE computers, which is the standard type of SofTrack token. If you do not have the proper token for metering of the LWA on TSE, all administrator desktops will receive an error message indicating that TSE tokens are not installed or have been exhausted.

Token Maintenance: How

1. Open `SOFTRACK_CONSOLE.EXE`.
2. Select the desired server, click the "Settings" tab and select the *Settings Home* section.

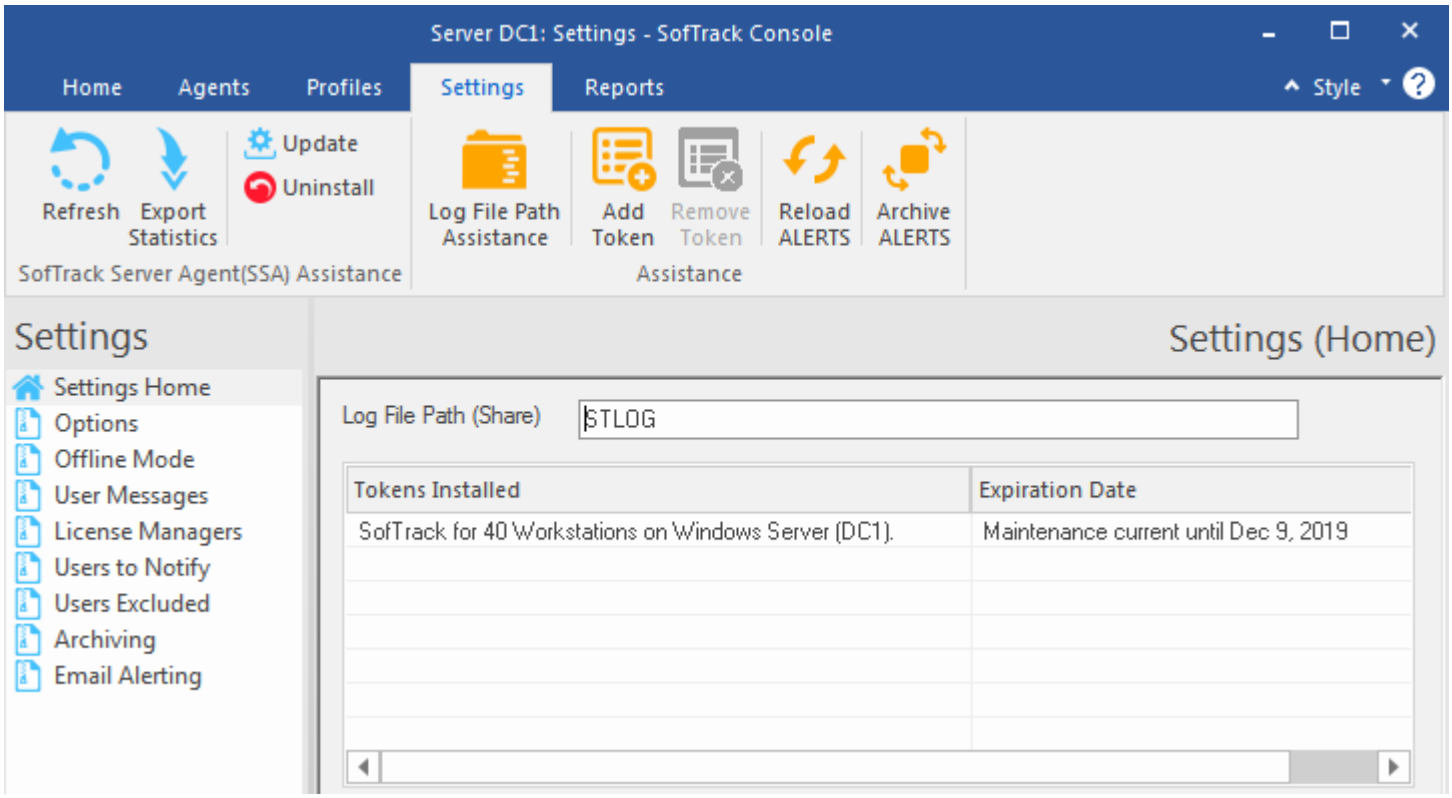

Server DC1: Settings - SofTrack Console
Home
Agents
Profiles
Settings
Reports
Style
Refresh
Export Statistics
Update
Uninstall
SofTrack Server Agent(SSA) Assistance
Log File Path Assistance
Add Token
Remove Token
Reload ALERTS
Archive ALERTS
Assistance
Settings
Settings Home
Options
Offline Mode
User Messages
License Managers
Users to Notify
Users Excluded
Archiving
Email Alerting
Settings (Home)
Log File Path (Share)
STLOG
Tokens Installed
Expiration Date
SofTrack for 40 Workstations on Windows Server (DC1).
Maintenance current until Dec 9, 2019

Figure 6-13

The above figure indicates that a token is already installed. The installed tokens listed will be all the tokens that have been installed for the current server. Remember, the SofTrack Server Agent does not need to be active to perform token maintenance.

To install your token, click the **Add Token** button at top of the screen. A new window will appear to assist in locating your token file to install.

Typically, you would only remove a token if it is expired.

To verify that the SofTrack Server Agent recognizes the token(s) you have installed, watch for the token details on the selected server's tile on the main screen of `SOFTRACK_CONSOLE.EXE`.

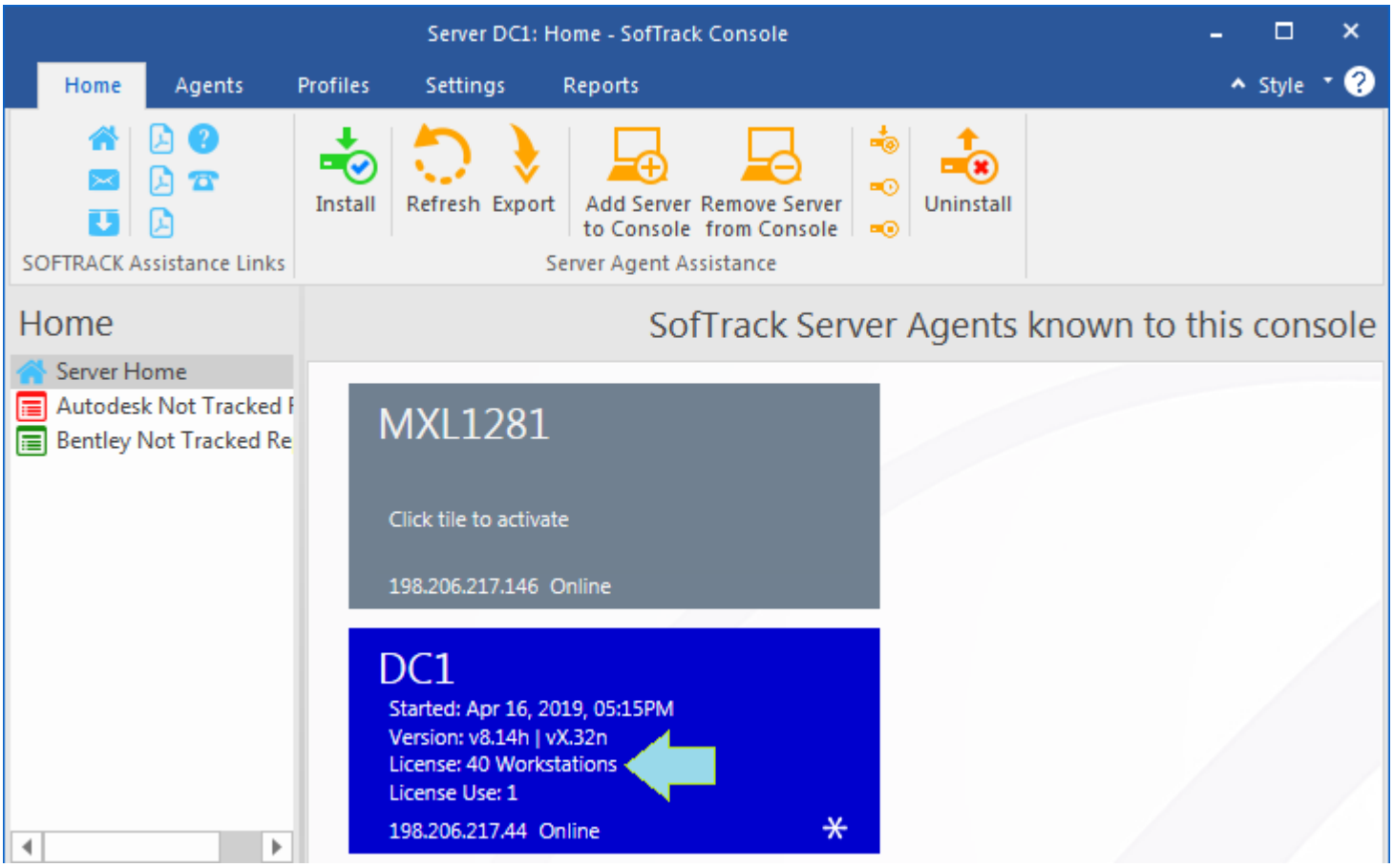


Figure 6-14

NOTE: The token details are only present when the SSA is active.

License Managers

License Managers: Overview

Typically, only individuals with Administrator permissions to the SofTrack Server Agent's host server's Windows Registry can modify the SofTrack Settings including License Profile. However, with SofTrack, you can also designate users without Administrator permissions to be SofTrack License Managers. License Managers can perform SofTrack administrative duties only when the SofTrack Server Agent is active as it will act as their

proxy.

Because creating and modifying License Profiles requires full access to the registry on the selected server, the License Managers option was created. On some networks, it is not viable to have those with full registry access performing SofTrack administrative duties.

NOTE: License Managers can modify all SofTrack data on the server they manage with one exception—they cannot modify who is designated to be a License Manager. This must be set by a user with full access to the registry. Further, no file system rights are granted to License Managers, only the ability to manage SofTrack items.

Users selected to be License Managers can perform SofTrack administrative duties. Further, they are *only allowed* this capacity if the SofTrack Server Agent is active. The Agent must be running because full registry access is still actually required to perform SofTrack administration duties.

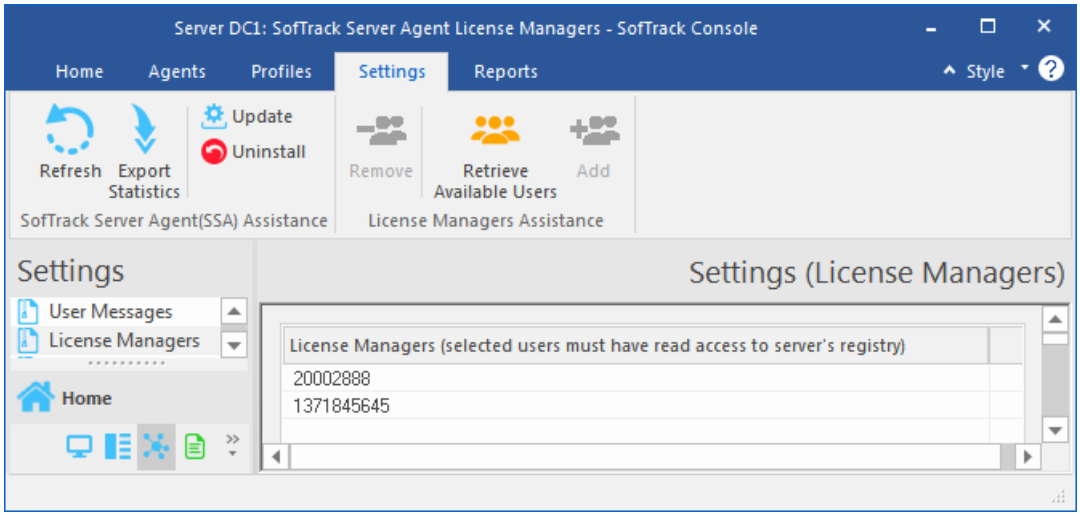
When a License Manager (versus a user with full registry access) administers SofTrack, the SofTrack Server Agent actually performs duties on their behalf. Because of this, there can be a slight delay when a License Manager administers SofTrack versus a regular user administering SofTrack (for instance, instead of 1 second, 5 seconds). This is not to say all delays are a magnitude of 5, but it is noticeable, mostly for those who have experienced SofTrack administration as a regular user and not as a License Manager.)

License Managers: How

To designate users to be License Managers:

1. Open `SOFTRACK_CONSOLE.EXE`.
2. Select the desired server, click “Settings” tab
3. Select the “Licenses Managers” section
4. Click **Retrieve Available Users** to obtain the names of users to designate as License Managers (you can select any number) and click **Add** to insert the chosen users.
5. As users are added or removed the selections are saved and the SofTrack Server Agent updated.

   Important: Selected users *must have* Read access to the registry on the selected Windows server.



Email Alerts

SofTrack includes the ability to send an Email Alert for each alert activity. Alerts that require no configuration:

- SofTrack Server Agent starting
- SofTrack Server Agent stopping
- SofTrack Server Agent licensing violation (over deployed or not licensed)

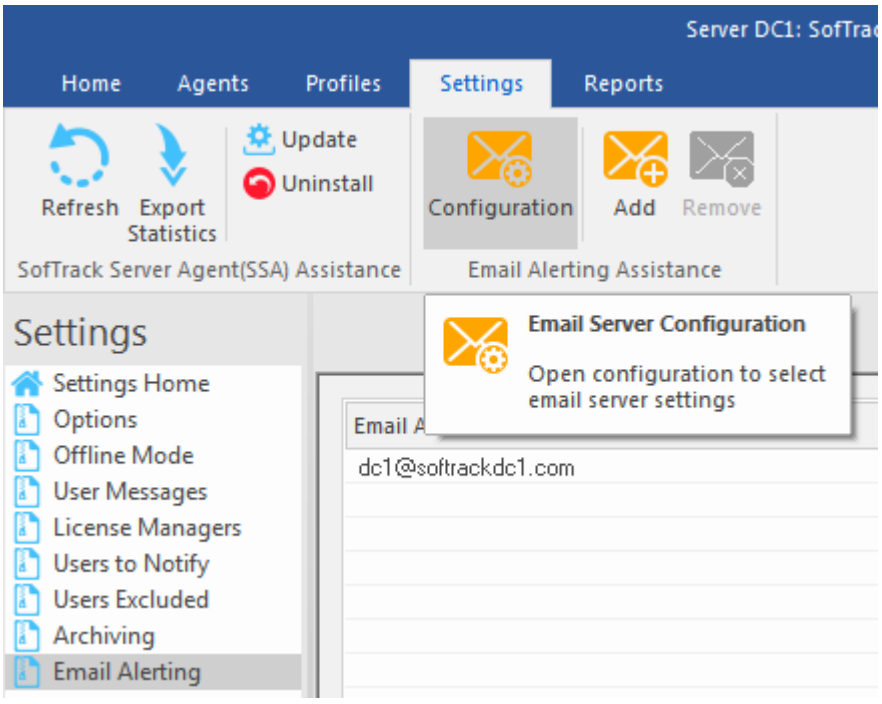
Alerts that require other configuration:

- Software License Profile Activity including Idle Warnings and Termination
- Executable File Created (EXE or DLL)
- LWA Inactivity (workstation agents not in regular communication)

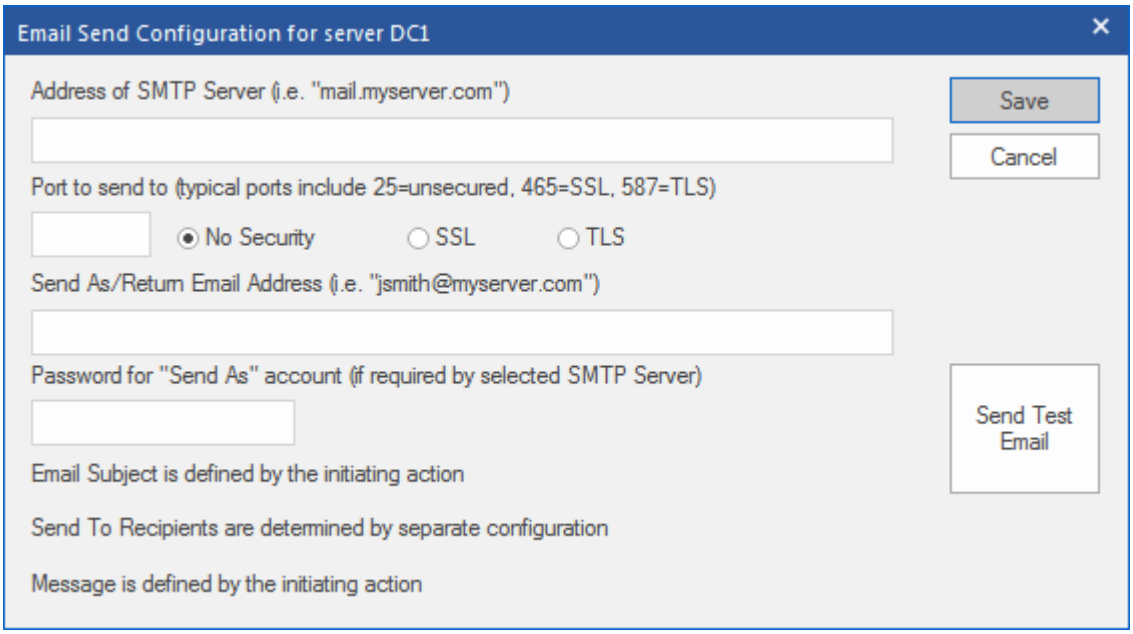
Each Email Alert sent has a descriptive email subject and the email body includes relevant details including when the event occurred.

Email Alerts: How

The Email alerts option allows you to receive Alerts from the SofTrack Server Agent to email address(es) you specify.



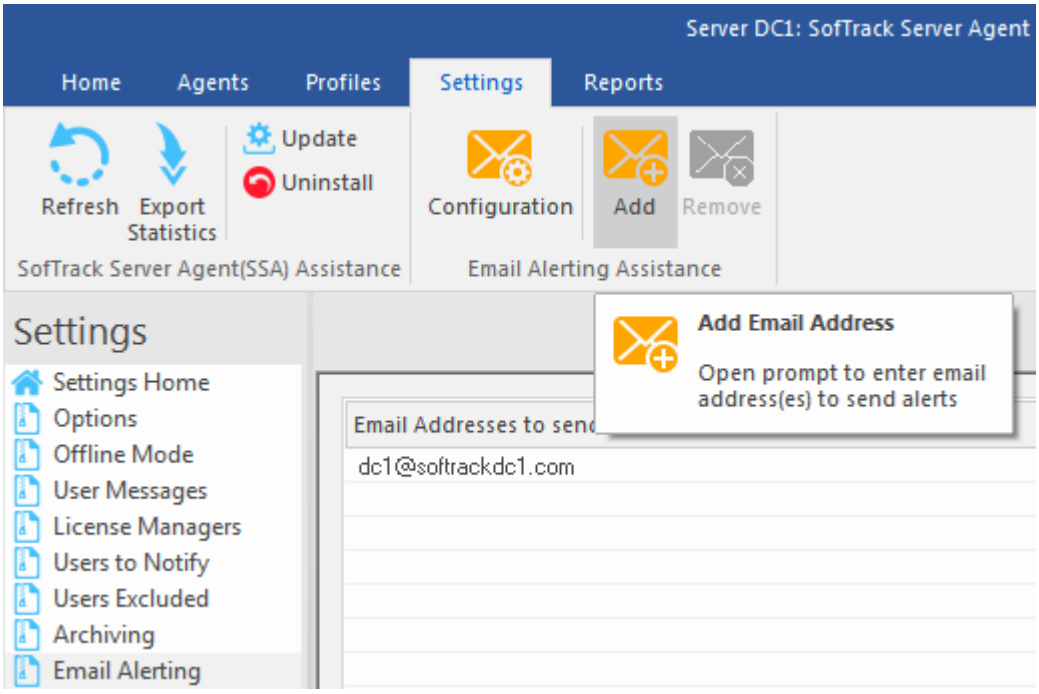
To begin, click the Settings tab and select the *Email Alerting* section as shown above and then click the **Configuration** button. The following window will appear:



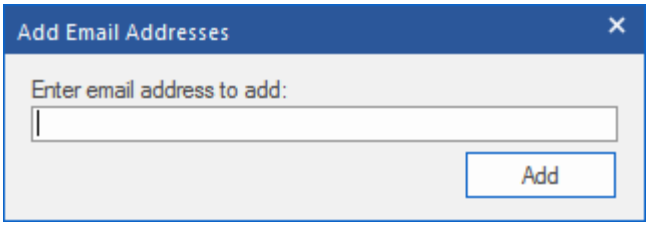
Each field shown above must be filled in. Once all fields are completed, click the **Send Test Email** button to verify your configuration. Click **Save** button when complete. The password value is encrypted before being saved.

Notice there is no "disable" option, if you ever need to stop sending email alerts there are two methods. The first is to erase the configuration and click **Save**. The second is to erase the list of email addresses (defined in next section). Once you click the **Save** button, the configuration is saved to the server hosting the SofTrack Server Agent.

When ready, enter an email address and click the **Add** button as shown below.



The following prompt will appear:



Enter an email address and click the **Add** button. Once complete, click the "x" at the upper right corner.

The email address will be added to the list. There is no limit on the number of email addresses you can enter. The email addresses added are immediately saved and the SofTrack Server Agent silently updated.

Email Alerts: SofTrack Server Agent

When Email Alerts are configured the SofTrack Server Agent will start a second STSRVC.EXE process. There will then either be (2) STSRVC.EXE processes or one STSRVC64.EXE and one STSRVC.EXE process. The second process (always will be STSRVC.EXE) will send the emails. Therefore, if you look in Task Manager at the server hosting the SofTrack Server Agent and see 2 processes, this is expected and normal. The file DSRRSMTP.DLL is used by STSRVC.EXE when ending emails.

SofTrack Server Agent Version

SofTrack Server Agent Version: How

Open `SOFTRACK_CONSOLE.EXE`, there will be a tile for each server that has been added to the Console. The currently selected server will list its current agent details on its tile:

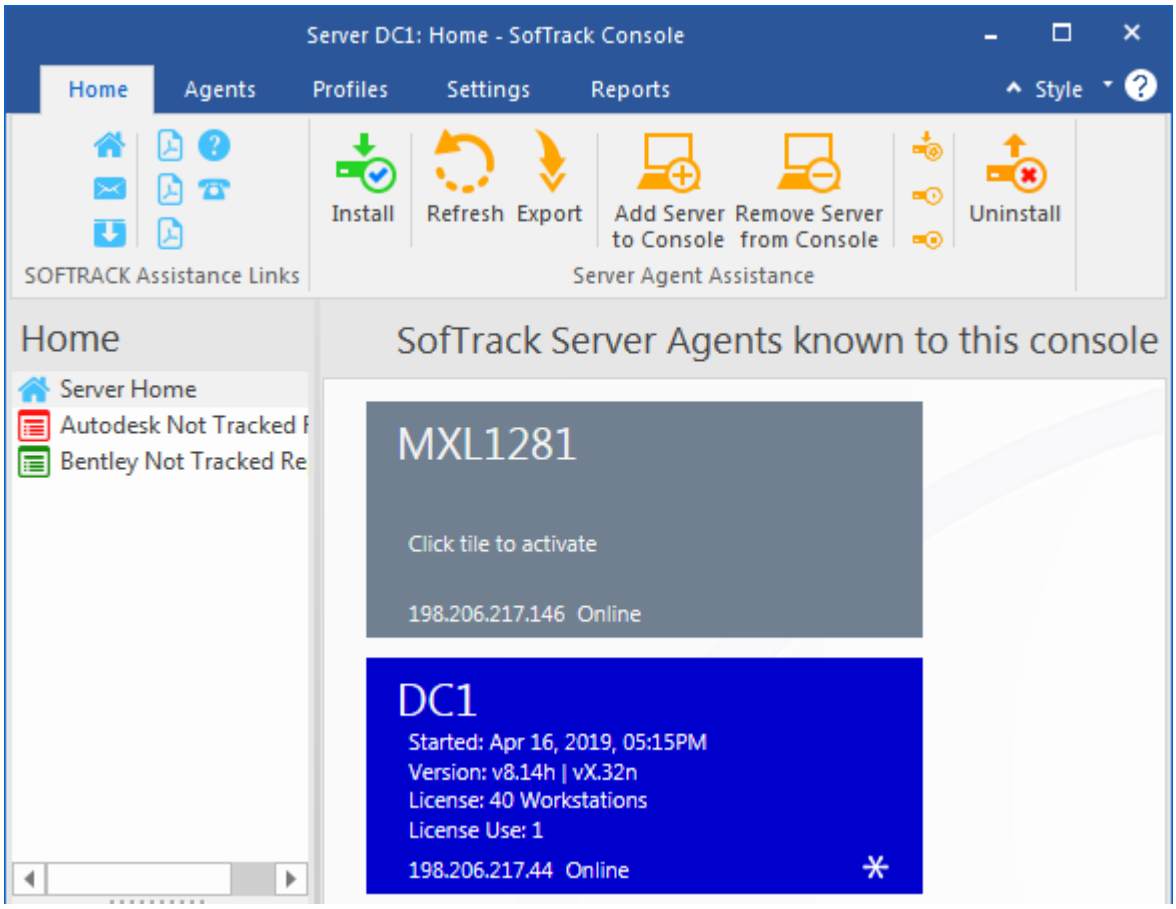


Figure 6-15

The **Started** value indicates when the Agent was loaded/started.

The **Version** values indicate the version of the agent's two main components.

The **License** values indicate the type and size of the license(s) installed and current usage.

The last line indicates the **IPv4** address used by the SofTrack Server Agent at the indicated server and **Online** indicates if the server itself is reachable (or not). The **Online** designation does not indicate the SofTrack Server Agent is active, you must also see the **Started**, **Version** and **License** values.

SofTrack Server Agent Version: Cannot connect?

If you only see the **Online** value (Figure 6-15) and **not** the **Started**, **Version** and **License** values, be sure that your workstation, server or any intermediate network switch or other does not have a firewall blocking ICMP Ping activity and that Reverse IP Lookup is not being actively blocked.

SofTrack Server Agent Version: In-Use Connections (Agents View)

To access, open `SOFTRACK_CONSOLE.EXE`, click the "Agents" tab. Observe there are 5 different selections:

- Agents Home
  - List includes workstations active in the past 7 days
- Archived Agents
  - List includes workstations that have been archived
- Inactive Agents
  - List includes workstations that were last active more than 7 days ago
- Remote Workstations by Agent
  - Lists all remote workstation names that used a Bentley® configured license profile and the workstation using the SofTrack Local Workstation agent that identified each remote workstation, further detailed in Chapter 11
- My Agents
  - Provides a customizable view of Agents include ability to manually enter location, purpose, or any other data regarding each Agent's workstation

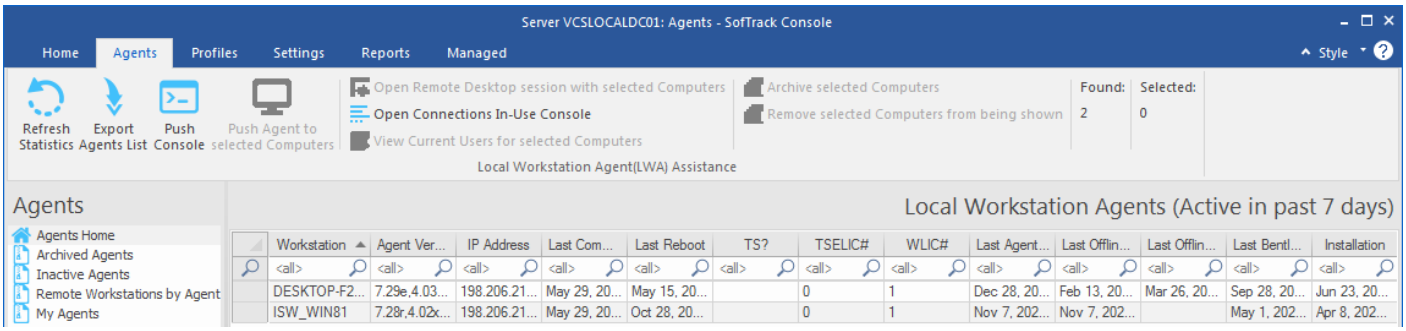


Figure 6-16

Notice at the top of each column is a search field, you can quickly filter the results based on any column's values.

Clicking on the column headers enables sorting by that column's values.

To access the Connections In-Use Report, as shown above click the **Open Connections In-Use Console**. Once clicked, a window similar to the following will appear. Please note that data shown on this window is primarily used by our technical support team when necessary to provide support assistance. Otherwise, the data shown is only useful for display purposes as proper interpretation of its details are not provided here.

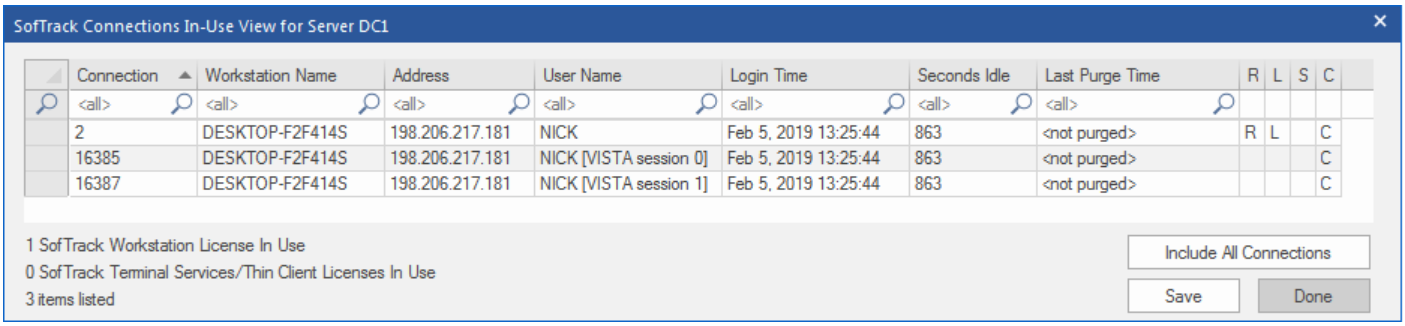


Figure 6-17

This window details all connections that the SofTrack Server Agent is currently aware of, regardless of whether the connections are utilizing applications metered by SofTrack.

The SSA builds this list of connections as they log on to the Windows server. The SSA continues to recognize a connection until one hour has gone by with no packet traffic between the server and the workstation. Even if you log off the workstation, it remains in the "in-use" connections list for up to one hour. The reason for this is the Windows Server protocol does not include a definitive "shutdown" indication. Only through the persistence time can it be determined that the connection has lapsed. The exception to this is Terminal Services sessions managed by the SofTrack LWA. When such a session is logged off, it is immediately eliminated from the list of in-use connections.

- The first column shows the connection number assigned by the SSA for its internal tracking. Connection numbers greater than 16,384 (but less than 24577) indicate that the connection is a Terminal Service session *or* that an LWA is running on a Windows XP or later workstation (See the description of the fourth column, below, for more information on interpreting session ID numbers). Connection numbers of 24577 or higher indicate a Macintosh connection (no longer supported).
- The second column of data shows the connection's workstation name. Note that sometimes, the workstation's IP address is used as its name.
- The third column contains the IP address of the workstation. This column may show multiple IP addresses, this only indicates that the selected workstation has been known to use each IP address shown at some time since the last time the SofTrack Server Agent was last started. For more details, review the Connections In-Use reports (as referred to above Figure 6-17).
- The fourth column shows the connection's user name, and, optionally, the session ID, if the connection is from a terminal server (i.e., using Microsoft's own innate Terminal Services or a third party, such as Citrix's XenApp) and the SofTrack LWA is loaded at the terminal server. You may notice that terminal server connections can include Windows XP workstations. This is due to the fact that Windows XP and later includes a terminal server service. If the name shown matches the pattern "UNKNOWN on WSTN_NAME", this indicates the user name cannot be determined, but it is known that their connection is from the workstation named. (Even if the first column indicates question marks for the workstation name, the first column is showing the network adapter address rather than the workstation name.) If the name shown is "UNKNOWN", this means the user name cannot be determined. The inability to determine the user name can be related to either the user no longer being logged in *or*

to a user who was only granted an unauthenticated connection (i.e. a NULL SESSION where no user name was required).

Special Note:
If you receive a SofTrack Server Alert

TSE Metering is Disabled – Tokens Exhausted, Code WX3

You should review the Agents tab, specifically the "TS?" column. Any workstations/servers reporting "YES" for this value are currently acting as a Windows Terminal Server. The "TSELIC#" column indicates how many terminal server licenses the workstation (or server) is currently using.

Optionally, you may save the Connections In-Use report and follow these instructions:

You should save this report and search for any entries contain the text

[SESSION

any connection's that include that specific text "[SESSION" (upper or lowercase) are consuming a SofTrack Terminal Server license – and, if your SofTrack Installation does not include a Terminal Server license then all metering will be disabled until one is added or the workstations and/or servers found via this method have their SofTrack LWA shutdown and set to manual mode (in services.msc, start / run / services.msc).

- The fifth column (Logon Time) shows the time and date when the connection was initiated.
- The sixth column (Seconds Idle) shows the time elapsed since the last communication from the connection.
- The seventh column (Last Purge Time) shows the last time a session "purge" event occurred for this connection. For more information on purged events, refer to Theory of Operations.
- The eighth-eleventh columns show the options associated with the particular connection, as detailed here:
- **[R]** indicates the connection has requested the use of a metered application.
- **[L]** indicates the connection has loaded the SofTrack LWA.
- **[S]** indicates the connection has loaded the SofTrack LWA, including the "-notlocalonly" option.
- **[C]** indicates the connection is a terminal server session and has loaded the SofTrack LWA.

- Immediately below and to the left is an indicator entitled "SofTrack Workstation Licenses in Use". This number indicates how many workstations are utilizing a "seat" of the SofTrack licenses you have purchased. The number here must be less than or equal to the number of workstations indicated by your SofTrack Token. The size of your purchase is indicated on the previous window on the Tokens line (see Figure 6-16) or by viewing the Token Maintenance screen. A connection from a workstation is

consuming a SofTrack license seat *only* if it is showing any (or any combination of) the four indicator options (R, L, S, or C) in that row.

Special Note:
If you receive a SofTrack Server Alert

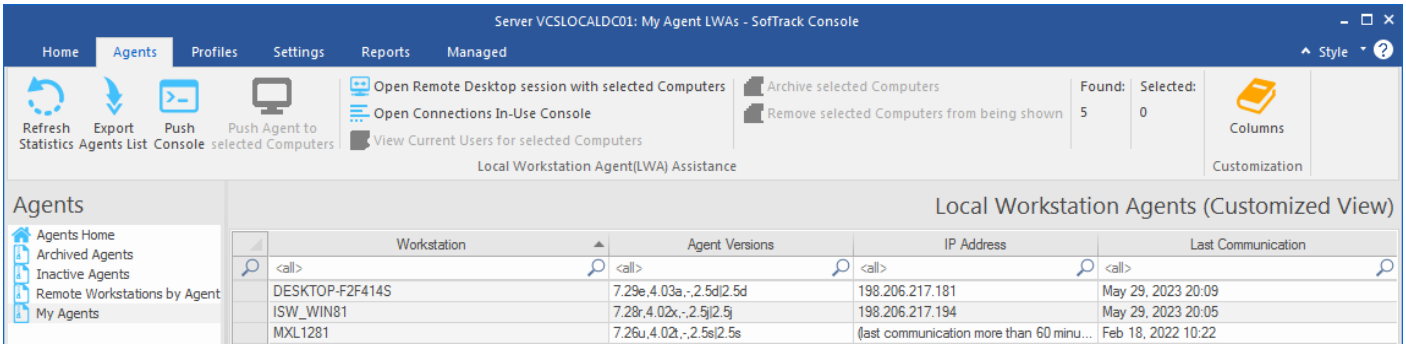
`Metering is Disabled – Tokens Exhausted, Code WX1`

This indicates the number of workstations using the SofTrack LWA at the current time exceeds your installed SofTrack License size.

There are two possible solutions: (a) Open services.msc on the affected workstation and Stop the SofTrack Local Agent service at each unneeded workstation until the number of active LWAs is equal to or less than your number of installed SofTrack licenses. (b) Purchase and install additional SofTrack licenses.

SofTrack Server Agent Version: My Agents (Customizable View)

To access, open `SOFTRACK_CONSOLE.EXE`, click the "Agents" tab and then click the *My Agents* section:

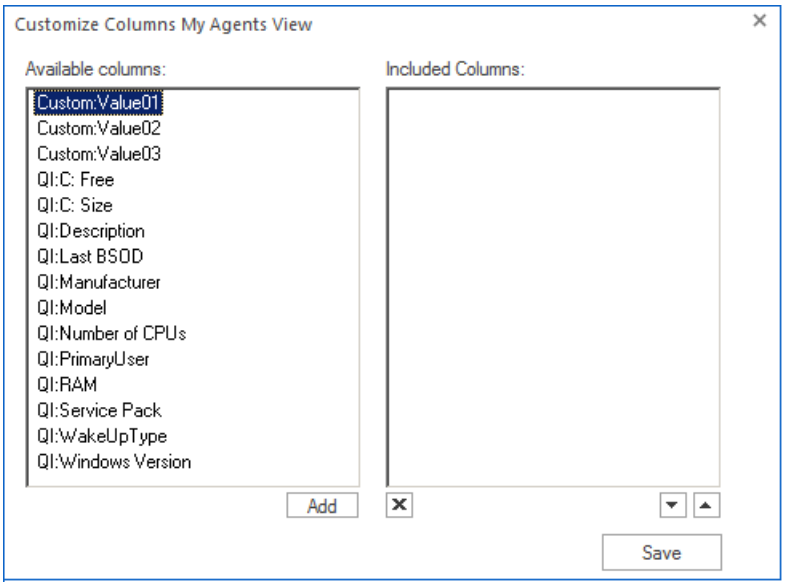


The first 4 columns are fixed:

- Workstation name
- Agent Versions
- TCP/IP Address
- Last Communication Time

Additional columns can be added and column placement order determined via the Columns ribbon button.

Click the Columns ribbon button and the following will appear:



Select the columns and the order can be adjusted via the up and down buttons. The values with the prefix QI: are from the workstation's Quick Inventory data. The QI:PrimaryUser is the username that appears, by default, when logging into the workstation.

The QI:Last BSOD value indicates the date/time of the workstation file:

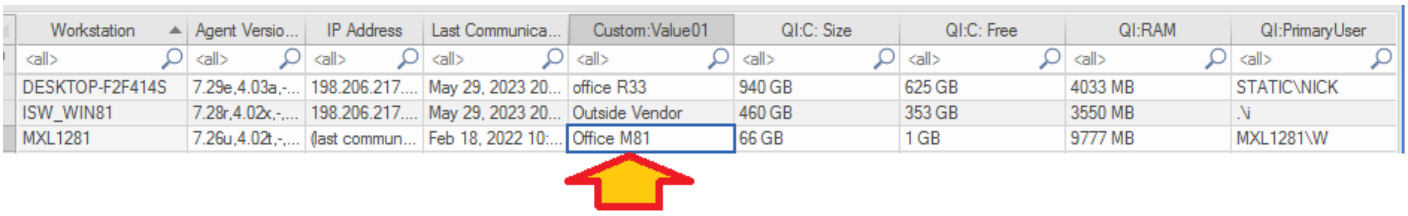
`C:\WINDOWS\MEMORY.DMP`

The QI:WakeUpType value indicates how the workstation was most recently powered on including if via the power switch, AC Power Restored and more.

The columns selected and the order of appearance are stored on the workstation where the SofTrack Console is in-use. That means, each workstation where the SofTrack Console is being used can have its own customized Agents view (columns and order of appearance).

The columns Custom:Value01, 02 and 03 are in-place modifiable and the results are stored at the SofTrack Server Agent, thus, each workstation where the SofTrack Console is in-use and has one or more of the Custom value columns included will see the same value.

To edit the value shown for each workstation, simply click on the cell and enter the data, up to 250 characters. Once you click off the cell being edited, the value entered is automatically stored.

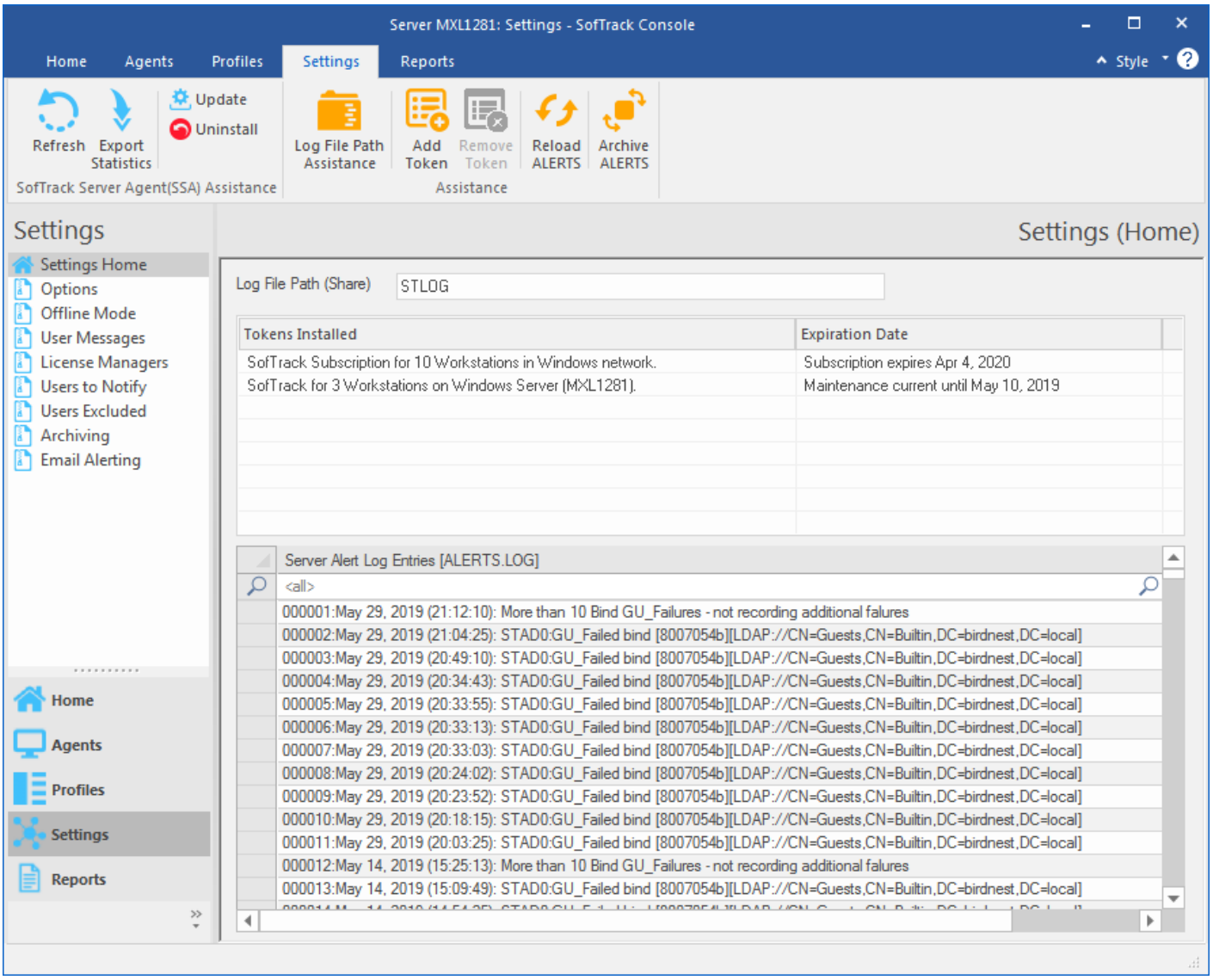


Workstation	Agent Versio...	IP Address	Last Communica...	Custom:Value01	QI:C: Size	QI:C: Free	QI:RAM	QI:PrimaryUser
<all>	<all>	<all>	<all>	<all>	<all>	<all>	<all>	<all>
DESKTOP-F2F414S	7.29e,4.03a,-...	198.206.217....	May 29, 2023 20...	office R33	940 GB	625 GB	4033 MB	STATIC\NICK
ISW_WIN81	7.28r,4.02x,-,...	198.206.217....	May 29, 2023 20...	Outside Vendor	460 GB	353 GB	3550 MB	.\i
MXL1281	7.26u,4.02t,-,...	(last commun...	Feb 18, 2022 10:...	Office M81	66 GB	1 GB	9777 MB	MXL1281\W

In the image above, the cell for workstation MXL1281 has been changed to 'Office M81'

SofTrack Server Agent Version: Server Alert Log (ALERTS.LOG)

To access, open `SOFTRACK_CONSOLE.EXE`, click the "Settings" tab and then click the *Settings Home* section:



The Server Alert Log Entries show a variety of errors and situations that may require remediation. The file STLOG\ALERTS.LOG is the source for alerts shown in the Server Alert Log Entries list.

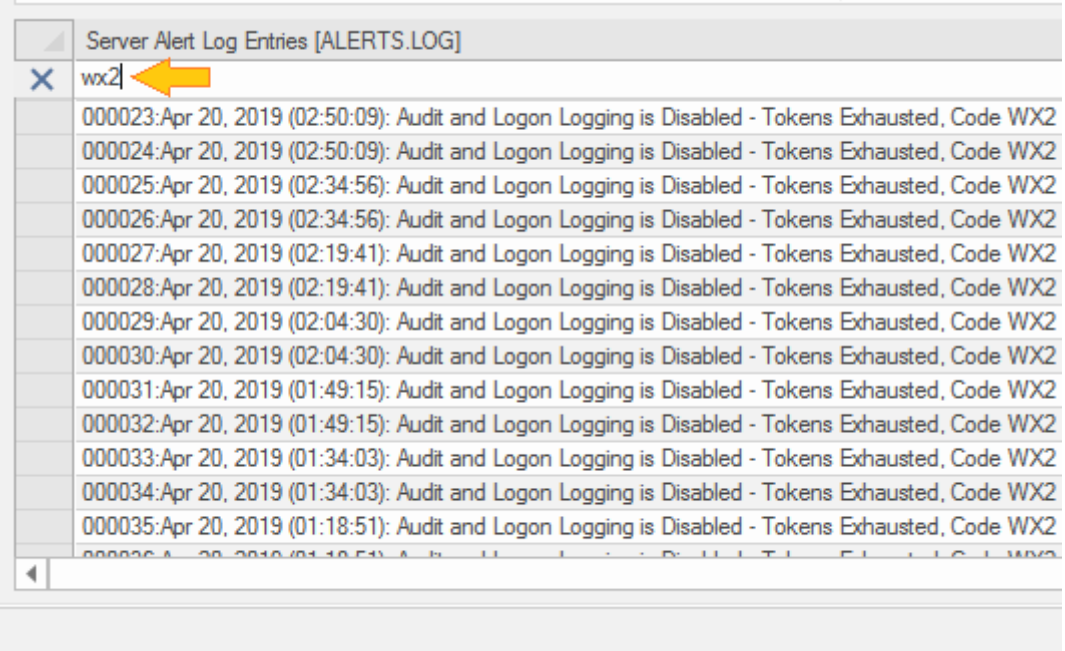
Errors WX1, WX2 and WX3

There are two basic errors shown. The first is WX1 (not shown in above figure) that indicates there are insufficient SofTrack Licenses for the number of workstations currently interacting with the SofTrack Server Agent. The second is WX3 that indicates there are insufficient SofTrack Terminal Server Licenses installed for the number of terminal server hosts currently interacting with the SofTrack Server Agent. Please know that it is possible for a regular Windows workstation to masquerade as a Windows Terminal Server host. If a Windows workstation is shown as using a SofTrack terminal server license, use REGEDIT and check if the value **TSAdvertise** is set to the value of 1 in the following key:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Terminal Server
```

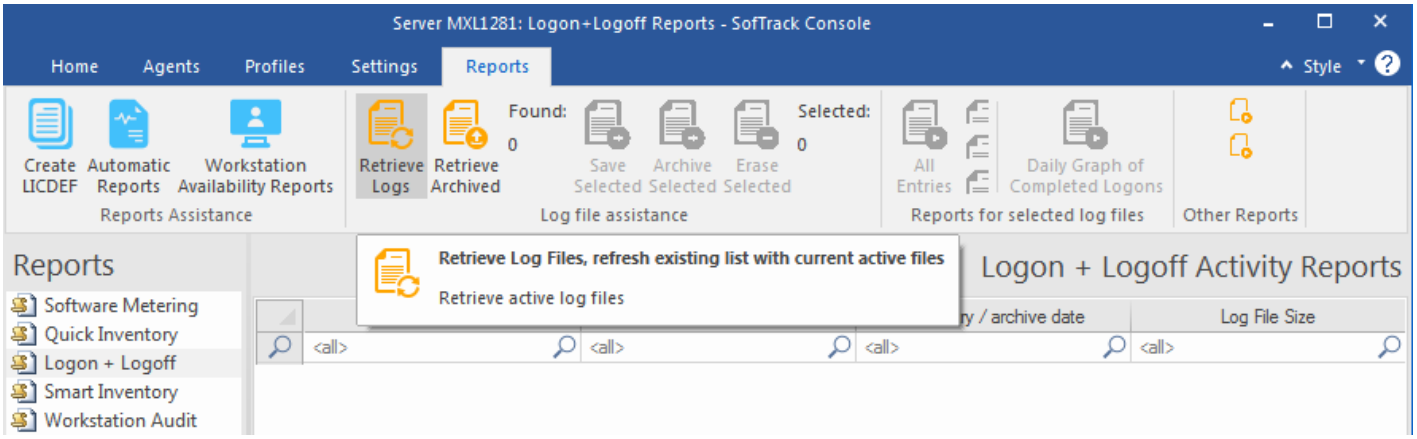
WX2 Error and Remediation

A third error, WX2 (shown in the following figure), indicates there are too many workstations being reported in either the Logon folder and/or the Audit folder. Specifically it means there are too many files.

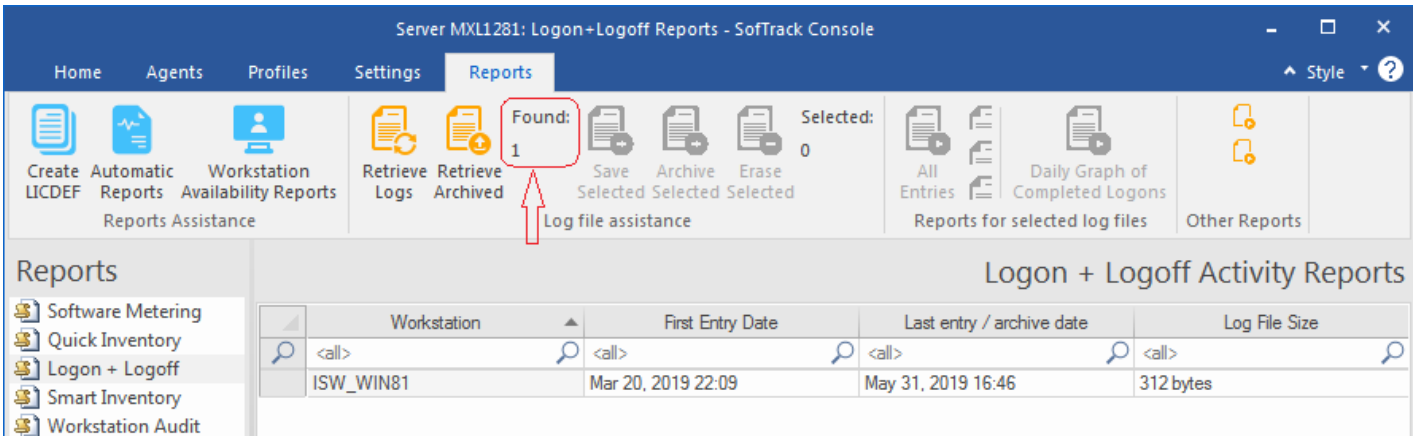


Notice, in the image above the “filter” value of “wx2” was entered, this immediately filters the list shown to only those entries including the text entered.

To determine the number of workstations being reported in the Logon folder, open the SofTrack Console, click the Reports tab and select *Logon+Logoff* section and click the **Retrieve Logs** button:

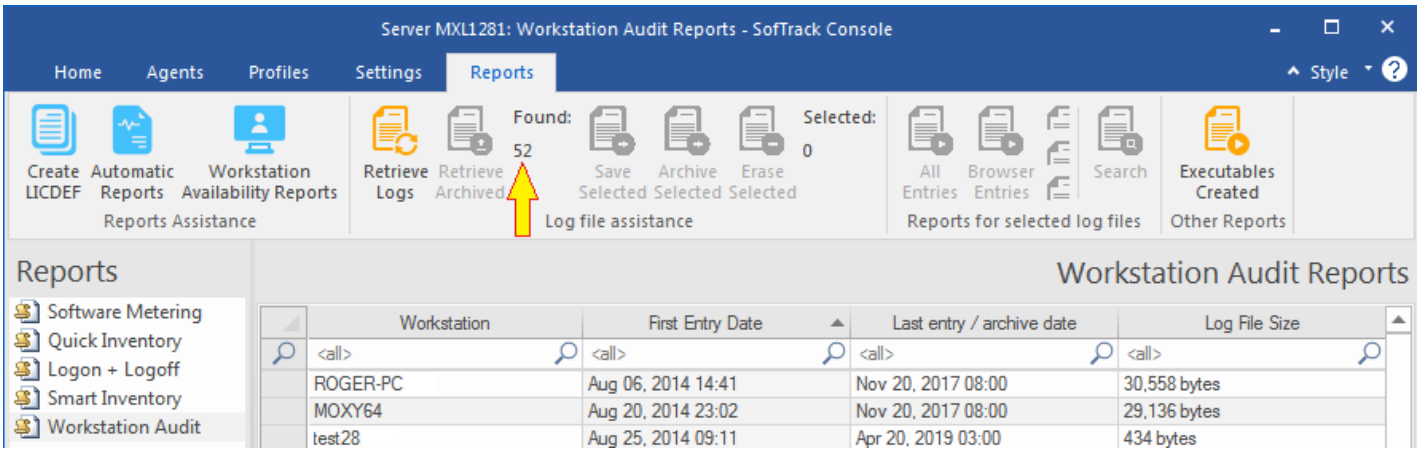


This action will open a screen that lists all workstations that have reported logon activity and that are being used to determine WX2 status.



As shown above, observe the indication "Found". If this number is greater than your total number of licenses installed this is the cause of the WX2 error.

To determine the number of workstations being reported in the Audit folder, open the SofTrack Console, click the Reports tab and select *Workstation Audit* section and click the **Retrieve Logs** button:

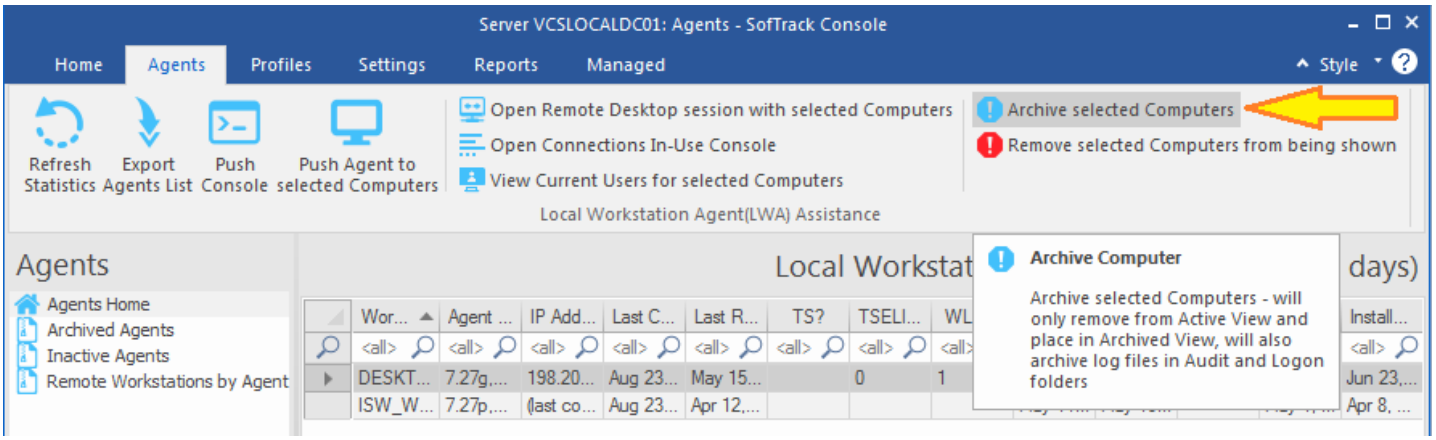


As shown above, observe the indication "Found". If this number is greater than your total number of licenses installed this is the cause of the WX2 error.

It is possible for both the Logon and Audit folders to have too many workstation files listed.

Both the Logon/Logoff and Workstation Audit report views have an “Erase selected log files” button, you can use it to remove unwanted files.

However, an alternative is found on the Agents tab:



As shown above, select workstations to archive and click the **Archive Selected Computers** button. This button will automatically archive the log files for the selected workstation and remove the workstation from the *Agents Home* section and place it in the *Archive Agents* section. In comparison, the **Remove selected Computers from being shown** will remove that workstation's entry as well as archive its log files.

IMPORTANT NOTE #1:
If the workstations archived continue to use the SofTrack workstation agent (LWA) then each of these workstations will automatically re-appear on the Agents Home section. It is recommended that only workstations that are not longer active or not longer use the SofTrack workstation agent are archived.

IMPORTANT NOTE #2:
The archiving process DOES NOT affect the workstation in any way including removal of the SofTrack workstation agent. For any active workstations, please first use the **Push Console** or **MSI** to remove the SofTrack workstation agent from affected workstations prior to archiving.

While the WX2 error is occurring (it is generated by the SofTrack Server Agent), no further logon or audit activity will be recorded (regardless of which one has caused the WX2 error). To solve the WX2 error you will need to either purchase additional licenses or archive workstations ***and*** remove the SofTrack Local Workstation Agent from those same workstations whose files you deleted to prevent new files from being submitted by those same workstations.

Please note that WX2 error indication does not stop or interfere with software metering activity.

And, at the next license check (i.e. every 15 minutes) the WX2 error will "self reset". There is no need to stop and restart the SofTrack Server Agent.

Daily Maximum Workstation Agent License Usage

The SofTrack Server Agent (beginning with v8.16q) automatically creates a CSV report in the STLOG path:

`DailyMaximumUsage.csv`

The file has the following format:

"Date","Maxmium LWA Usage","Maximum TSE(Session) Usage",

Example entries:

"2023-09-03","21","2",
"2023-09-04","27","6",

The report is update at midnight each day for the previous day's activity. The values provide insight into how SofTrack product licenses are being utilized on a daily basis.

SofTrack Server Agent Options

SofTrack Server Agent Options: Overview

The SofTrack Server Agent includes several additional configuration options. These options include configuration of SofTrack's Audit and Control functionality that is accomplished via the SofTrack Local Workstation Agent.

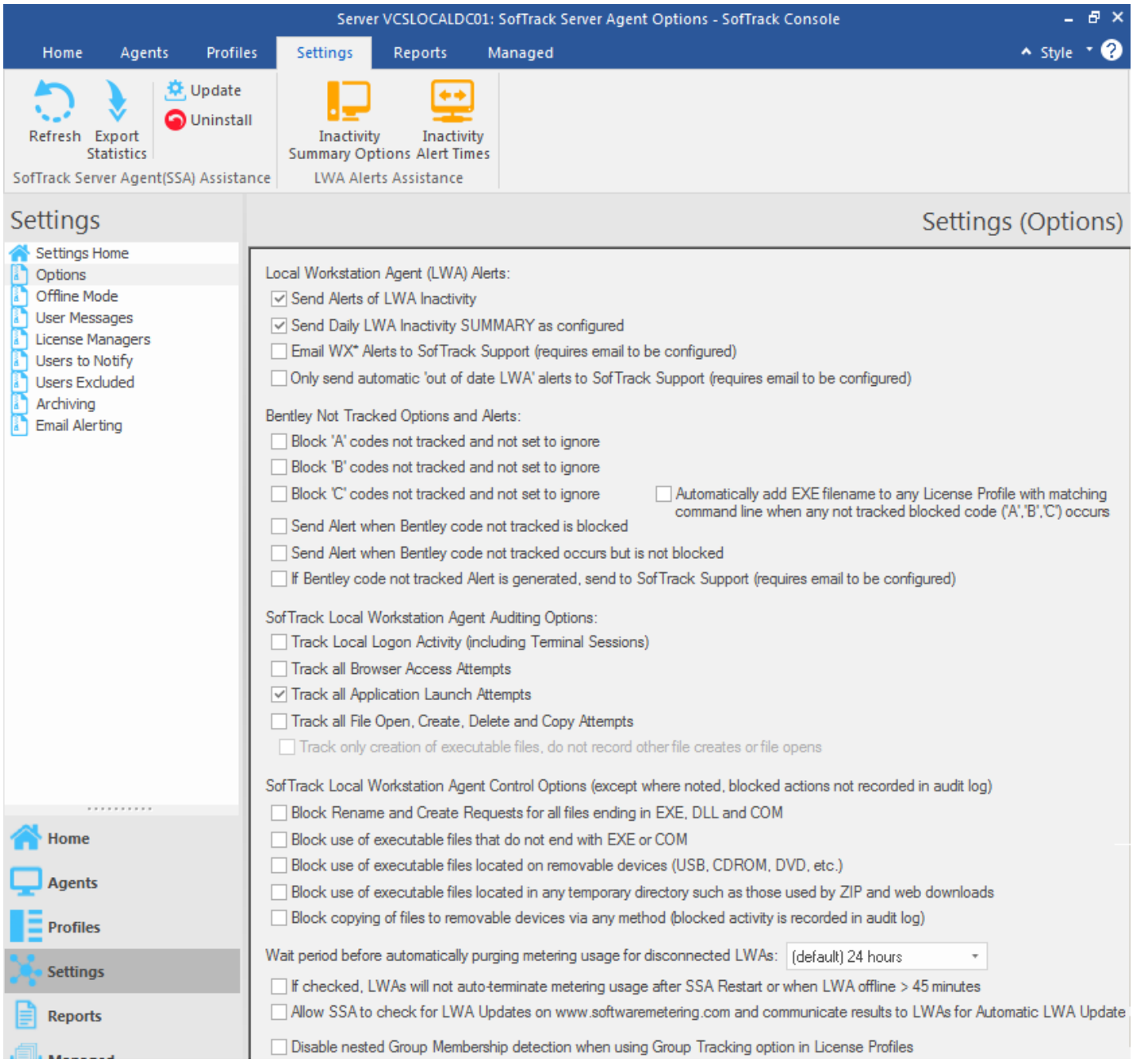
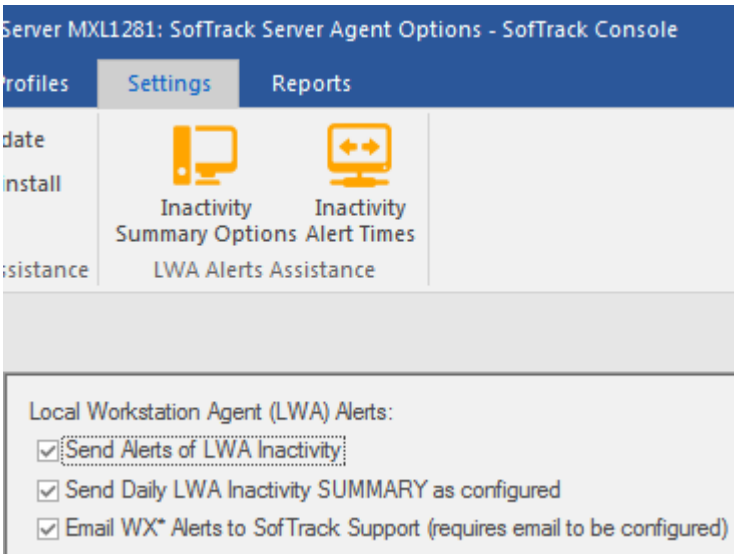


Figure 6-18

Send Alerts of LWA Inactivity



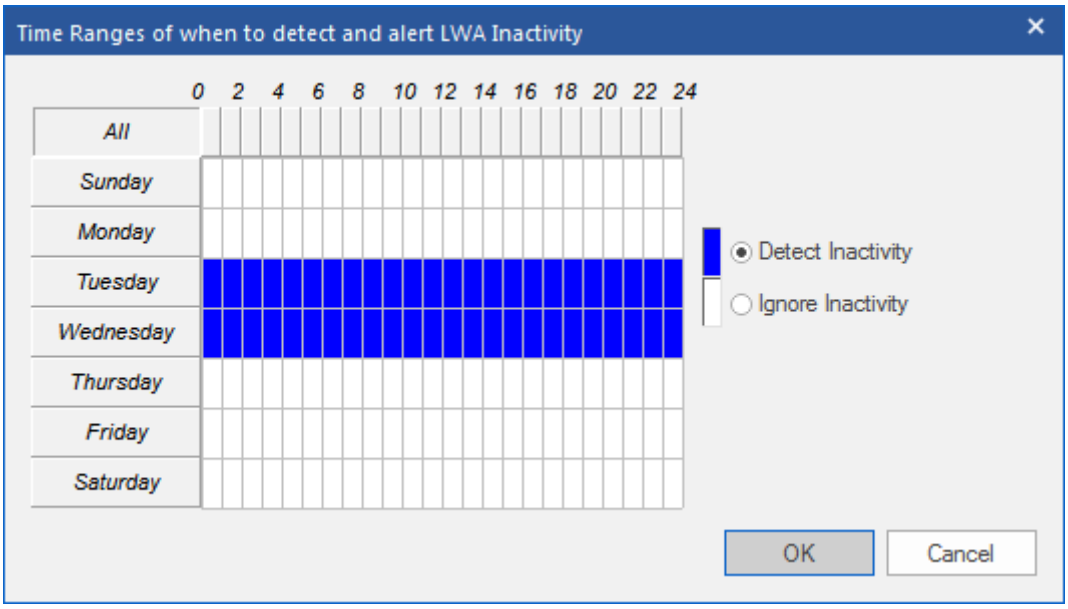
The <default> for this option is to be cleared (unchecked). If selected, the SofTrack Server Agent will send alerts to STALERT console and, if configured, selected email addresses.

There are 4 different LWA Inactivity alerts:

- Local Workstation Agent (LWA) is starting
- Local Workstation Agent (LWA) is stopping
- Local Workstation Agent (LWA) has had no contact for 5 minutes (only sent once)
- Local Workstation Agent (LWA) has resumed contact

When the SofTrack Server Agent first starts, it will wait for 15 minutes and then send an inactivity alert for all workstations that have previously connected to the SofTrack Server Agent. The inactivity alert will be sent once for each workstation. If the workstation agent starts an alert will be sent indicating the agent is started, once that occurs, the inactivity timer restarted. This ensures you do not receive endless alerts of inactivity per workstation.

Inactivity alerts are generated when users first boot up their workstations as they arrive and as each workstation is shut down. Because these actions will generate many alerts (one per workstation) you can set times of day to block Inactivity alerts from being sent. Click the **Inactivity Alert Times** button to configure this option:



Set time periods are required. To set an entire day, click that day's button at the left side. To set a particular hour, click that hour's button at top of the grid. To save settings, click **OK** and the SofTrack Server Agent will immediatelyl read in the new settings.

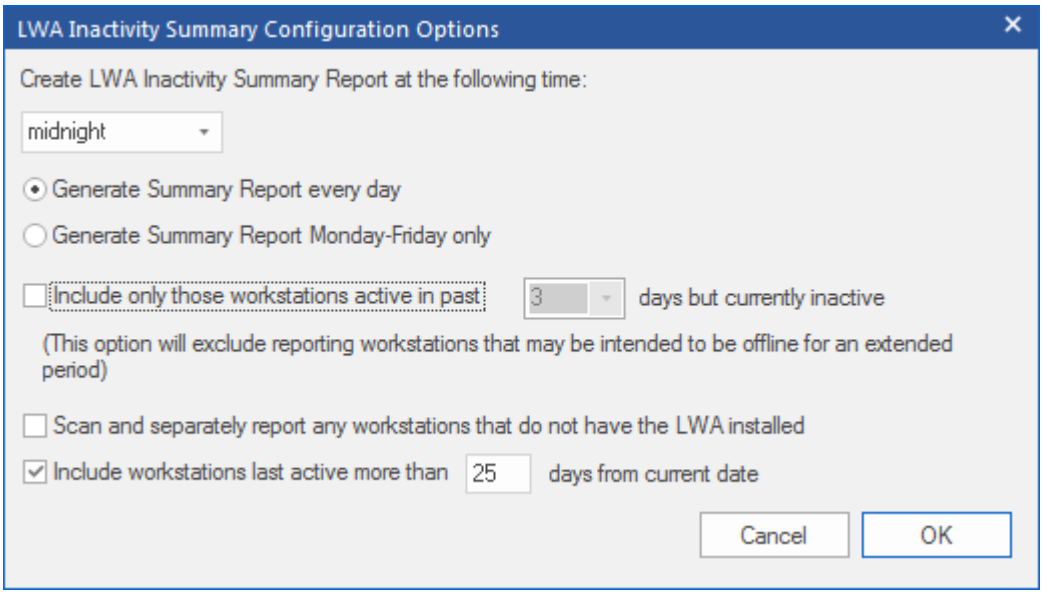
Send Daily LWA Inactivity SUMMARY as configured

The <default> for this option is to be cleared (unchecked). If selected, the SofTrack Server Agent will send alerts to STALERT console and, if configured, selected email addresses. This method of LWA Inactivity alerting was created to reduce the frequency of the LWA Inactivity Alerts that are generated on demand by the *Send Alerts of LWA Inactivity* option. Further, this method provides for a lower volume of alert messages and emails while providing essential information regarding the usage of LWAs in your environment.

Click the **Configure LWA Inactivity SUMMARY options** button to define the following options:

- Time of day to generate the summary
- Days of week to generate the summary
- Optionally alert only for LWAs with recent (1-31 days) activity but current is inactive
- Scan and report any workstations that are found that do not have the LWA installed

The following will be presented:



In the image above, the first setting defines the time of day (at the top of the hour, for instance, 10:00am), select the hour for your report to be generated.

The two "radio buttons" define the days to generate the summary. The first is every day, the second is only Monday through Friday.

Either the checkbox "Include only those workstations active in past" or "Include workstations last active more than [] days from current date" must be selected (checked) for this option to be engaged.

For the checkbox "Include only those workstations active in past", the drop down value (shown as '3' above) provides for 1-31 days. This option was provided for times when you need to be alerted of LWA inactivity but there are LWAs that are inactive over long periods of time and you do not want to be alerted each day. For instance, by setting this value to 3, only those workstations (LWAs) with a "Last Communication" date+time (as shown on Agents tab) within the past 3 days (but are currently inactive) would be included in the report summary.

For the checkbox "Include workstations last active more than [] days from current date", the value entered is the number of days, the maximum value is 250 days. This option will only report when a workstation agent (LWA) was last active more than the number of days indicated (25 days is shown in the above image).

For each LWA found matching the summary configuration you will receive a separate alert (in SofTrack's desktop alert console), and, if defined, a separate Email for each inactive LWA found. The alert message will include the text *Local Agent currently INACTIVE*.

If there are no matching LWAs (none are currently inactive or were last active prior to the time period defined) no alerts (alert console or email) will be generated

Scan for Workstations that do not have the LWA installed

(Refer to the image above)
If the checkbox "Scan and separately report any workstations that do not have the LWA installed" is enabled (checked) then a scan of all PCs found by the SofTrack Server Agent (using Windows Browser results or, if not available, workstations found in Active Directory – which may include PCs from other domains) will be reported and if email alerting is configured, a single attachment (text file) containing the list of all "new" workstations found will be sent.

A "new" workstation is defined as one that has not previously had the SofTrack LWA installed.

If Active Directory was scanned you will find the file `ADPCLIST` (a text file) in the STLOG path. This file will contain a list of all workstations found in Active Directory regardless of whether the SofTrack LWA has been installed.

Please note, there is no "TCP/IP scan" to search for workstations.

If a Windows Browser host cannot be located and if Active Directory is available to the SofTrack Server Agent host, a scan of all workstations found in Active Directory will be performed.

The results file `PCnoLWA.txt` is stored in the STLOG path. If there are no new workstations found, this file will be zero bytes. SofTrack automatically remembers workstations it has previously reported as being new and will only send an alert for new workstations found. The results file `PCnoLWA.txt` will always contain the current list of newly found workstations. To view the entire list of workstations that have been found where the SofTrack LWA is ***not*** installed, at the SSA host server, open `REGEDIT` and browse to this key and view the results:

HKEY_LOCAL_MACHINE\SOFTWARE\Integrity Software, Inc.\SofTrack\Administration\LWA_BASELINE

This registry key is maintained after each scan, if the LWA is (later) installed on a workstation shown in the LWA_BASELINE key it will automatically be removed, keeping this list current and only showing those workstations where the LWA has not been installed.

Email WX* Alerts to SofTrack Support (requires email to be configured)

When selected, an email is configured and anytime an WX1, WX2 or WX3 licensing error occurs an email will be sent our support team who will then contact you to resolve. Please do not define the email address of SofTrack support in the list of email destinations because we will receive all alerts. This checkbox, when selected, will instruct the SofTrack Server Agent to specifically send SofTrack support an email whenever a WX1, WX2 or WX3 licensing error occurs.

Automatic blocking and alerting of Bentley codes not tracked

SofTrack tracks Bentley License usage by a combination of application name plus Bentley code(s) as each is engaged.

However, because it is possible for users to download and use Bentley applications you do not have in your Bentley Licensed Portfolio, you could receive an invoice from Bentley for each such application.

SofTrack provides the ability to BLOCK usage of any Bentley codes you have not defined to be monitored and controlled by SofTrack.

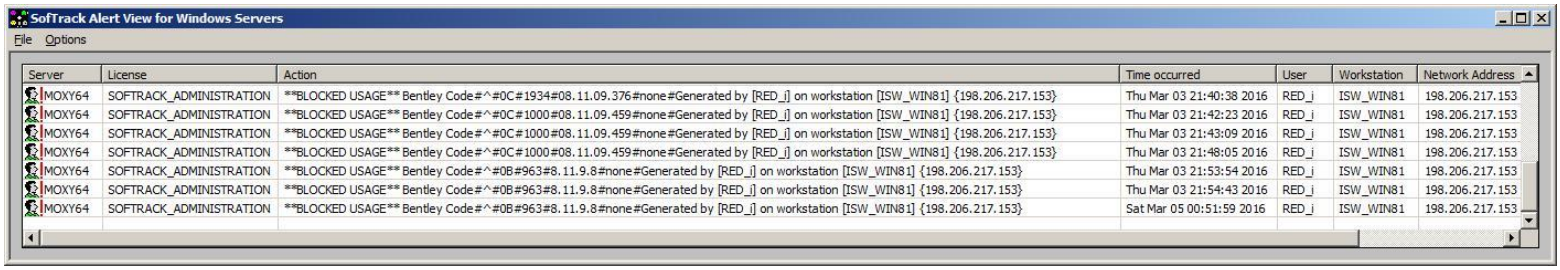
WARNING: If you engage automatic blocking before you have finished creating and configuring your Bentley License Profiles you may block legitimate usage. We recommend you wait until you have fully defined your Bentley License Profiles before engaging these automatic blocking options.

WARNING: If SofTrack's licensing is in a WX1 or WX3 error status, all Bentley codes will immediately become untracked and all Bentley application usage will be blocked.

SofTrack detects three different methods of Bentley license activation. In short they are "A", "B", and "C" codes. Typically you would check all 3 options shown in Figure 6-18.

The next 2 check boxes provide two different types of alerts. The first is when a Bentley Code to be blocked has occurred (and usage was blocked). The second is if you are not blocking but only want to be alerted when any untracked Bentley Code occurs.

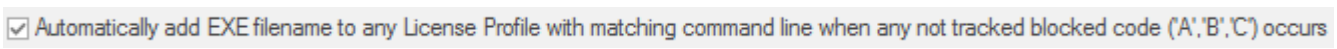
The following shows Blocked activity as it appears in the SofTrack Alert Viewer. If you have email configured you will also receive alerts by email. The image below can be better viewed if you zoom in.



If you check the last checkbox, the SofTrack Server Agent will automatically generate an email (if email is configured) and send to the SofTrack support team who will then contact you to follow up and provide any required assistance. When you configure email, please do not include the SofTrack support team email. When this checkbox is enabled, the SofTrack Server Agent will handle everything.

Automatically Add Executable to License Profiles when Bentley Not Tracked occurs

Beginning with SofTrack Server Agent v7.14p (x32) and v8.14p (x64) and any version of the SofTrack Local Workstation Agent and new ability is available:



By default, this ability is disabled.

To enable, start the SofTrack Console and select the desired server, click the "Settings" tab and click the "Options" section and scroll down to the option:

Automatically add EXE filename to any License Profile with matching command line when any not tracked blocked code ('A','B','C') occurs

When checked, ***and*** a Bentley-based application usage will be blocked due to no matching License Profile, the SofTrack Server Agent (SSA) will scan all existing License Profiles for any that match the command line used (i.e. containing the Bentley code that would be blocked). For all matching License Profiles, the SSA will automatically add the filename used and then automatically re-attempt to find a matching License Profile to determine if the Bentley Code can now be tracked. This ability literally means you can define a License Profile with ***only*** Bentley-based command line(s) and no filenames. As each Bentley code usage, determined by command line, is attempted, the SSA will automatically add the executable filename(s) used.

The purpose of this feature is to allow License Profiles to be created where the Bentley Code(s) are known but the exact filenames of the executable files issuing those codes is not fully known.

When this feature is activated, and a new filename has been added, the user will receive a slight delay of up to 5 seconds before the application is allowed to continue and be opened. This delay only occurs once per filename+Bentley Code combination as further usages will now be tracked by a License Profile. It is at this point where the SSA would otherwise block usage if this feature is not engaged but the option(s) to block usage (on 'A','B','C') codes are engaged.

Track Workstation Local Logon Activity (including Terminal Sessions)

When selected, this option will record all logon, logout, lock and unlock activity at each workstation where the SofTrack LWA has been installed and is active. Reports of captured logon activity is discussed in Chapter 9.

Track all Browser Access Attempts

When selected, this option will direct the Local Workstation Agent (see Chapter 3) to audit every page access attempted via any installed browser (Internet Explorer (IE), Chrome, Safari, Firefox and so on). The access attempts are recorded in a file named after the submitting workstation, also known as the `COMPUTER_NAME`. This file is located in the **Audit** subdirectory under the `METER.LOG` path. The file format is `CSV` (comma-separated values). See Chapter 9 for further details.

NOTE: Recording of all Browser Access attempts can produce log files that can approach 1MB of data per day per workstation tracked.

Independently configure Browser Auditing per Workstation

OPTION: You can implement Browser auditing on a workstation-by-workstation basis by manually using the following commands to independently configure a workstation to perform Browser Auditing:

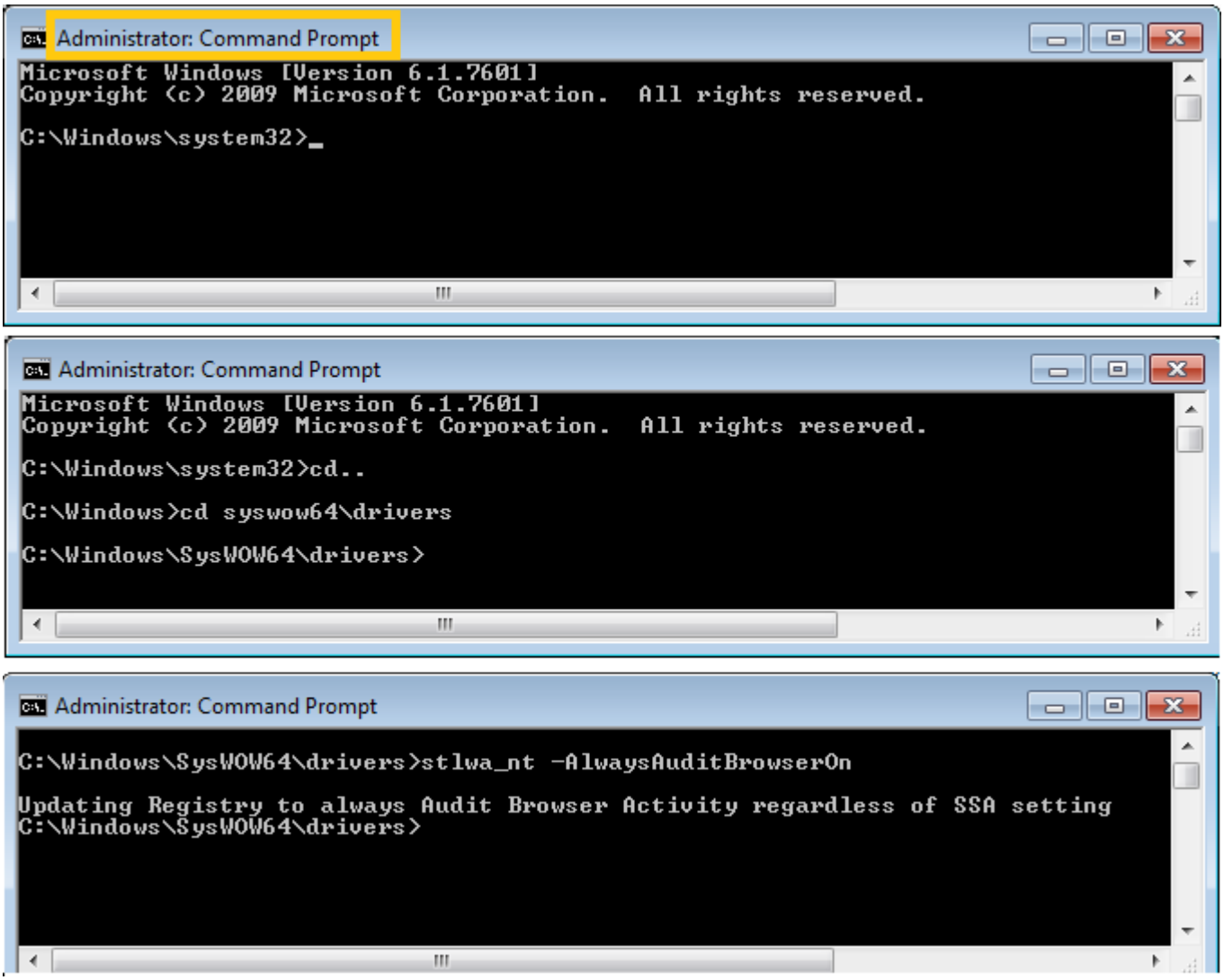
```
STLWA_NT –AlwaysAuditBrowserOn

STLWA_NT –AlwaysAuditBrowserOff
```

If the "AlwaysAuditBrowserOn" option is used at the workstation then it will "force" the Local Workstation Agent at that workstation to always audit Browser actively regardless of the setting in the SofTrack Console.

If using the "AlwaysAuditBroswerOff" option then the Local Workstation Agent will perform Browser auditing if configured by the SofTrack Console.

To run either command requires access to the workstation and the ability to logon with Administrator level permissions. Once the option is implemented it will take effect the next time the SofTrack Local Workstation Agent is started (usual method to accomplish this is to reboot the workstation).

Start by opening a CMD.EXE window "As Administrator", and then change directory to where STLWA_NT.EXE is located and run the command as shown in the following series of screenshots:



Track all Application Launch Attempts (whether defined for metering or not)

When selected, this option will direct the Local Workstation Agent (see Chapter 3) to audit every application launched via any means. The application filename is tracked. Tracking here does not include how long the application was in use.

This option will only audit those applications the LWA is defined to track. Specifically, the LWA can be configured to monitor only those applications launched from local drives or from any device (also known as **`notlocalonly`** mode). See Chapter 3 for further details.

The application launches are recorded in a file named after the submitting workstation, also known as the `COMPUTER_NAME`. This file is located in the **Audit** subdirectory under the `METER.LOG` path. The file format is `CSV` (comma-separated values). See Chapter 9 for further details.

Track all File Open, Create and Delete Attempts

When selected, this option will direct the Local Workstation Agent (see Chapter 3) to audit every file opened, created, deleted and copied via any means. This includes files opened

with modification permission that can indicate modification of existing files. The filename being opened or created is tracked. If a file is being created or opened with modification privileges, the process name requesting the create operation is included. And, if the file is being copied, this is also included.

The file open and create actions are recorded in a file named after the submitting workstation, also known as the `COMPUTER_NAME`. This file is located in the **Audit** subdirectory under the `METER.LOG` path. The file format is `CSV` (comma-separated values). See Chapter 9 for further details.

NOTE: Recording of all file open, create, delete attempts can produce log files that exceed 1MB of data per day per workstation tracked.

Track only creation of executable files, do not record other file creates or file opens

This sub-option is only available if **Track all File Open, Create and Delete Attempts** is selected. When selected, this sub-option will record only those file creation and modification events that are attempted for executable files, `*.EXE, *.DLL` and `*.COM`. If this sub-option is left cleared, those events will still be recorded, and additionally, all other file open and file create events will also be recorded. Because recording of all file open and create events can generate over 1MB of data per day per workstation and because of the significance of knowing when executable files are created or modified, we created this sub-option.

Block Rename and Create requests for all files ending in EXE, DLL and COM

When selected, this option will direct the Local Workstation Agent (see Chapter 3) to deny file rename and file create requests for all files ending `*.EXE, *.DLL and *.COM`. This denial is extended to opening of existing files for modification.

Denials are not recorded, and the user or process requesting such actions that are being denied receives standard Windows error messages that indicate the file is inaccessible, which has the benefit of not alerting users to the presence of SofTrack. Therefore, users are not aware that their actions are being specifically denied rather than some other fault.

Block use of executable files that do not end with EXE or COM

When selected, this option will direct the Local Workstation Agent (see Chapter 3) to deny execution of any file that does not end in the suffix `EXE or COM`.

Denials are not recorded, and the user or process requesting such actions that are being denied receives no error at all. The application simply will not start. This has the benefit of not alerting users to the presence of SofTrack. Therefore, they are not aware that their actions are being specifically denied rather than some other fault.

Block use of executable files located on Removable Devices (USB, CDROM, DVD, etc.)

When selected, this option will direct the Local Workstation Agent (see Chapter 3) to deny execution of any file located on a removable device.

Denials are not recorded, and the user or process requesting such actions that are being denied receives no error at all. The application simply will not start. This has the benefit of not alerting users to the presence of SofTrack. Therefore, they are not aware that their

actions are being specifically denied rather than some other fault.

Block use of executable files located in any temporary directory such as those used by ZIP and web downloads

When selected, this option will direct the Local Workstation Agent (see Chapter 3) to deny execution of any file located in any folder with the text "Temporary Directory" included anywhere in the folder path.

Denials are not recorded, and the user or process requesting such actions that are being denied receives no error at all. The browser will simply present a blank page. This has the benefit of not alerting users to the presence of SofTrack. Therefore, they are not aware that their actions are being specifically denied rather than some other fault.

Block copying of files to removable devices via any method (blocked activity is recorded in audit log)

When selected, this option will direct the Local Workstation Agent (see Chapter 3) to deny copying of any file to a removable device.

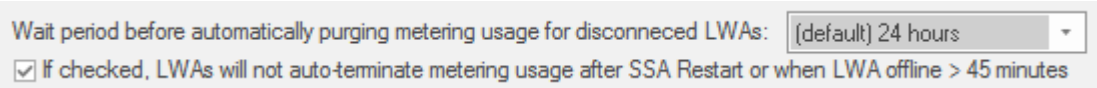
Each copy/save attempt is recorded in the Audit log for that workstation.

Automatic License Release / Termination when moving from online to offline usage

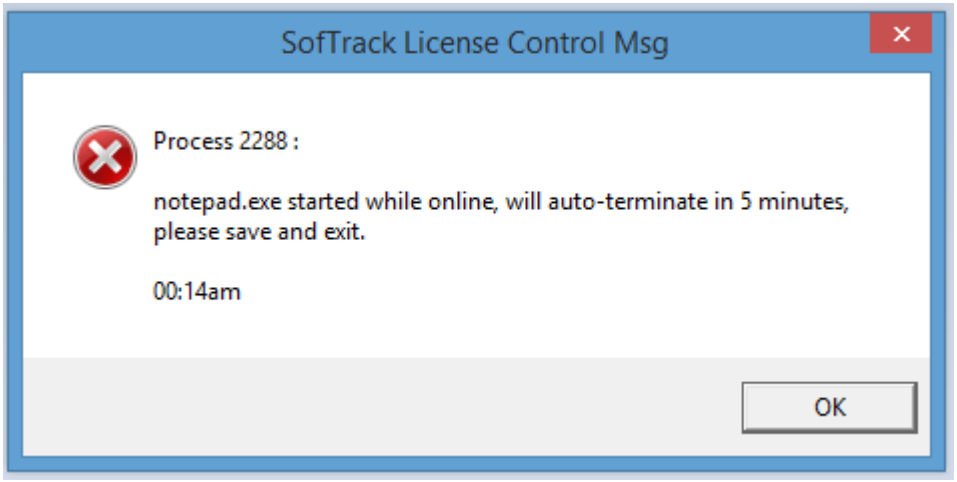
SofTrack, by default, will automatically purge license(s) used by any workstation where last communication received by that workstation was more than 24 hours ago. This is done with the presumption that the workstation has no communication for more than 24 hours due to some problem with that workstation.

Please note that automatic purging and the details below do not apply to licenses that have been checked out ***or*** are resulting from the use of a supplemental license profile definition ***or*** are based on a per-user license profile.

SofTrack defaults to 24 hours for this review, however it can be configured to be 1 hour up to 24 hours:



Beginning with workstation agent version 7.20t, the SofTrack workstation agent (LWA) will automatically warn a user for each license that was started while online with the SSA after 45 minutes of being offline from the SSA. Offline indicates the LWA has not had successful communication with the SSA for more than 45 minutes – this can be due to the PC hosting the LWA going offline or the SSA being stopped or some network communication fault. After 45-minutes the user will automatically receive a popup warning message on their desktop for each such licensed/metered application:

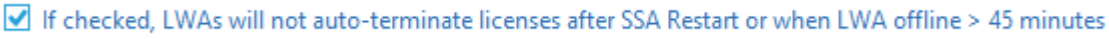


The "Process 2288" indicates the process id as shown in Windows Taskmgr.exe details view.

The message is customizable.

The time at lower left "00:14am" indicates the time the process will be automatically terminated.

If you do not want the LWA to perform these automatic terminations, check the box as shown above:



The default is unchecked, this indicates the LWA at each PC will perform automatic warning + termination as indicated above.

Automatic License Release / Termination when SSA is restarted

SofTrack, by default, will automatically purge license(s) used by all workstations for each usage where the time the license use started was prior to the most recent time the SofTrack Server Agent (SSA) was started.

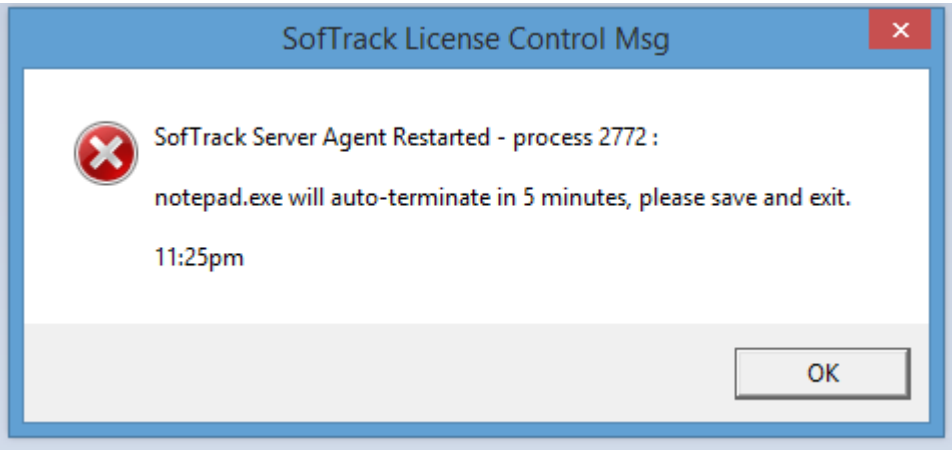
Please note that automatic purging and the details below do not apply to licenses that have been checked out or are resulting from the use of a supplemental license profile definition or are based on a per-user license profile.

For instance, if the SSA was restarted at 9am on a workday it is likely some users were actively using a metered license at that time (we recommend only restarting the SSA at a time when such usage is at a minimum, this is only for an example). When the SSA is restarted it automatically purges each license that was in-use at a time previous to the current start time of the SSA.

Beginning with workstation agent version 7.20t, the SofTrack workstation agent (LWA) will automatically warn a user for each license that was started while online with the SSA after the

SSA has been restarted. Please note when the SSA restarts it can take from 5 – 15 minutes before the SSA is again available for communications with the LWAs. As an aside, you can enable blocking of licenses while offline (which is essentially what is occurring when the SSA is stopped until fully active after a restart).

When the LWA detects the SSA has been restarted, typically within 1 minute of the SSA being available again after it restarts, the user will automatically receive a popup warning message on their desktop for each such licensed/metered application:

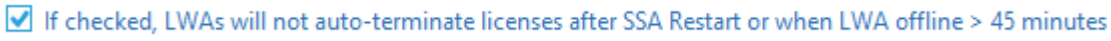


The "Process 2772" indicates the process id as shown in Windows Taskmgr.exe Details view.

The message is customizable.

The time at lower left "11:25pm" indicates the time the process will be automatically terminated.

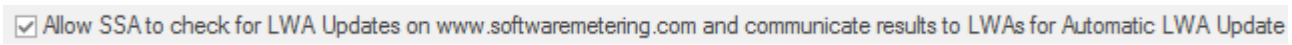
If you do not want the LWA to perform these automatic terminations, check the box as shown above:



The default is unchecked, this indicates the LWA at each PC will perform automatic warning + termination as indicated above.

Automatic Workstation Agent Updating

SofTrack includes the ability for internet-connected workstations to receive automatic updates of the SofTrack Local Workstation Agent (LWA).



Once checked, the SSA will then attempt to retrieve this file:

www.softwaremetering.com\outgoing\LWAVERUPD

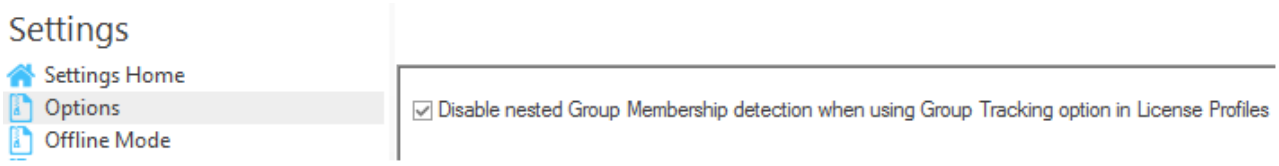
If successful, this file will be placed in the root of the "STLOG" path located at the SSA host.

This file contains a version code that the SSA will then send to each workstation within a few minutes. Each LWA (at each workstation) regularly "checks in" with the SSA and this is via this method that the LWAs will become aware.

This option if futher detailed earlier this guide. Click here for additional details.

Disable Nested Group Scanning for License Profile Group Tracking option

SofTrack's License Profiles include a Group Tracking option. Click here to review the Group Tracking option.



(Note: the above image has been altered to show only the selection discussed in this section)

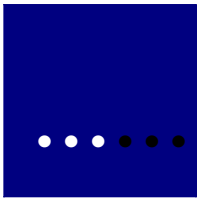
The default action:
When a user's SofTrack Local Workstation Agent first connects to the SofTrack Server Agent (i.e. each time the user has a new logon) the SSA will review all groups that user and workstation are members of. If any Group a user/workstation is, itself, a member of a group, that group's membership will be examined and if any such groups are then again a member of another group, that group is included and so on. This process scans and detects all groups the user is direct member of as well as indirect member of (by virtue of nested group memberships).

For example, if a user is a member of a group named "All_Employees" and the "All_Employees" group is, itself, a member of a group named "Chicago Site" then the user/workstation is a "nested" member of the "Chicago Site" group because the "Chicago Site" group includes as a member the "All_Employees" group. Further, if the "Chicago Site" group is included in the Group Tracking section of a SofTrack License Profile, then all direct membership of the "Chicago Site" group is included as well as the membership of every group that is a member of the "Chicago Site" group.

This option (checkbox in image above) changes this behavior so that SofTrack only scans direct memberships and not nested group memberships.

Therefore, if the "Chicago Site" group is defined in a SofTrack License Profile only its direct members that user or workstation objects will be "detected" as being included in that Group's membership.

The reason this option was created is that when a network environment define a wide amount of nested group memberships, the scanning process used by the SSA can take a large amount of time to complete (up to 30 minutes in some cases) and usages can be missed or never tracked due to memberships being extremely large (100s or 1000s of nested group memberships).



Chapter 7 Software Usage Reporting

SofTrack's reporting provides a variety of printed/text-based reports, including those for metering activity, logon activity, timekeeping activity, and Quick Inventory. SofTrack's reporting includes graphical reporting of metering activity. SofTrack also includes a batch-mode, command-line tool to produce text-based activity reports.

See Chapter 8 for additional reports for Quick Inventory and Smart Inventory.

See Chapter 9 for additional reports detailing Logon Tracking activity as well as Workstation Audit activity

Interactive Reporting of Metering Activity: Overview

SofTrack's Metering Activity Reports are based on data stored within `METER.LOG` and the `METER.*` files. The Archive option can be used to save off older datasets (i.e., `METER.001`, `METER.002`, etc.). Metering Activity is recorded to `METER.LOG` upon the completion of the metering activity. For instance, if you are metering the use of an application and while you were still using the application try to generate a report showing its activity, you would see nothing regarding the current use. To view active use of applications, click the **Active Users** button in the selected License Profile or use the STUSER utility, which is further described in Chapter 7.

The term *interactive* indicates that the report is produced from the Administrator Interface.

SofTrack provides the following types of interactive Metering (Application Usage) Activity reports:

- License Profiles Printed/Text-based
- License Profiles Graphical
- License Profiles Active Users

SofTrack provides the following types of batch-mode Metering (Application Usage) Activity reports:

- Server-based License Profile Printed/Text-based
- Server-based License Profile Printed/Text-based: Web-based

The term Batch-Mode indicates that the report is produced from the command line tool `ST2K_RPT.EXE`, which is described later in this chapter.

Interactive Reporting of Metering Activity: How

Setting the METER.LOG for Report Generation

All metering activity reports created by `SOFTRACK_CONSOLE.EXE` rely upon the data stored in the `METER.*` files. Because of its use in several different areas, setting which `METER.LOG` file to use is defined in one place. To set:

Open `SOFTRACK_CONSOLE.EXE`, select the server and then click the “Reports” tab. Next, select "Software Metering" section. Click on "License Profile Activity – Details and Summaries", finally click the **Run Report** button.

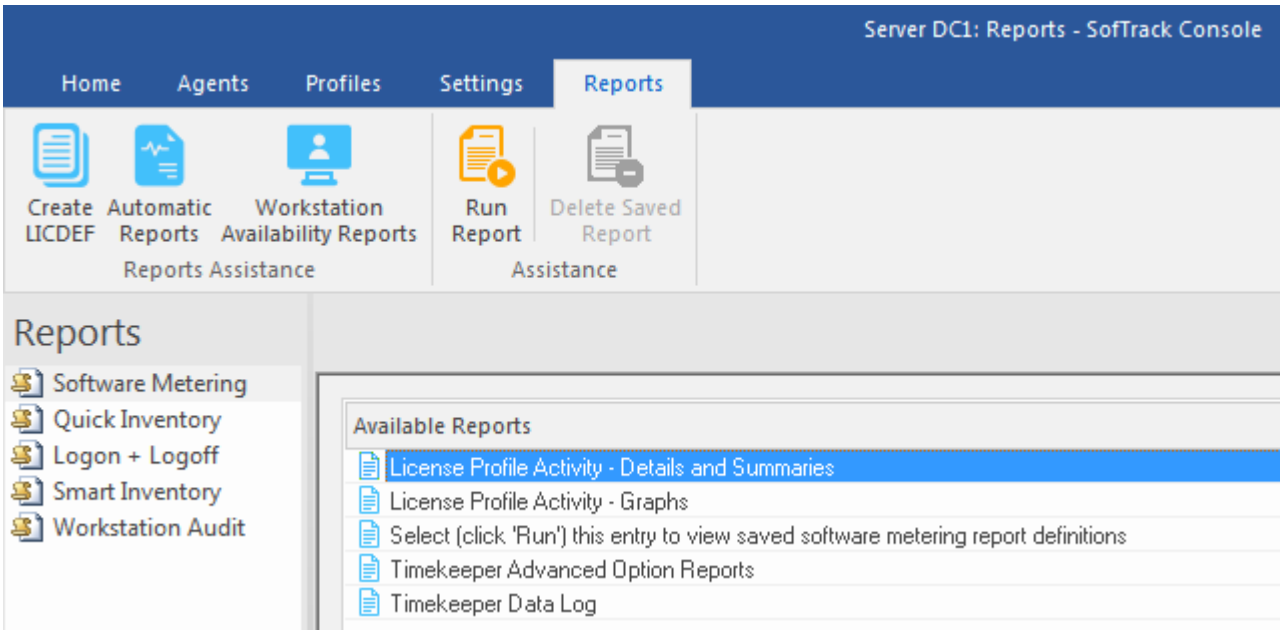
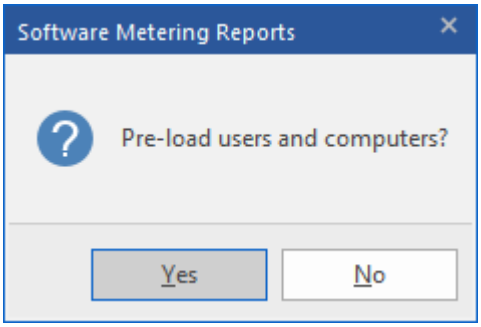


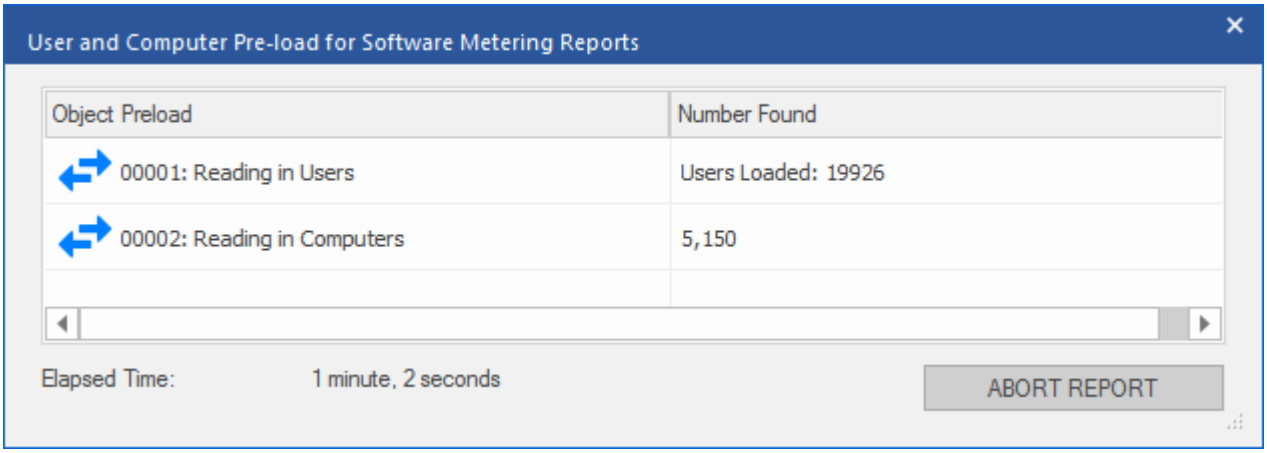
Figure 7-1

When selected, the following window will appear:



If you click **Yes** a progress will appear detailing progress and then automatically close. If you click **No** users and computer will be pre-loaded. If the reports you will select include details related to specific users and/or computers or if you will want to filter the report by users and/or computers choose **Yes**.

The progress window:



Once the users and computers are pre-loaded the following will be displayed:

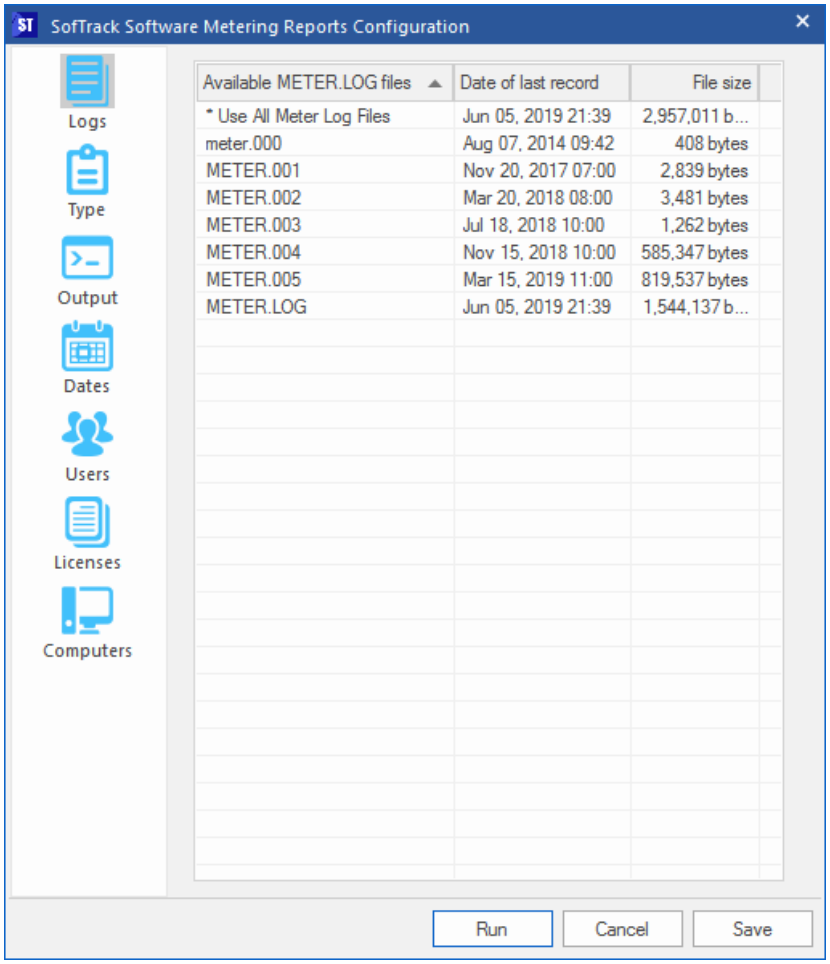


Figure 7-2

To report from the contents of a single `METER.*` file, select it. Otherwise, to report from all `METER.*` files, select the *** Use All Meter Log Files** option. Therefore, only two options exist:

- Reporting from *all* `METER.*` files **OR**
- Reporting from a *specific* `METER.*` file

The default is all `METER.*` files

Special Note: Reporting of Metering Activity for the Current Day

When you create a printed or graphical report of metering activity for the **current day**, you may notice some discrepancies. Below is an explanation of what is occurring:

The **Printed Reports** will select only *completed* metering events (that is, where the user has actually exited the metered application). Because of this, the maximum concurrent use values shown may not match the report data. This is explained shortly.

The **Graphical Reports** may seemingly provide different data for *intraday* (i.e., current day) reporting than the printed reports.

What follows explains these discrepancies:

The **Maximum Concurrent In-Use** value (MAX) shown in the reports is actually recorded in *every* metering activity event written to the `METER.LOG` file and represents the *current in-use* value. This value indicates:

when this particular user stopped using the metered application the current in-use value was X *(i.e., number of users using the metered application—including the user who is now exiting the metered application)*

Even though the `METER.LOG` records are not yet complete—that is, the metering activity shown in the **Printed Reports** are only for completed uses of the application—anyone still using the application (i.e., an active user, as shown in the active user listing for the License Profile) will *not* be in the printed report yet, but the fact that they are still an active user of the metered application is reflected in the MAX value shown in the report. For instance, the **Printed Report** shows 10 uses, but the **Graphical Report** shows a MAX of 33. This discrepancy indicates that a large number of users is *still active* in the metered application and, as such, their record of use has not yet been written to the `METER.LOG` file.

Therefore, it is entirely possible to have a MAX value greater than the number of executions shown in the report for the reason that there are several *active executions* not yet accounted for in the `METER.LOG` file.

Step by step, here is what occurs:

- Each time a metered application's use is initiated, the user becomes an active user of the application.
- At this point, there is no record of their use in the `METER.LOG` file; therefore, their specific use will not yet appear in the **Printed Report**.
- Each time a user exits the usage of a metered application, an entry is written to the `METER.LOG` file.

- Included in that record is a MAX value (explained above).
- Users actively using the metered application have not yet been accounted for in the `METER.LOG` file. Use STUSER (see Chapter 7) or `SOFTRACK_CONSOLE.EXE` (see License Profiles Active Users) to view the metered application's currently active users.

Our suggestion to avoid this discrepancy is to wait until a time when everyone is out of the metered application.

License Profile Reports: Printed/Text-Based

Open `SOFTRACK_CONSOLE.EXE`, select the server and then click the "Reports" tab. Next, select "Software Metering" from the list of Available Report Categories (see Figure 7-1). Click on "License Profile Activity - Reports", finally click the **Run selected Report** button.

If prompted, select the appropriate METER.LOG file option and then after one or two initialization messages the following report dialog will be presented.

REPORT: TYPE Section

Begin by selecting the Report Type.

Details of License Use Report: Overview

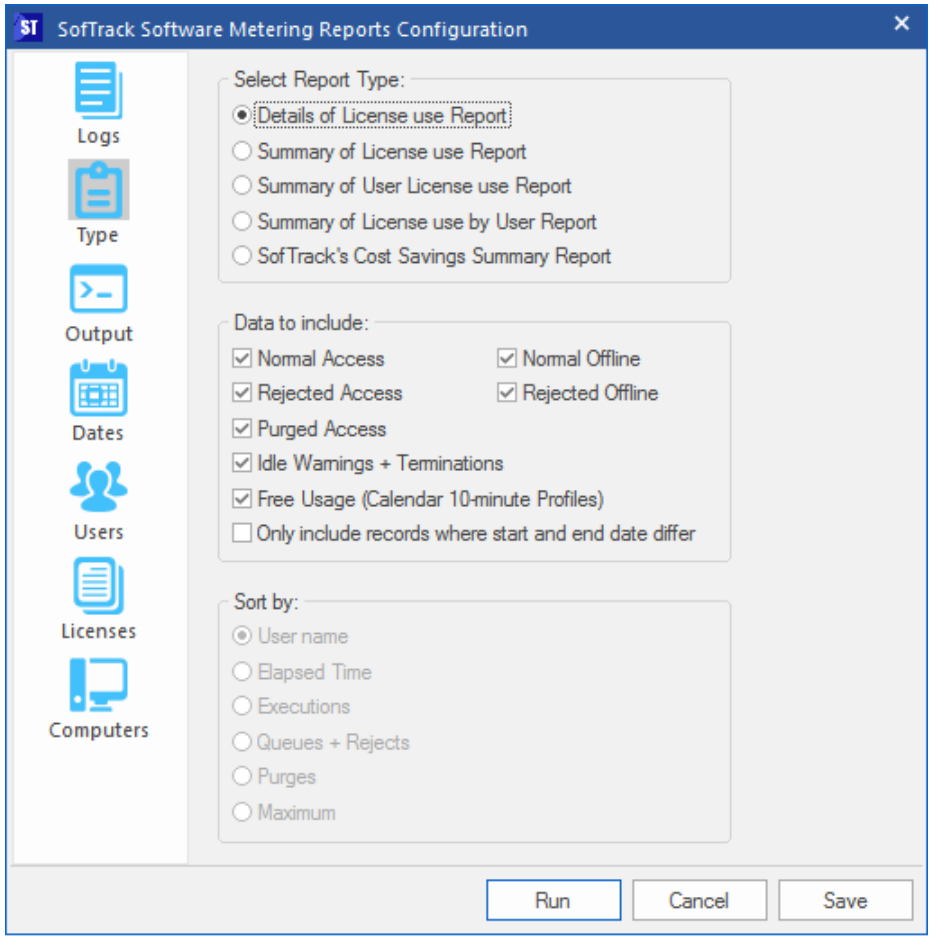


Figure 7-3

This report type includes one line of detail for each application used, grouped by License Profile. For each line of detail, the following is displayed:

- User name
- Time into application
- Time out of application
- Usage Type:
  - Normal
  - Queued
  - Rejected
  - Purged
  - Idle Warning
  - Idle Termination
  - Free Usage (only for Calendar 10-minute profiles)
  - Network address of user's workstation or name of Terminal Server

For the *first* License Profile in the report, a detail line will be included each time the SofTrack Service (SofTrack Server Agent or SSA) was started.

Included after the last record for each License Profile is an **In Use Time** summary and **Maximum In Use** value detail line.

Details of License Use Report: Data to Include

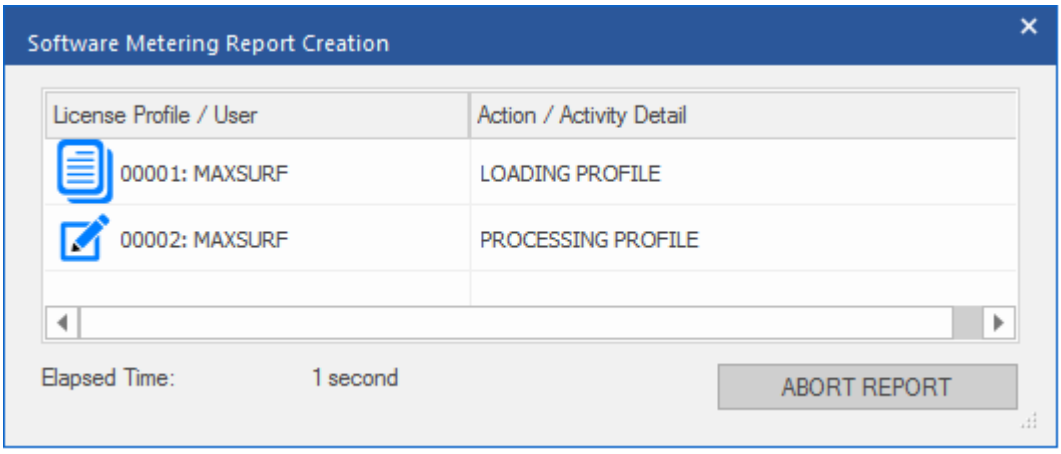
As indicated in Figure 7-3, you may select only those record types you want to view (Normal, Normal Offline, Queued, Rejected, Rejected Offline Purged, Idle Warnings + Terminations, Free Usage).

The SofTrack Service Started record type is always included in this report type.

NOTE: Sort options are not allowed for this type of report.

Details of License Use Report: Example Report and Discussion

When you click Run a progress window appears (notice it has an Abort button as well as elapsed time):



The following is an example of a **Details of License use Report**.

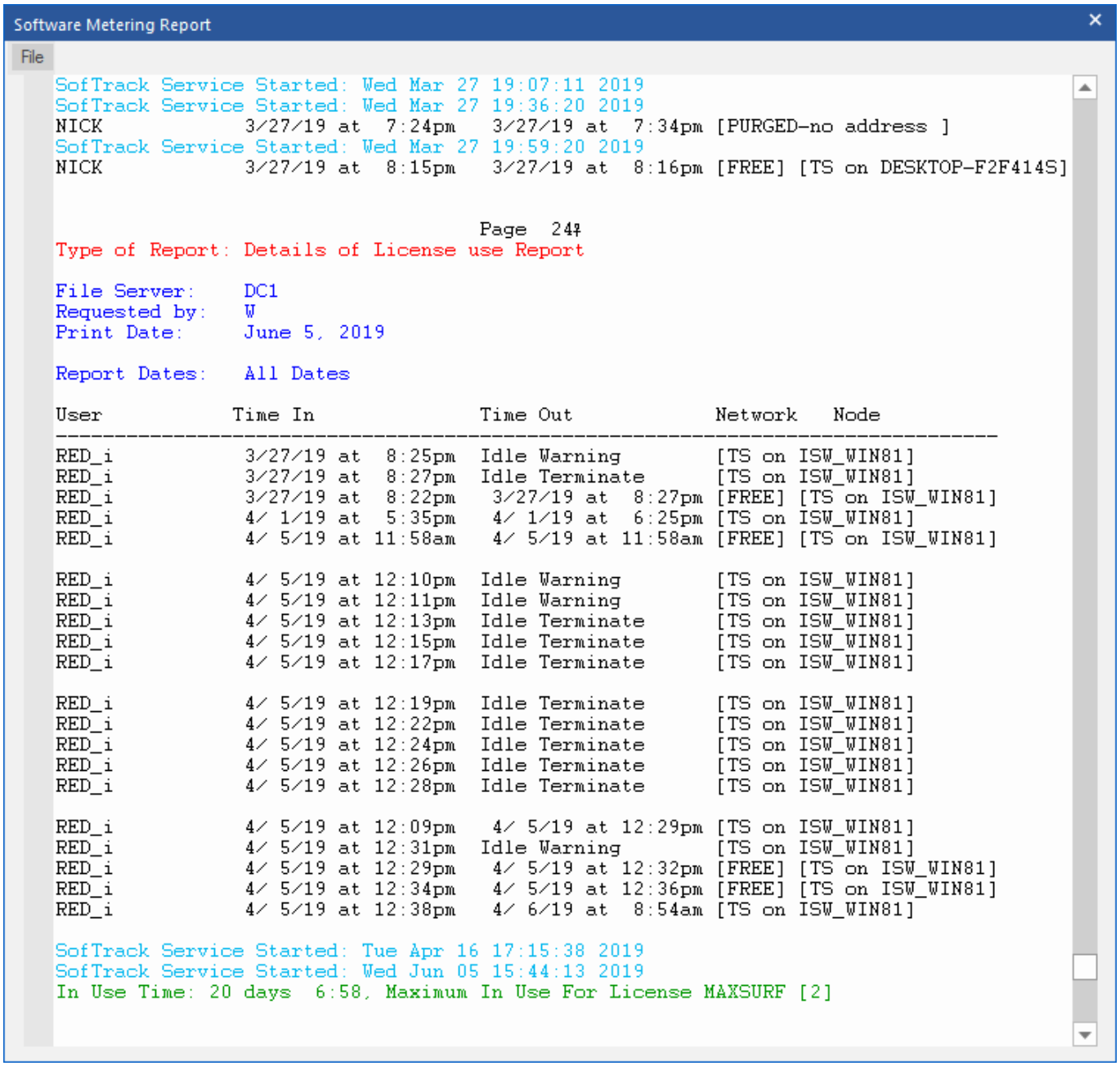


Figure 7-4

NOTE: For every five lines of detail in the figure above, a blank line is inserted for readability.

The following is a discussion of each of the detail points this report includes:

- **License Profile name**

  The License Profile Name is included once, and the records that follow are for that License Profile. In this example, the License name is TK_NOTEPAD.

- **User name**

  The User name is included for each detail line of metering activity. Occasionally, you may see the names “UNIDENTIFIED” or “Not Found”. These represent entries for users that

were never properly identified or if the "Users" registry key within the SofTrack registry key at the server has been cleared.

- **Time into application**

  This value represents when use of the License Profile began. Use of the License Profile indicates that the user began using some application or file defined within the License Profile.

- **Time out of application**

  This value, if shown, indicates the time the user stopped using the License Profile. Stopping usage of a License Profile indicates the user has exited or closed all instances of the application(s) being tracked by the selected License Profile.

If the value shown is a time value include PURGED phrase, it indicates a PURGE event occurred:

- **PURGED**

  If this value is shown and the field following the **Time Out** field includes **[PURGED-no address]**, this indicates the record is a **PURGE** record.

  A *PURGE record* means the user's actual exit time (for use of the License Profile) **is not known**.

  The Time value recorded for a purge record is the time when the SSA recognized that the user's connection to the server was no longer valid.

  Reasons for a PURGE record include:

  [1] A PURGE record occurs when the server hosting the SSA fails or is otherwise stopped unexpectedly.

  To identify this cause of a PURGE record:

  Look closely in the Details of License Use report to see if any

  SofTrack Server Started

  messages/entries exist just prior to the PURGE entry. This usually indicates that the user was using the indicated License Profile at the time the server failed or when the SSA was stopped.

  When the SSA is "not functioning" it has no ability to track application usage. Therefore, when the SSA is first started it will automatically clear all metered activity that was in process at the time the SSA was stopped and record each found as a PURGED entry.

  [2] A PURGE record occurs when the user's workstation fails while metering an application and the workstation is rebooted.

When the SofTrack Local Workstation Agent (LWA) is restarted due to a workstation reboot the SSA will detect this action and proceed to "clear" all previous "in process" metered activity for that workstation (including all users of terminal server host).

[3] A PURGE record occurs when the SofTrack Local Workstation Agent (LWA) is stopped while metering an application.

When the LWA is first started, the SSA will detect this as a new start and proceed to "clear" all previous "in process" metered activity for that workstation (including all users of a terminal server host).

If the value is instead a phrase, it indicates that type of event occurred. Events here include:

- **QUEUED**

  Indicates the user was not allowed to use an application or file defined by the License Profile; however, the user was queued for future access once a license becomes free. Notification to the user is via a popup message. When a license becomes available, the user is again notified by a popup message; there is no record of this event in the report—only the initial queuing event.

- **REJECTED**

  Indicates the user was denied access to the application or file tracked by the License Profile. This occurs when queuing is not defined or eight users are already queued.

- **Idle Warning**

  Indicates the user was notified that an application being tracked by the License Profile has been left idle for too long and to begin using it again.

- **Idle Termination**

  Indicates the user's use of an application being tracked by the License Profile has been terminated.

  Finally, if the **Time Out** is a value and the next field indicates a workstation address or name, this indicates a **NORMAL** use record.

- **Network / Node Address**

  Indicates the Network and Node Address of the user's workstation. The Network portion will display [FREE] for Calendar 10-minute free usage records. The Node portion, if shown, is the workstation's physical address, or, possibly the address of an intervening router. In most environments, the **IP Addr:** value is shown, indicating the IP address assigned to the workstation. If the value shown is **[TS on NAME]**, this indicates that the SofTrack Local Workstation Agent (LWA) was in use, and the user was accessing the application being metered via a Terminal Services session on the named machine. The TS stands for Terminal Services.

  > **NOTE:** Application use metered by the SofTrack LWA on Windows XP or later workstations can result in the Address being displayed in the **[TS on NAME]** format. This is due to Windows XP's (and later versions) inclusion of a Terminal Service (i.e., Fast User Switching) within its core design.

- **SofTrack Service Started**

  Indicates each time the SSA was started. The times the Agent is stopped are not recorded.

- **In Use Time and Maximum In Use**

  At the end of the detail lines for each License Profile, a one-line summary of the overall time in use is displayed in Days, Hours, Minutes format, and the Maximum Concurrent uses during the reporting period is noted. Maximum Concurrent uses indicate how many different workstations and/or terminal server sessions were using the applications/files defined by the License Profile at the same time.

Details of License Use Report: Comma-Delimited (CSV) Report Option

Under the **Output** tab, you can select the output to be in comma-delimited format. The following is a sample report of comma-delimited or `CSV` format.

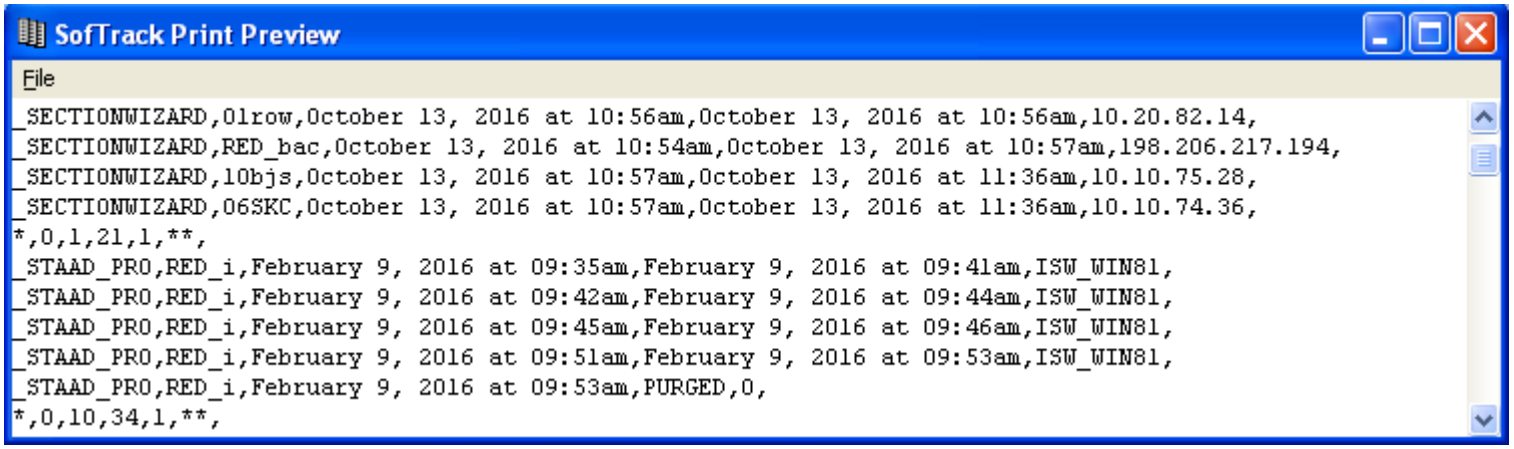


Figure 7-5

The following is the format, repeated for each detail line:

License Name,
User Name,
Date In,
Date Out,
Node Address or Computer Name,

A single * signifies the end of that License Profile's data and the beginning of that License's summary data. The summary data is Elapsed Days, Elapsed Hours, Elapsed Minutes, and Maximum Concurrent In-use.

A ** signifies the end of the summary data. The end of the report is signified by ***.

Unlike the Text-Based Details of License use Report, the Comma-Delimited Report does *not* include the **SofTrack Service Start** details lines.

Summary of License Use Report: Overview

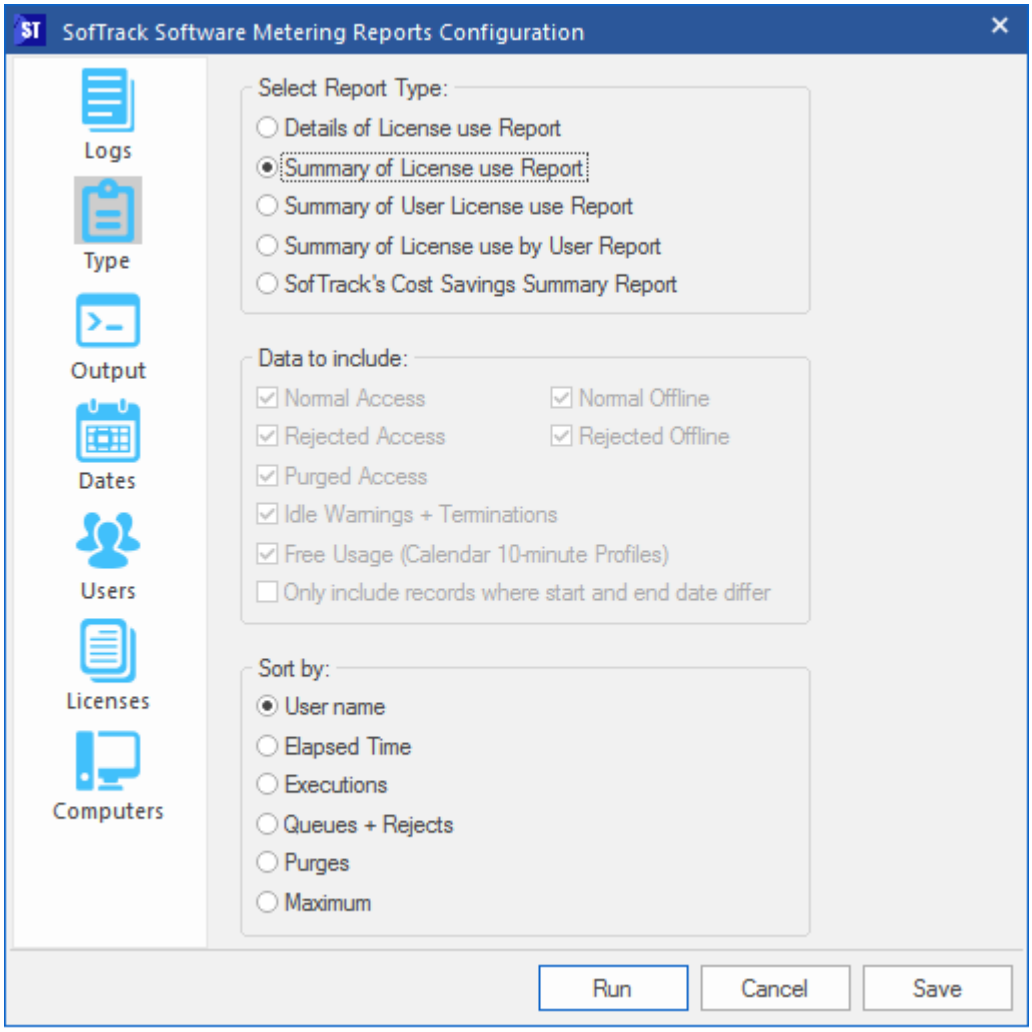


Figure 7-6

This report type includes a one-line usage summary for each License Profile. For each line of detail, the following is displayed:

- License Name
- Elapsed Time in use
- Number of Executions [#Execd]
- Number of Queuing Events [#Queued]
- Number of Purges [#Purged]
- Number of Rejects [#Rejected]
- The Maximum Concurrent in-use [#Max]

The term *Executions* means application use or a file being tracked was opened. Number of Executions also includes Purges, since they were executions that were not properly recorded. Remember, SofTrack can track the use of data files hosted by the server. Technically, these are uses but *not* executions.

Summary of License Use Report: Sort By

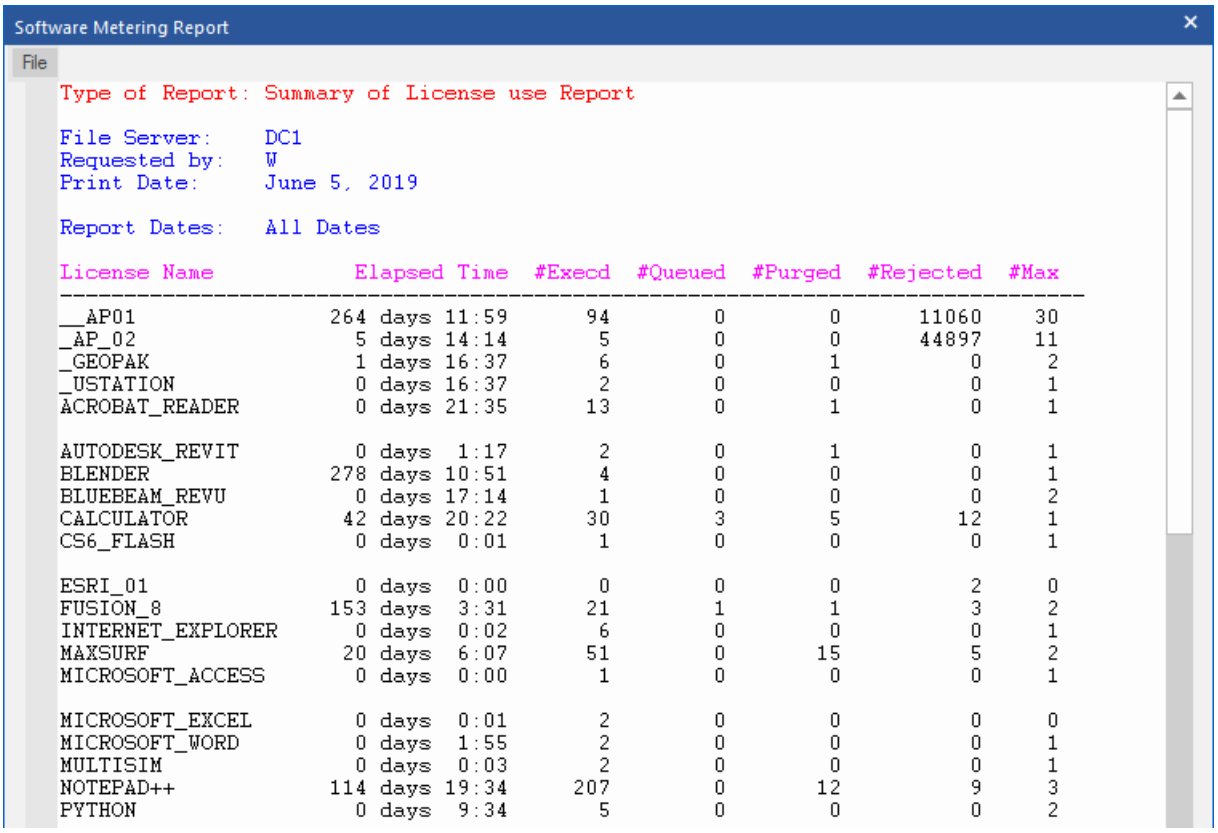
As indicated in Figure 7-6, you may sort on one of the following: License Name, Elapsed Time in use, Number of Executions, the combination of the number of Queuing and Reject events, Number of Purges, or the Maximum Concurrent use.

The sort order is one direction, alphabetically or from highest to lowest value.

NOTE: The Data to Include options are not allowed for this type of report.

Summary of License Use Report: Example Report and Discussion

The following is an example of a **Summary of License use Report**.


Software Metering Report

File

Type of Report: Summary of License use Report

File Server: DC1
Requested by: W
Print Date: June 5, 2019

Report Dates: All Dates

License Name	Elapsed Time	#Execd	#Queued	#Purged	#Rejected	#Max
__AP01	264 days 11:59	94	0	0	11060	30
_AP_02	5 days 14:14	5	0	0	44897	11
_GEOPAK	1 days 16:37	6	0	1	0	2
_USTATION	0 days 16:37	2	0	0	0	1
ACROBAT_READER	0 days 21:35	13	0	1	0	1
AUTODESK_REVIT	0 days 1:17	2	0	1	0	1
BLENDER	278 days 10:51	4	0	0	0	1
BLUEBEAM_REVU	0 days 17:14	1	0	0	0	2
CALCULATOR	42 days 20:22	30	3	5	12	1
CS6_FLASH	0 days 0:01	1	0	0	0	1
ESRI_01	0 days 0:00	0	0	0	2	0
FUSION_8	153 days 3:31	21	1	1	3	2
INTERNET_EXPLORER	0 days 0:02	6	0	0	0	1
MAXSURF	20 days 6:07	51	0	15	5	2
MICROSOFT_ACCESS	0 days 0:00	1	0	0	0	1
MICROSOFT_EXCEL	0 days 0:01	2	0	0	0	0
MICROSOFT_WORD	0 days 1:55	2	0	0	0	1
MULTISIM	0 days 0:03	2	0	0	0	1
NOTEPAD++	114 days 19:34	207	0	12	9	3
PYTHON	0 days 9:34	5	0	0	0	2

Figure 7-7

The following is a discussion of each of the detail points this report includes:

License Name

Indicates the License Profile being reported.

Elapsed Time

Indicates the overall time “in use”. This is the aggregate sum of all uses, including Normal and Purged uses for the reporting period. The time format is Days Hours:Minutes (seconds are not included). Additionally, the elapsed time is the total time the application was open, idle time is not separately tallied. Separate tracking of idle time is available when using SofTrack’s Timekeeping option.

#Execd

Indicates the number of execution/use events that occurred. Use the **Details of License use Report** to view each individual execution/use event. Number of Executions also includes Purges, since they were executions that were not properly recorded.

#Queued

Indicates the number of times users were denied access and were queued for future use. Use the **Details of License use Report** to view each individual queuing event.

#Purged

Indicates the number of Purge events that occurred. Use the **Details of License use Report** to view each individual Purge event.

#Rejected

Indicates the number of times users were denied access and were *not* queued for future use. Use the **Details of License use Report** to view each individual Reject event.

#Max

Indicates the highest value for the concurrent in-use value for the reporting period. The exact dates and times when the maximum was reached are *not* indicated on this report or any other printed report but are indicated on the **Graph** report detailed later in this chapter. See License Profile Reports: Graphical.

NOTE: Because each line is its own summary, there is no overall summary.

Summary of License Use Report: Comma-Delimited Report Option

Under the **Output** tab, you can select the output to be in comma-delimited format. The following is the same report as shown in Figure 7-7, except in comma-delimited or `CSV` format.

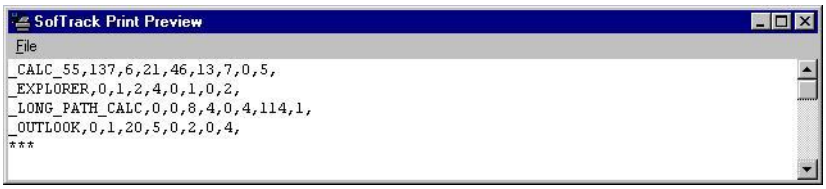


Figure 7-8

The following is the format, repeated for each license:

License Name,
Elapsed Days,
Elapsed Hours,
Elapsed Minutes,
Number of Executions,
Number of Queue Events,
Number of Purge Events,

Number of Reject Events,
Maximum Concurrent in-use,

The end of the report is signaled by ***.

Summary of User License Use Report: Overview

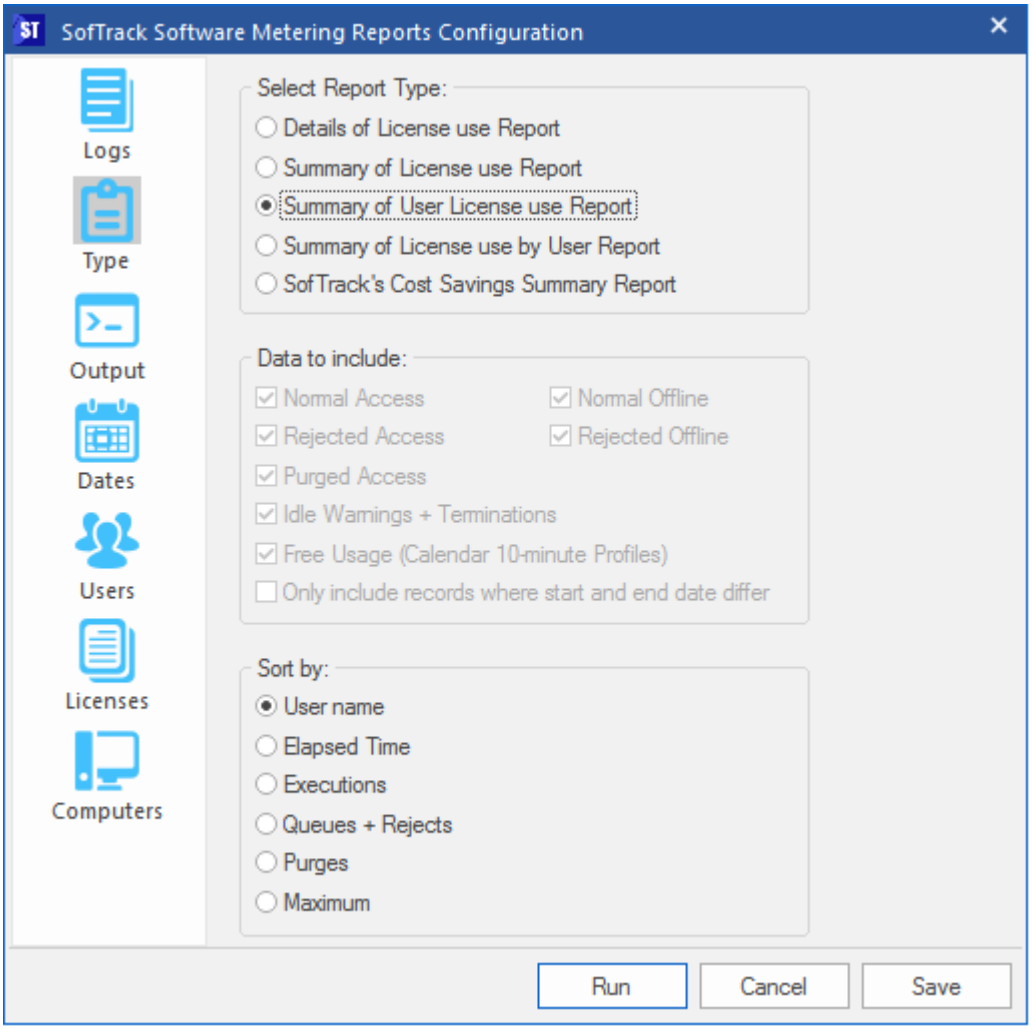


Figure 7-9

This report type includes a License Profile usage summary grouped by user. For each line of detail, the following is displayed:

- License Name
- Elapsed Time in use
- Number of Executions [#Execd]
- Number of Queuing Events [#Queued]
- Number of Purges [#Purged]
- Number of Rejects [#Rejected]
- The maximum concurrent use [#Max]

The term *Executions* means application use or a file being tracked was opened. Number of

Executions also includes Purges, since they were executions that were not properly recorded. Remember, SofTrack can track the use of data files hosted by the server. Technically, these are uses but *not* executions.

Summary of User License use Report: Sort By

As indicated in Figure 7-9, you may sort on one of the following: License Name, Elapsed Time in use, Number of Executions, the combination of the number of Queuing and Reject events, Number of Purges, or the Maximum Concurrent in-use. The User names are *always* listed in alphabetical order. The sort options are for the License Profile detail summary lines listed for each user.

The sort order is one direction, alphabetically or from highest to lowest value.

NOTE: The Data to Include options are not allowed for this type of report.

Summary of User License Use Report: Example Report and Discussion

The following is an example of a **Summary of User License use Report**.

Software Metering Report

File

Type of Report: Summary of User License use Report

File Server: DC1
Requested by: W
Print Date: June 5, 2019

Report Dates: All Dates

License Name	Elapsed Time	#Execd	#Queued	#Purged	#Rejected	#Max
administrator						
__AP01	3 days 3:52	3	0	0	915	(1)
NICK						
_AP_02	0 days 0:00	0	0	0	3	(1)
ACROBAT_READER	0 days 0:14	12	0	1	0	(1)
BLENDER	165 days 2:54	1	0	0	0	(1)
CALCULATOR	42 days 20:22	24	1	5	1	(1)
FUSION_8	153 days 3:31	18	0	1	0	(1)
INTERNET_EXPLORER	0 days 0:02	6	0	0	0	(1)
MAXSURF	8 days 16:44	12	0	2	0	(1)
MICROSOFT_WORD	0 days 1:54	1	0	0	0	(1)
MULTISIM	0 days 0:03	2	0	0	0	(1)
NOTEPAD++	8 days 23:29	64	0	2	1	(1)
PYTHON	0 days 9:33	3	0	0	0	(1)
RadioAdmin						
-No License Activity Found-						
RED_						
-No License Activity Found-						
RED_bac						
__AP01	3 days 3:52	7	0	0	1	(1)
_AP_02	5 days 14:11	2	0	0	0	(1)
RED_i						
_GEOPAK	0 days 1:32	3	0	1	0	(1)
_USTATION	0 days 16:37	2	0	0	0	(1)
AUTODESK_REVIT	0 days 1:17	2	0	1	0	(1)
BLUEBEAM_REVU	0 days 17:14	1	0	0	0	(1)
CALCULATOR	0 days 0:00	6	2	0	11	(1)
ESRI_01	0 days 0:00	0	0	0	2	(1)
FUSION_8	0 days 0:00	2	1	0	3	(1)
MAXSURF	11 days 10:48	35	0	13	5	(1)
MICROSOFT_ACCESS	0 days 0:00	1	0	0	0	(1)
MICROSOFT_EXCEL	0 days 0:01	2	0	0	0	(1)
MICROSOFT_WORD	0 days 0:01	1	0	0	0	(1)
NOTEPAD++	105 days 19:51	139	0	10	8	(1)

Figure 7-10

The following is a discussion of each of the detail points this report includes:

User Name

Each new user is listed in the License Name column, with the name being at the left margin.

License Name

Indicates the profile being reported and is indented by 2 spaces from the left margin to visually separate it from the User names, which are presented against the left margin.

Elapsed Time

Indicates the overall time "in use". This is the aggregate sum of all uses, including Normal and Purged uses for the reporting period.

#Execd

Indicates the number of execution/use events that occurred. Use the **Details of License use Report** to view each individual execution/use event. Number of Executions also includes Purges, since they were executions that were not properly recorded.

#Queued

Indicates the number of times users were denied access and were queued for future use. Use the **Details of License use Report** to view each individual queuing event.

#Purged

Indicates the number of Purge events that occurred. Use the **Details of License use Report** to view each individual Purge event.

#Rejected

Indicates the number of times users were denied access and were *not* queued for future use. Use the **Details of License use Report** to view each individual Reject event.

#Max

Always indicates the value of (1), since there is no breakdown of how many times the same user was simultaneously using the selected License Profile from different workstation/terminal server sessions. In many networks, the user name is used uniquely and is not used for multiple concurrent logons.

NOTE: There is no overall summary.

Summary of User License Use Report: Comma-Delimited (CSV) Report Option

Under the **Output** tab, you can select the output to be in comma-delimited format. The following is the same report as shown in Figure 7-10, except in comma-delimited or `CSV` format.

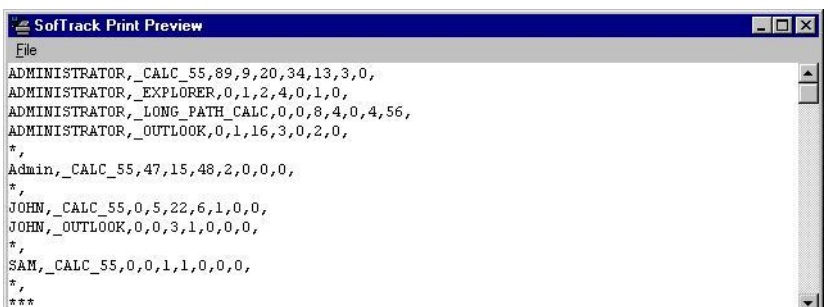


Figure 7-11

The following is the format, repeated for each detail line:

User Name,
License Name,
Elapsed Days,
Elapsed Hours,
Elapsed Minutes,
Number of Executions,
Number of Queue Events,
Number of Purge Events,
Number of Reject Events,

A single * on a line by itself indicates the end of the current user's data.

A *** on a line by itself indicates the end of the report.

Summary of License Use by User Report: Overview

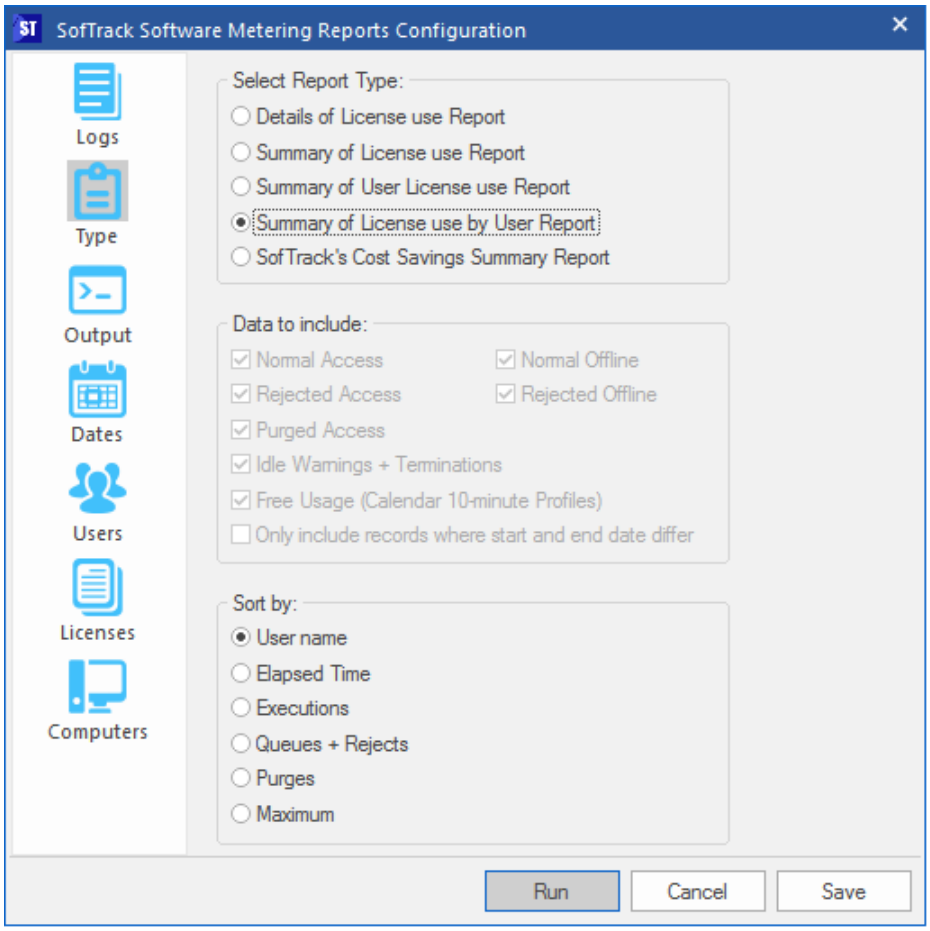


Figure 7-12

This report type includes a User usage summary grouped by License Profile. For each line of detail, the following is displayed:

- User Name
- Elapsed Time in use
- Number of Executions [#Execd]
- Number of Queuing Events [#Queued]
- Number of Purges [#Purged]
- Number of Rejects [#Rejected]
- The maximum concurrent in-use [#Max]

The term *Executions* means application use or a file being tracked was opened. Number of Executions also includes Purges, since they were executions that were not properly recorded. Remember, SofTrack can track the use of data files hosted by the server. Technically, these are uses but *not* executions.

Summary of License Use by User Report: Sort By

As indicated in Figure 7-12, you may sort on one of the following: License Name, Elapsed Time in use, Number of Executions, the combination of the number of Queuing and Reject

events, Number of Purges, or the Maximum Concurrent use. The License Profiles are *always* listed in alphabetical order. The sort options are for the User detail summary lines listed for each user.

The sort order is one direction, alphabetically or from highest to lowest value.

NOTE: The Data to Include options are not allowed for this type of report.

Summary of License Use by User Report: Example Report and Discussion

The following is an example of a **Summary of License Use by User Report**.

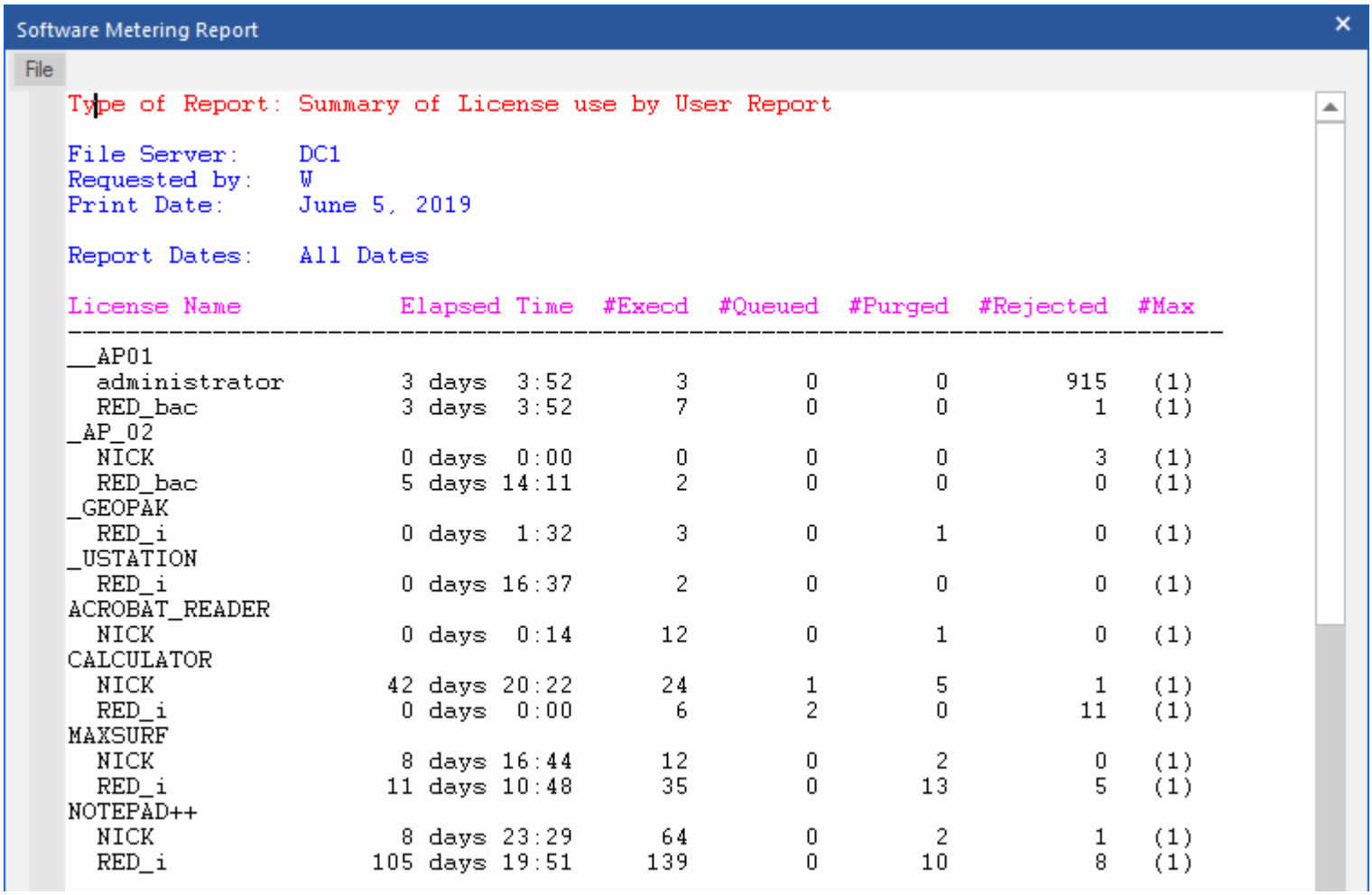


Figure 7-13

The following is a discussion of each of the detail points this report includes:

License Name

Each new License Profile is listed in the User Name column with the name being at the left margin.

User Name

Indicates the user being reported and is indented by 2 spaces from the left margin to visually

separate it from the License Profile names, which are presented against the left margin.

Elapsed Time

Indicates the overall time "in use". This is the aggregate sum of all uses, including Normal and Purged uses, for the reporting period.

#Execd

Indicates the number of execution/use events that occurred. Use the **Details of License use Report** to view each individual execution/use event. Number of Executions also includes Purges, since they were executions that were not properly recorded.

#Queued

Indicates the number of times users were denied access and were queued for future use. Use the **Details of License use Report** to view each individual queuing event.

#Purged

Indicates the number of Purge events that occurred. Use the **Details of License use Report** to view each individual Purge event.

#Rejected

Indicates the number of times users were denied access and were *not* queued for future use. Use the **Details of License use Report** to view each individual Reject event.

#Max

Always indicates the value of (1), since there is no breakdown of how many times the same user was simultaneously using the selected License Profile from different workstation/terminal server sessions. In many networks, the user name is used uniquely and is not used for multiple concurrent logons.

NOTE: There is no overall summary.

NOTE: Comparatively speaking, among the five report types here, this one requires the longest time to complete—up to five times that of any other report.

Summary of License Use by User Report: Comma-Delimited (CSV) Report Option

Under the **Output** tab, you can select the output to be in comma-delimited format. The following is the same report as shown Figure 7-13, except in comma-delimited or `CSV` format.

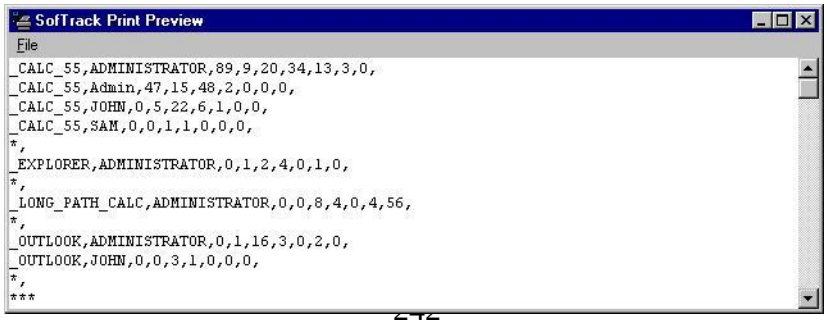


Figure 7-14

The following is the format, repeated for each detail line:

License Name,
User Name,
Elapsed Days,
Elapsed Hours,
Elapsed Minutes,
Number of Executions,
Number of Queue Events,
Number of Purge Events,
Number of Reject Events,

A * on a line by itself indicates the end of the current License's data. A *** on a line by itself indicates the end of the report.

SofTrack's Cost Savings Summary Report: Overview

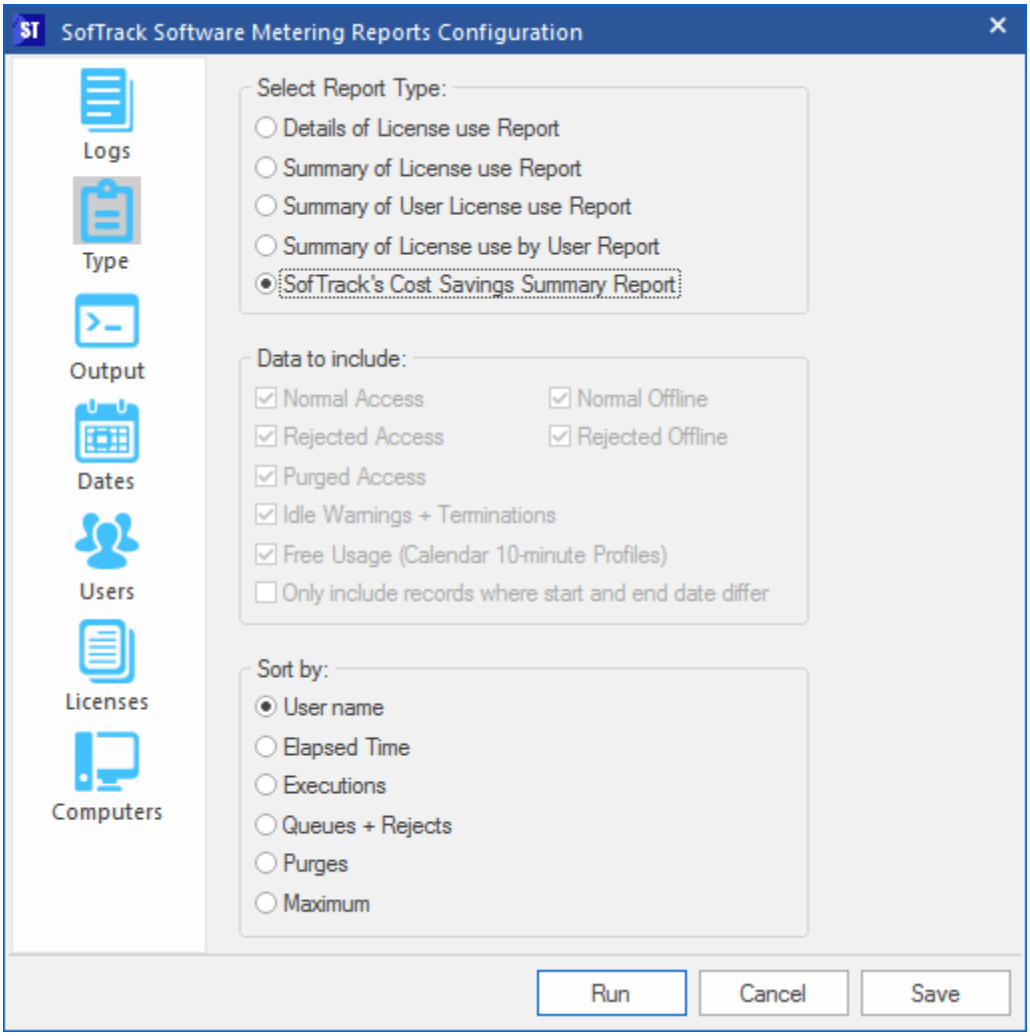


Figure 7-15

This report type displays your software costs based on your purchases versus your actual usage. The report consists of a single detail line per License Profile. The number owned and dollar cost figures are based on your input to the **Notes/Costs** tab of the selected License Profile. For each line of detail, the following is displayed:

- License Name
- Number of licenses owned/purchased
- Your dollar cost per license
- Calculated Total Cost
- The Maximum Concurrent in-use
- Calculated unused licenses
- Calculated Savings

The companion report to the Cost Savings Report is found in the Savings calculator: license over-usages prevented section.

SofTrack's Cost Savings Summary Report: Sort By

As indicated in Figure 7-15, you may sort on one of the following: License Name, Elapsed Time in use, Number of Executions, the combination of the number of Queuing and Reject events, Number of Purges, or the Maximum Concurrent in-use. Even though the report does not specifically reveal the values of the Elapsed Time, number of Executions, number of Queuing and Reject events, or number of Purges, you can still sort on these fields as they are maintained internally.

The sort order is one direction, alphabetically or from highest to lowest value.

NOTE: The Data to Include options are not allowed for this type of report.

SofTrack's Cost Savings Summary Report: Example Report and Discussion

The following is an example of a **Cost Savings Summary Report**.

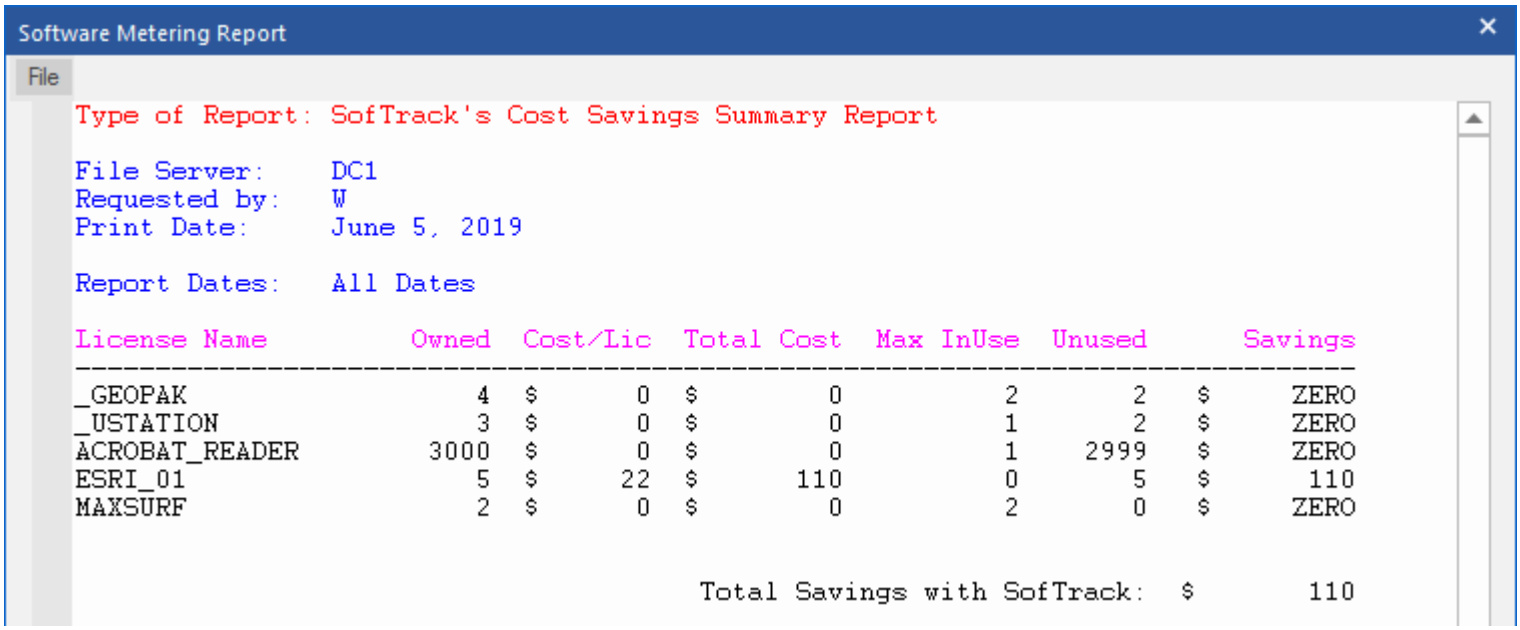


Figure 7-16

The following is a discussion of each of the detail points this report includes:

License Name

Indicates the License Profile being detailed.

Owned

Indicates the number of licenses you have purchased. You define this number in the selected License's Profile under the **Notes/Costs** tab.

Cost/Lic

Indicates the dollar cost per license purchased. You define this number in the selected License's Profile under the **Notes/Costs** tab.

Total Cost

Indicates the calculated total cost to acquire the licenses you own. The calculation is based on the values of the **Owned** and **Cost/Lic** fields.

Max InUse

Indicates the highest value for the concurrent in-use value for the reporting period. The exact dates and times when the maximum was reached are not indicated on this report or any other printed report but are indicated on the **Graph** report detailed later in this chapter.

Unused

Indicates the number of licenses not used. This value is based on the number of licenses you own that you entered in the License's Profile under the **Notes/Costs** tab, less the **Max InUse** value. If the **Max InUse** value exceeds the number of licenses you own, the value shown will be negative, indicating more licenses must be purchased to be properly licensed.

Savings

Indicates the calculated cost savings of using SofTrack to meter your concurrent use licenses. If this value is negative, it indicates you have not purchased sufficient licenses to be properly licensed for concurrent use licensing.

NOTE: An overall savings calculation at the end of the report indicates the sum of the **Savings** fields for each License in the report.

SofTrack's Cost Savings Summary Report: Comma-Delimited (CSV) Report Option

This Report Type cannot be saved to the comma-delimited format. If tried, the following error message will appear.

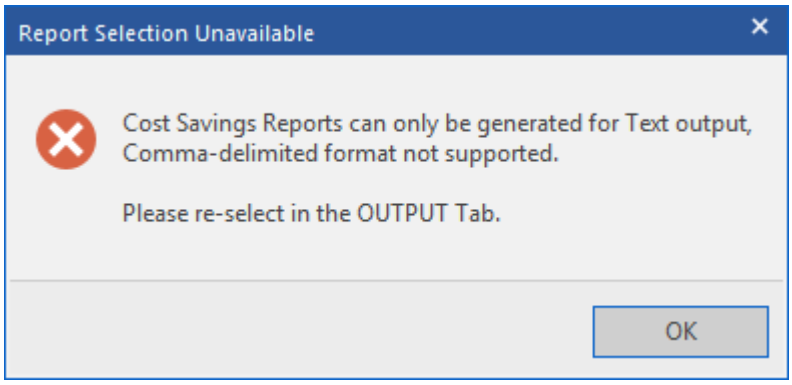


Figure 7-17

REPORT: OUTPUT Section

Once you have selected the type of report you want, select the report's **Output** options. The following figure shows the default settings.

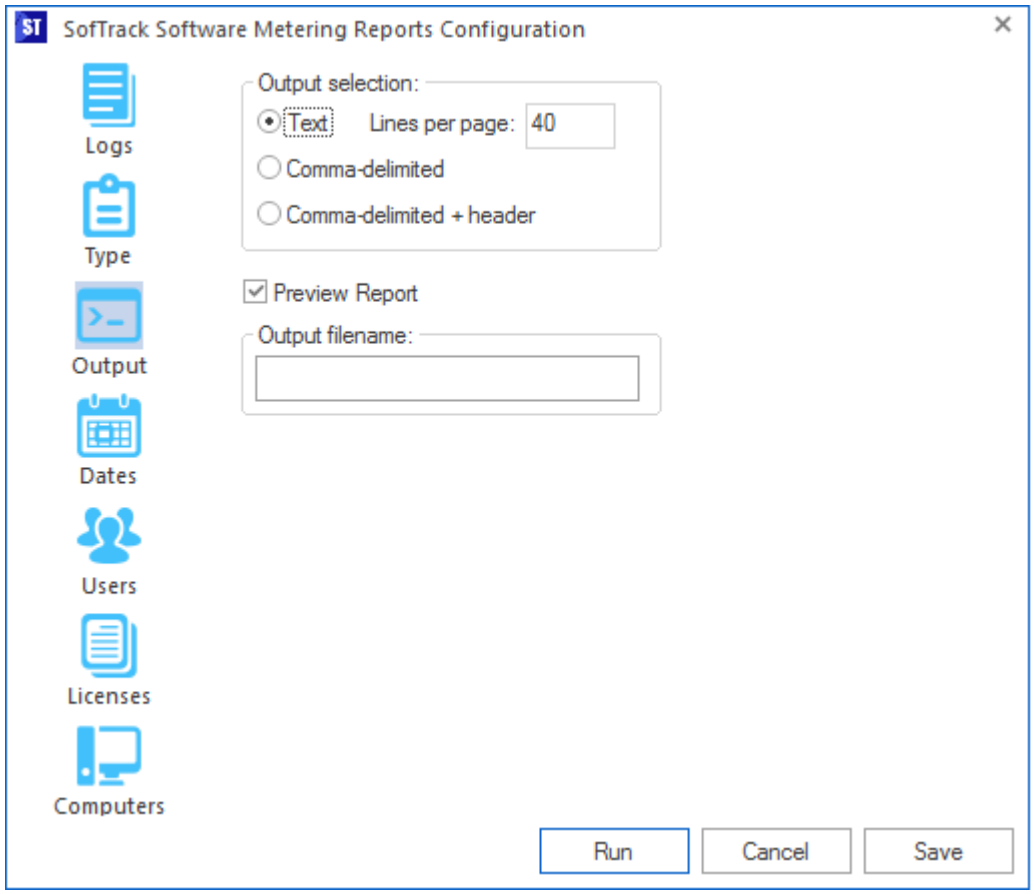


Figure 7-18

The **Output Section** options:

- **Text**—The report will be generated with full headers and page numbering.
- **Lines Per Page**—Applicable only for the Text Output. Specifies number of detail lines per page.
- **Comma Delimited**—The report will be generated in `CSV` (comma-separated values) format.
- **Comma Delimited + header**—The report will be generated in `CSV` (comma-separated values) format and the first row will provide a header for each column.

The **Output Filename** indicates the name the report will be written to unless **Preview Report** is selected. If no path is specified, the output file will be written to the same directory designated for the `METER.LOG` file.

If **Preview Report** is selected, the report will be shown in a window with the option of saving it to a file or being printed. The **Preview** report is written to a temporary file in the `METER.LOG` directory. The filename is `PREVIEW.???`, where `???` is a random hexadecimal number. Occasionally, these preview files are not deleted after use. You can safely delete them if they are no longer being used.

REPORT: DATES Section

Once you have selected the **Output** type for the report, select the date range for the report. The following figure shows the default settings.

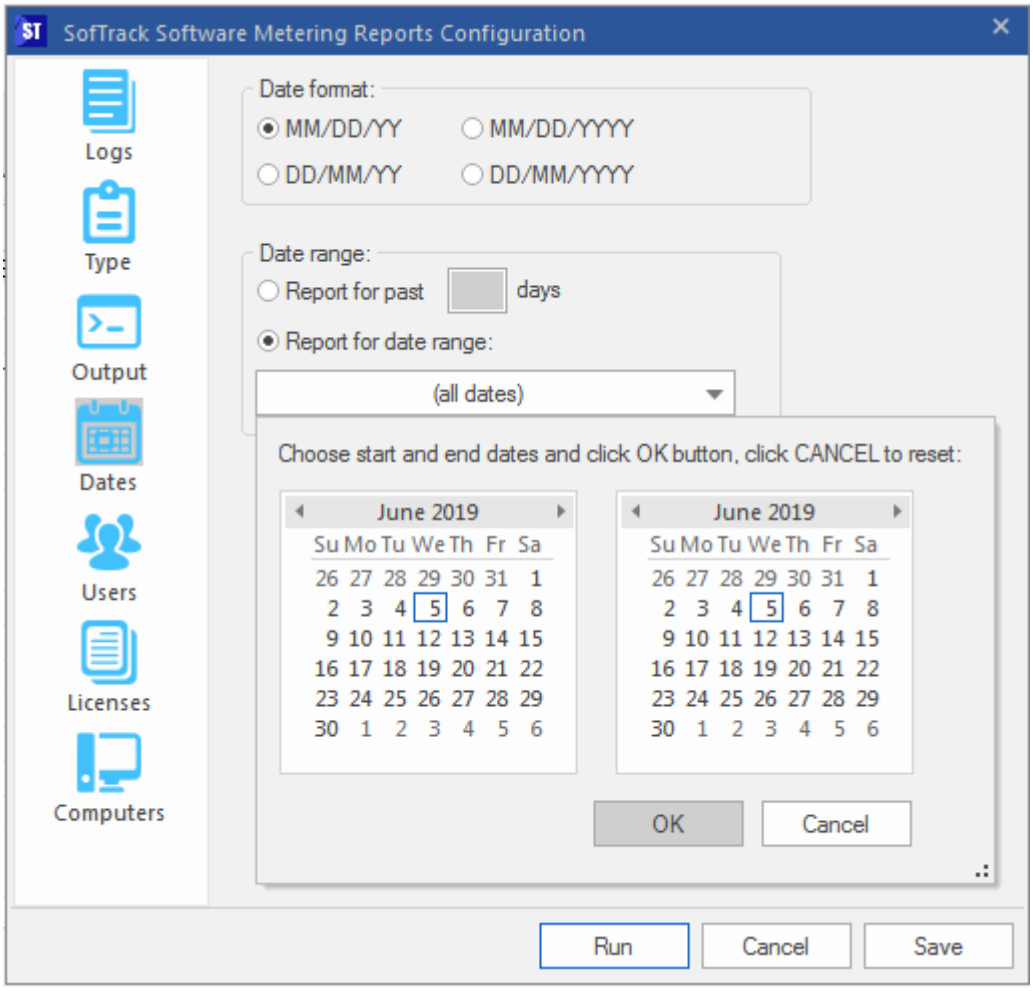


Figure 7-19

The **Date Selection** options:

- **Date Format**—Select the desired format. The format selected is only for Text-based output. Comma-delimited output will always be in the same format as previously detailed.
- **Date Range**—Select the date range style you desire. If reporting by date range, click the dropdown button to set the date range.

REPORT: USERS Section

Once you have selected the **Output** type for the report, you can select specific users for reporting or allow the default to include all users in any report you create. The following figure shows the default settings.

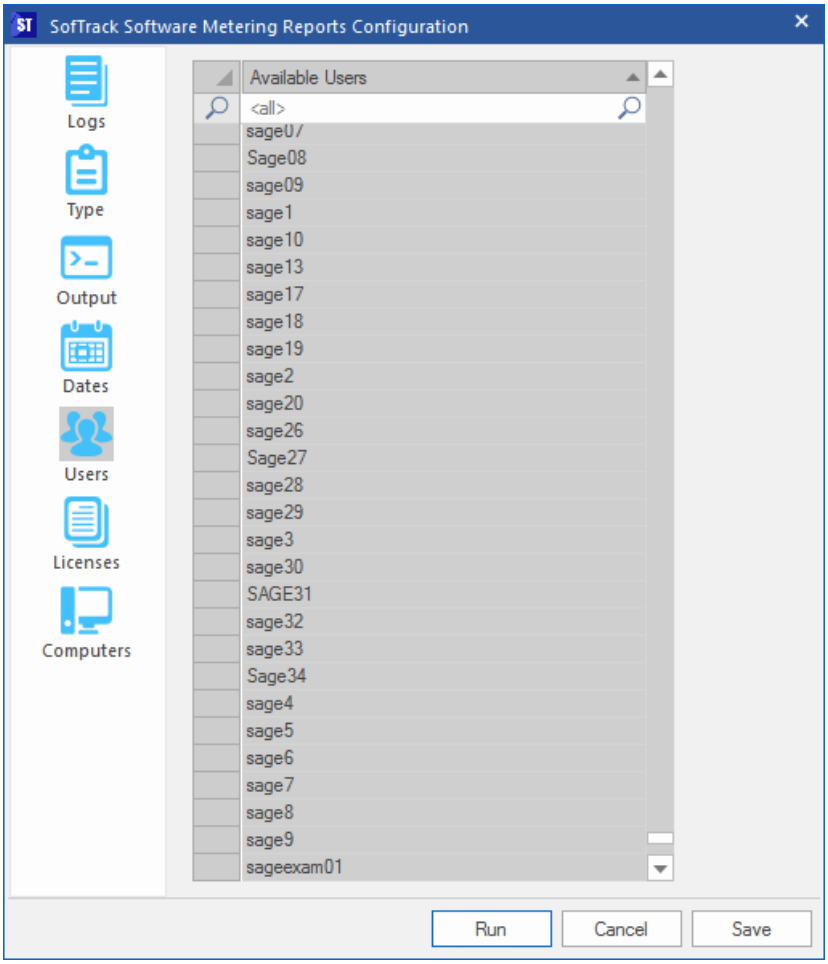


Figure 7-20

Tip: The default is for all users to be selected. If you need to re-select all, click on the triangle box at top left of the list:

The **Users** options:

- If you select specific users, only those users will be included in any report you create.

REPORT: LICENSES Section

Once you have selected the **Output** type for the report, you can select specific License Profiles for reporting or allow the default to include all Licenses in any report you create. The window shown below represents the default settings:

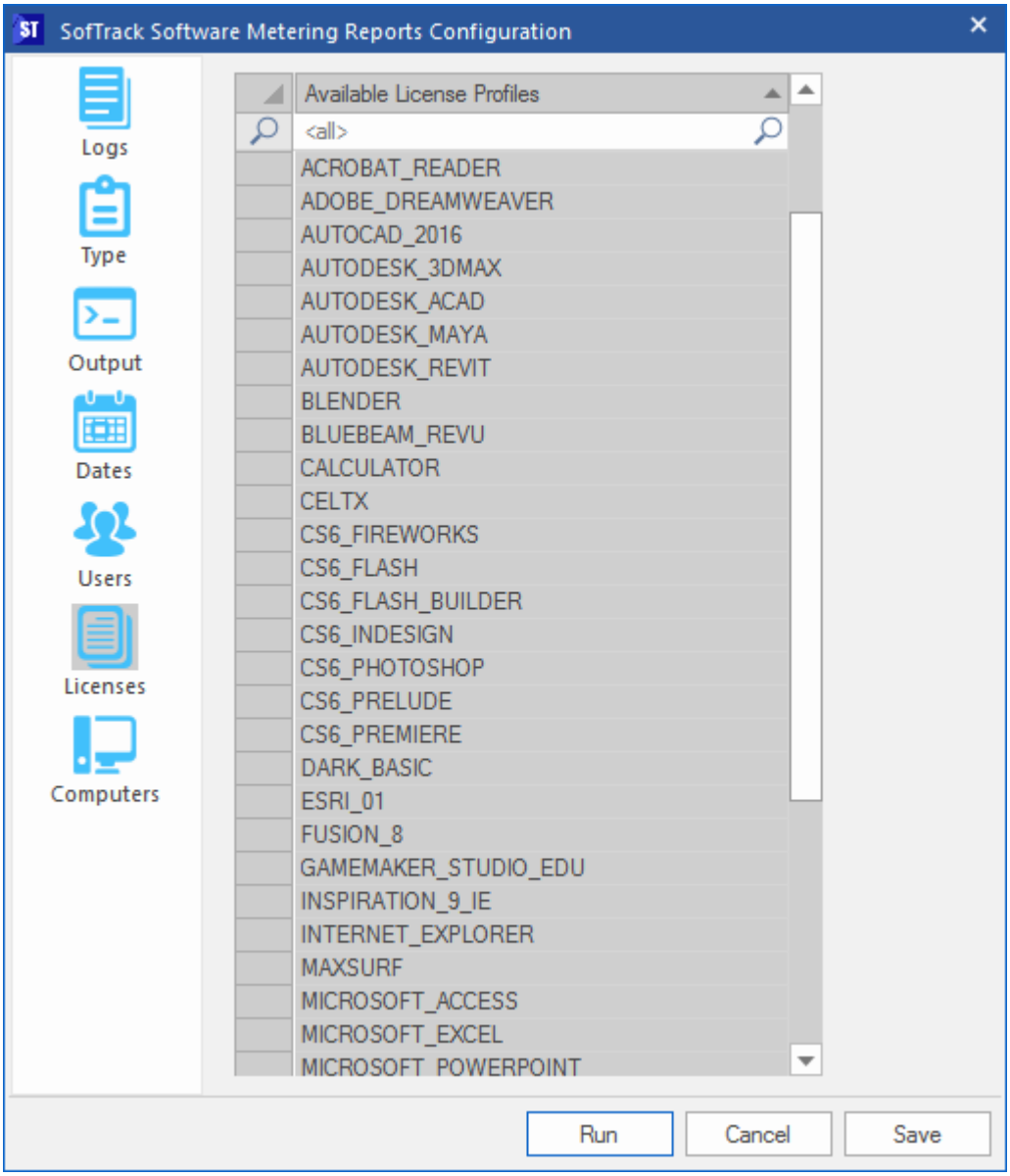


Figure 7-21

The **Licenses** options:

- **Select All Licenses**—To select all, click on the triangle at the top left of the list.
- If you select specific Licenses, only those Licenses will be included in any report you create.

REPORT: COMPUTERS Section

You can select specific Computers for reporting or allow the default to include all Computers in any report you create. The window shown below represents the default settings:

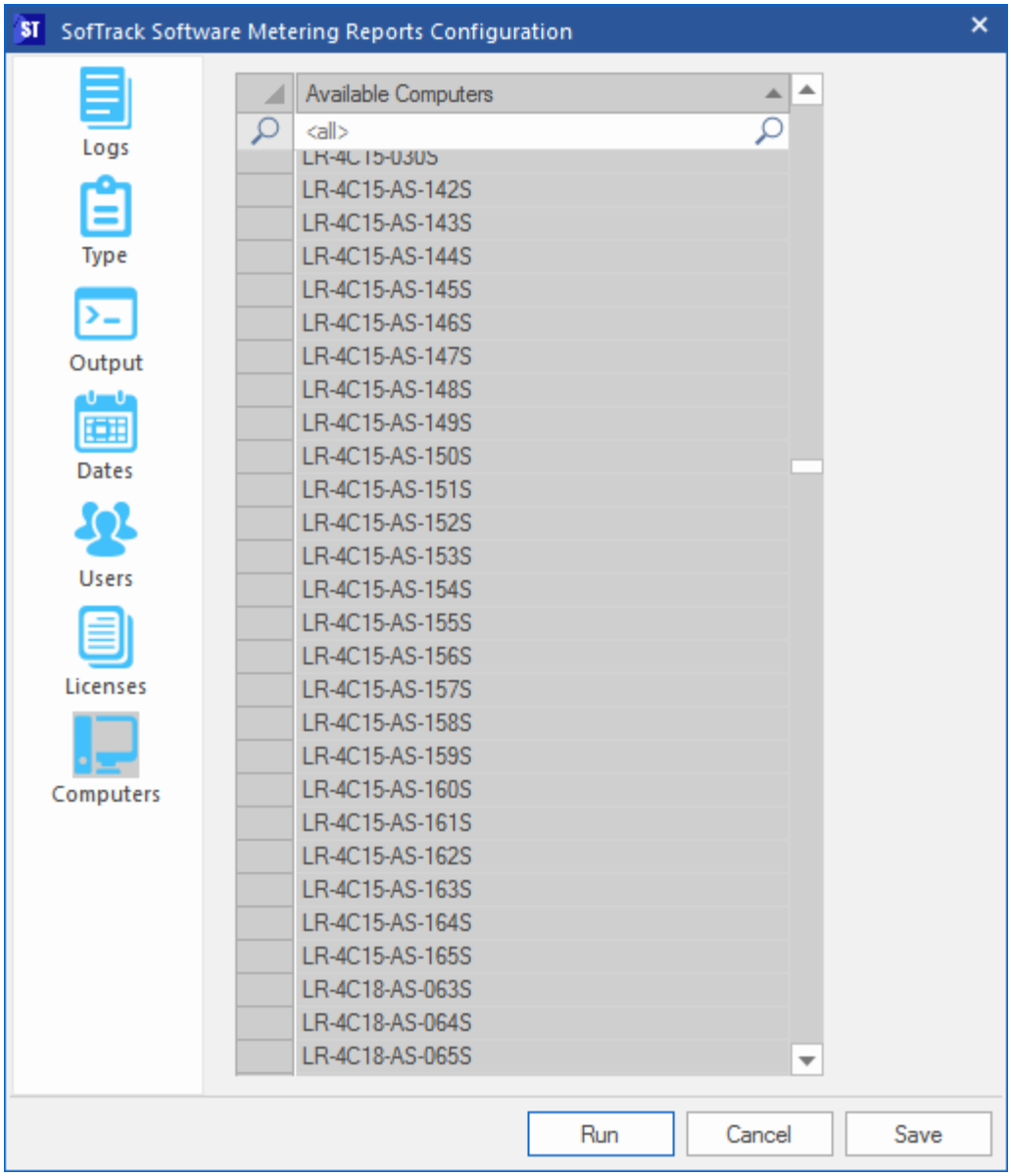


Figure 7-21a

The **Computers** options:

- **Select All** — To select all, click on the triangle at the top left of the list.
- If you select specific Computers, only those Computers will be included in any report

you create. Please note, PURGED records do not include the Computer name and will not be included in any reports that select specific Computers. To view PURGED records all Computers must be included.

REPORT: SAVE Button

When you click the **Save** button, the following will appear:

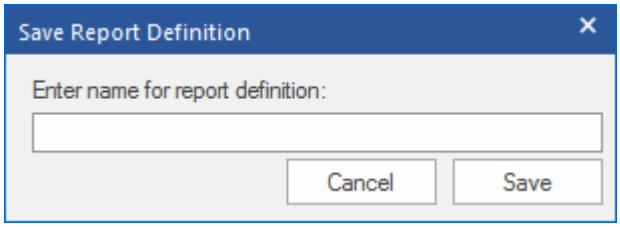


Figure 7-22

Enter any name you choose and click **Save**.

This will save the current report definition, which is represented by the selections you have made on the **Type**, **Output**, **Dates**, **Users,** and **Licenses** sections. Note that the actual report data will not be saved using this option.

The report definition is stored in the Integrity Software, Inc. registry key at the currently selected server.

Recalling a Report Definition

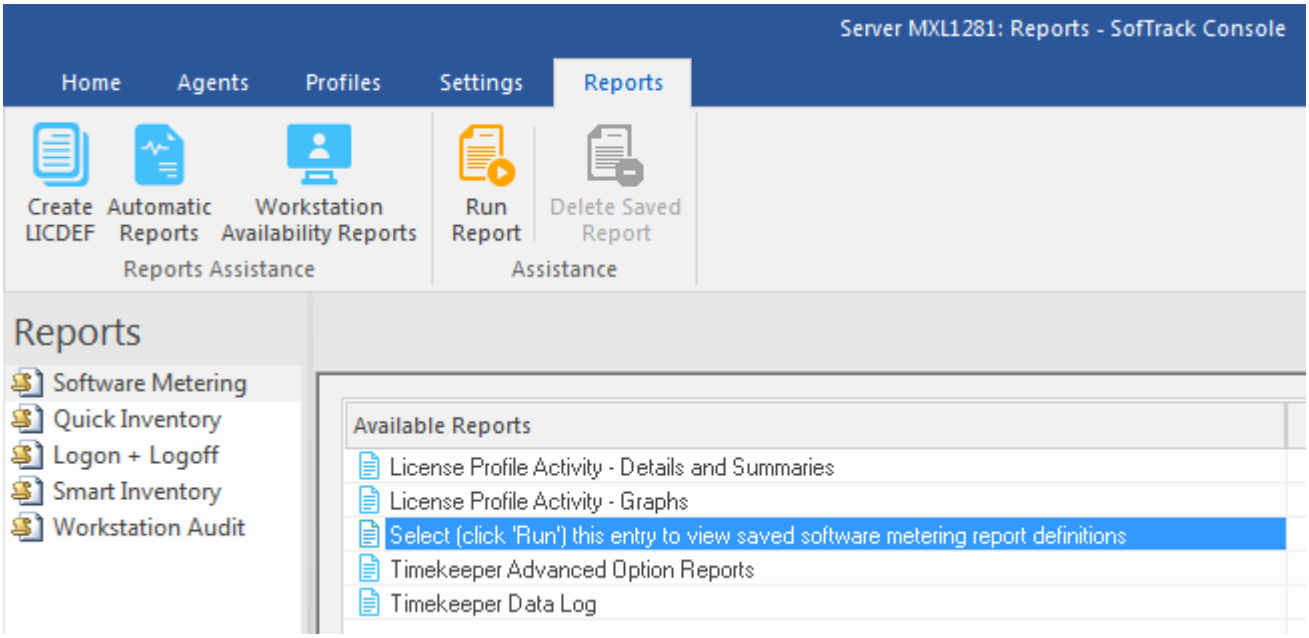


Figure 7-23

Double Click on the option indicated above in Figure 7-23 to expose the saved reports.

Figure 7-24 shows the results of double clicking, the "Select…" entry will remain and the list of any saved report definitions will appear or be refreshed. If no saved report definitions are found there will not be an error.

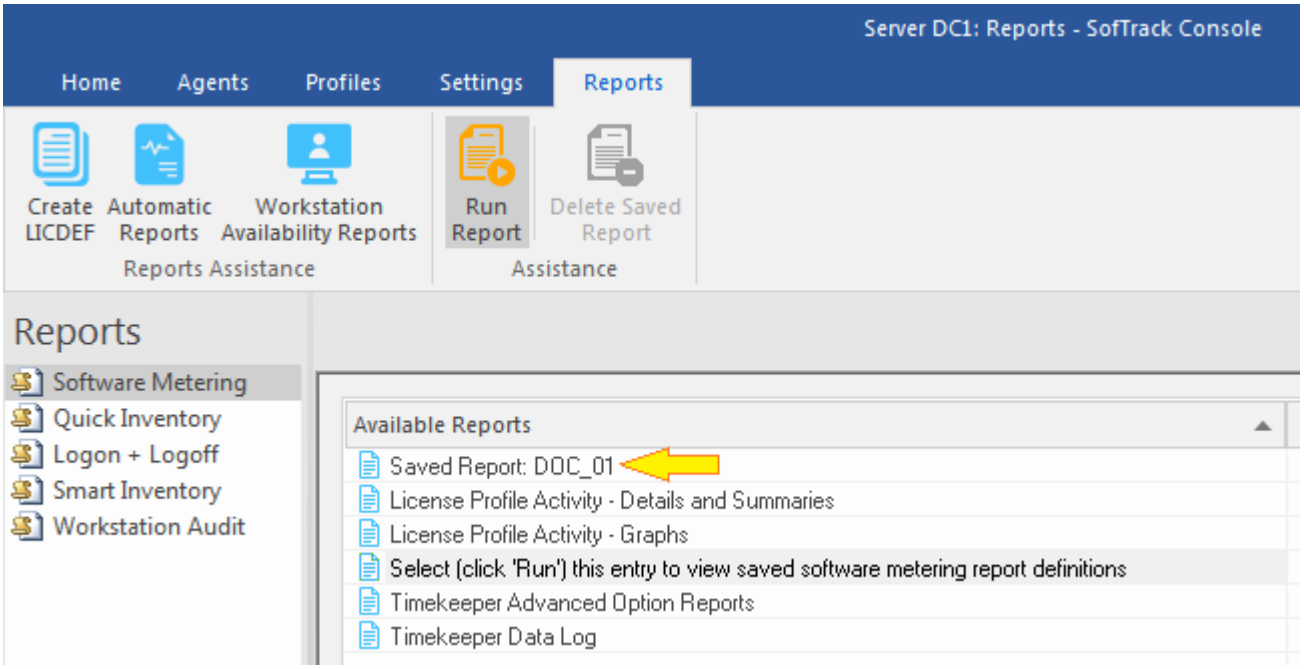


Figure 7-24

When you save a report definition, you are saving the following:

- Type
- Output format
- Date Format
- Date Range
- Users to Include
- Licenses to Include
- Computers to Include

After you recall the saved report definitions, select a saved report and click **Run Report** to begin the report generation.

License Profile Reports: Graphical

From the Reports tab of `SOFTRACK_CONSOLE.EXE` select the desired server, next select the “Reports” tab and then click on the "Software Metering" section and then click on "License Profiles Activity - Graphs"

License Profile Reports: History Graph

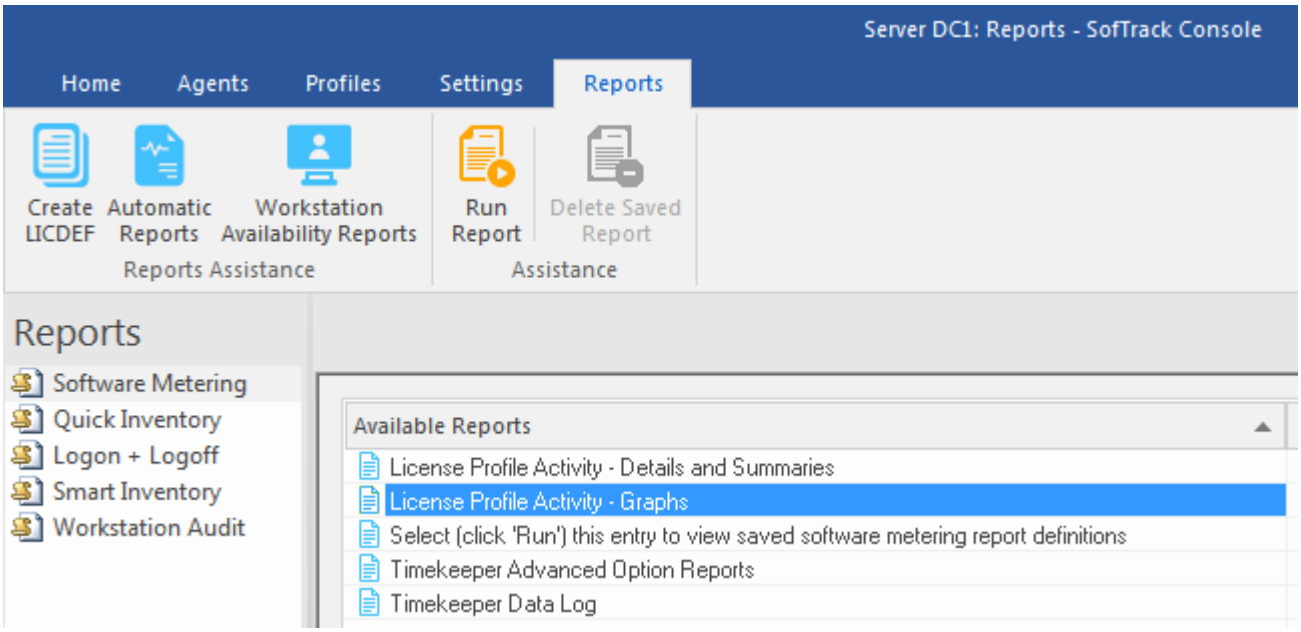


Figure 7-25

Click **Run Report** and the following report dialog will be presented:

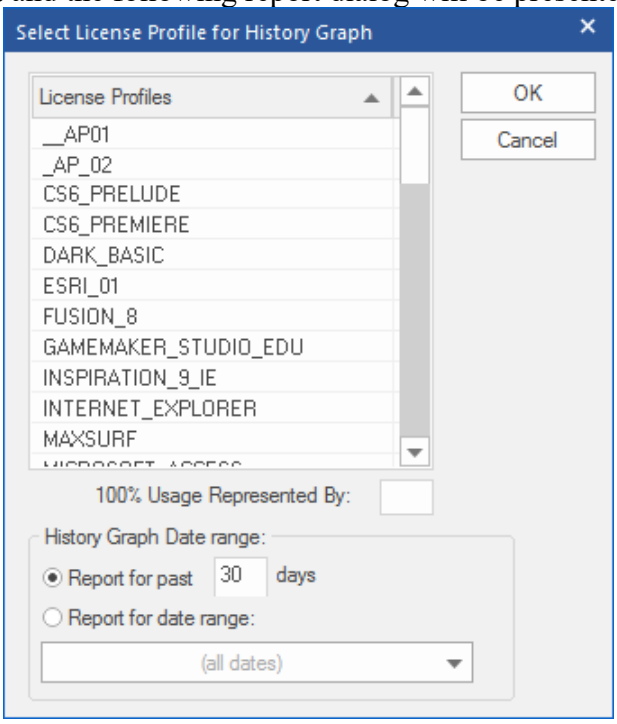


Figure 7-26

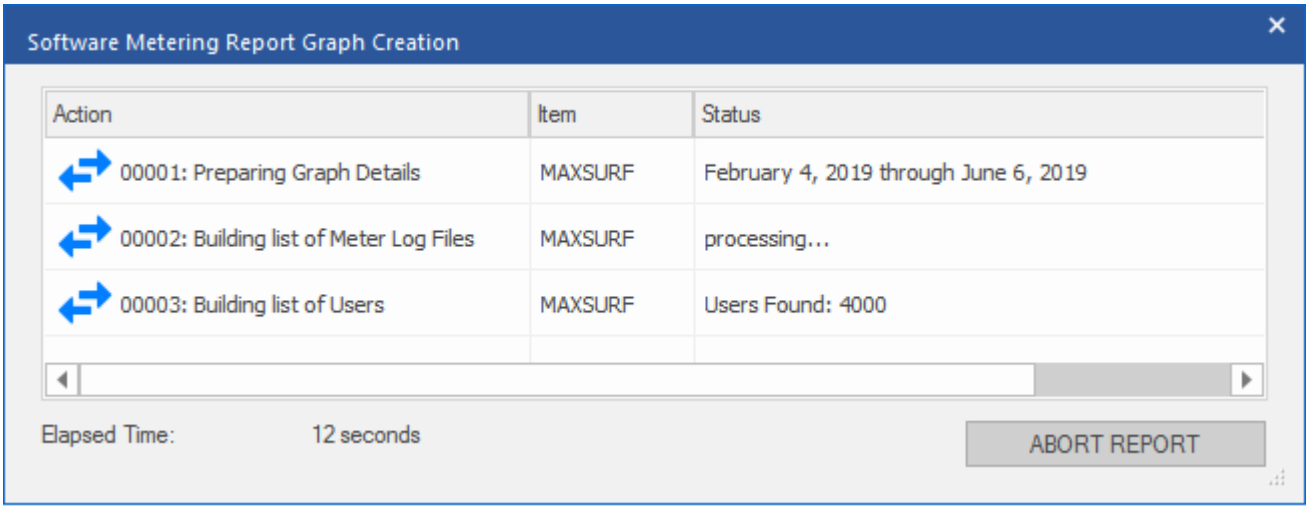
Select a License Profile for the History Graph.

NOTE: The History Graph created here reflects usage of the selected License Profile on the current server.

The **100% Usage Represented By:** shows the current maximum concurrent users for selected license profile, if you see 3000 it typically indicates that profile is defined to allow overflow usage. You can change the value but has no effect, this was used by the previous graphing interface to allow selection of Y-axis height by number of concurrent users.

The **History Graph Date range** section allows you to select your preferred date range method and click **OK**. For either date range option the maximum number of days that can be graphed is 370 days

Once you click **OK**, the report will be generated, and when ready, a screen similar to the following will appear:



This progress window will automatically close when the report is ready. If you need to abort the report, click the **ABORT REPORT** button. And, if you did not pre-load the list of users and computers they will be loaded now (as shown in the image above) as the history graphs require the user name.

Once ready the report will appear as shown in the following image:

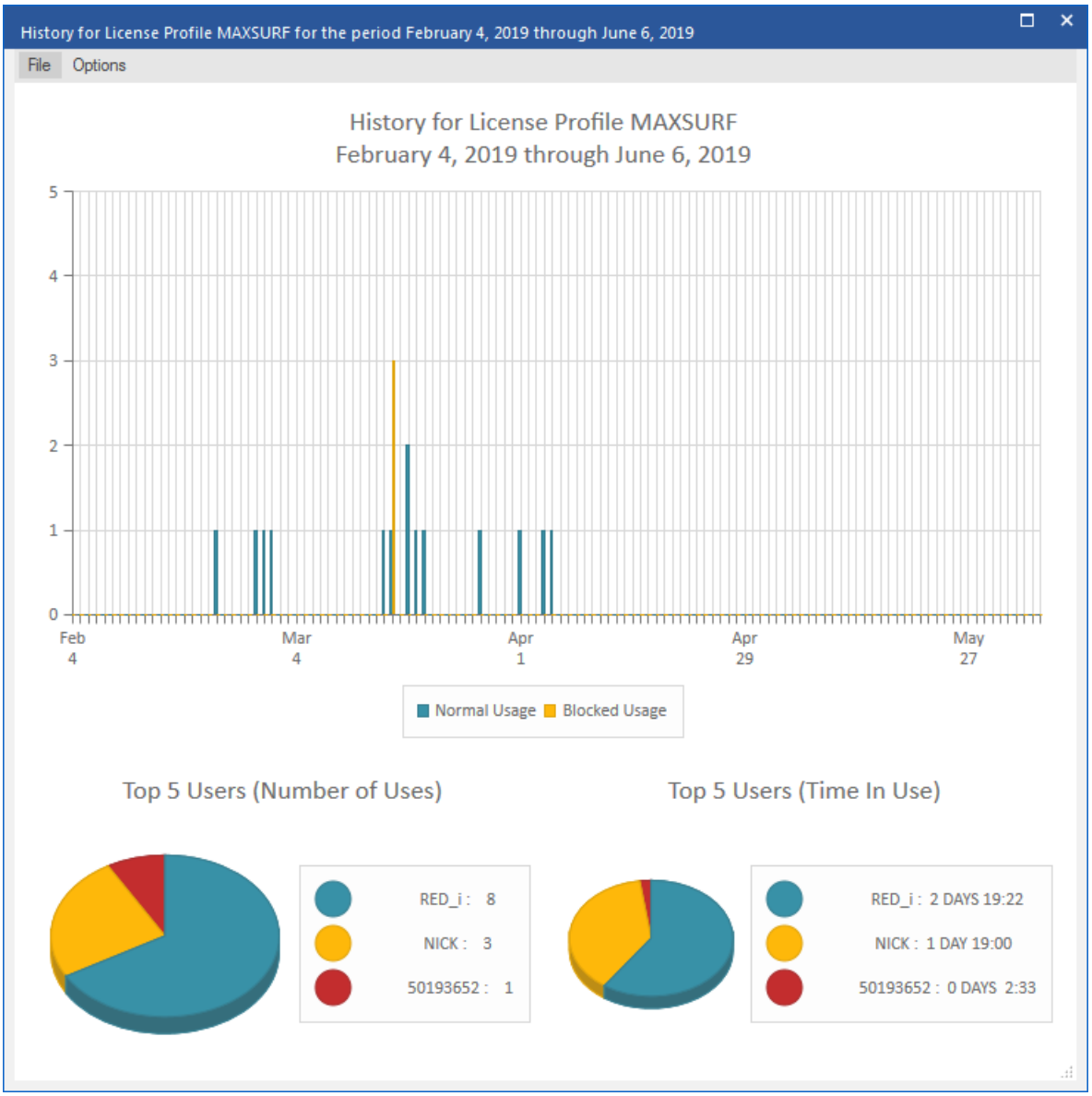
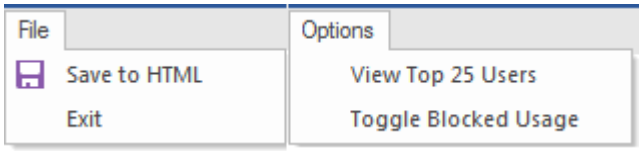


Figure 7-27

Notice the graph bar chart includes two items, Normal Usage (in blue) and Blocked Usage (in orange). Blocked Usage includes when usage was rejected or the user was queued.

The Top 5 Users pie charts will include up to 5 users. If, as in the image above, there are only 3 users (i.e. less than 5), then the pie charts will automatically only show 3 users.

The File and Options menu items at the top of the window include the abilites:



License Profile Reports: History Graph Save to HTML

When you select **Save to HTML** from the File menu the resulting HTML file created embeds all images directly into the file so you can easily share the file with others.

And, because the graph is resizable, the current size of the graph will be the size of the image saved to HTML. When you resize the graph (full screen or by dragging the the right side and/or window bottom) the Pie Charts are not resized, only the Bar Chart is resized.

Once the HTML file is saved it will automatically be opened in the default browser of your workstation.

License Profile Reports: History Graph View Top 25 Users

When you select View Top 25 Users from the Options menu a new window will appear:

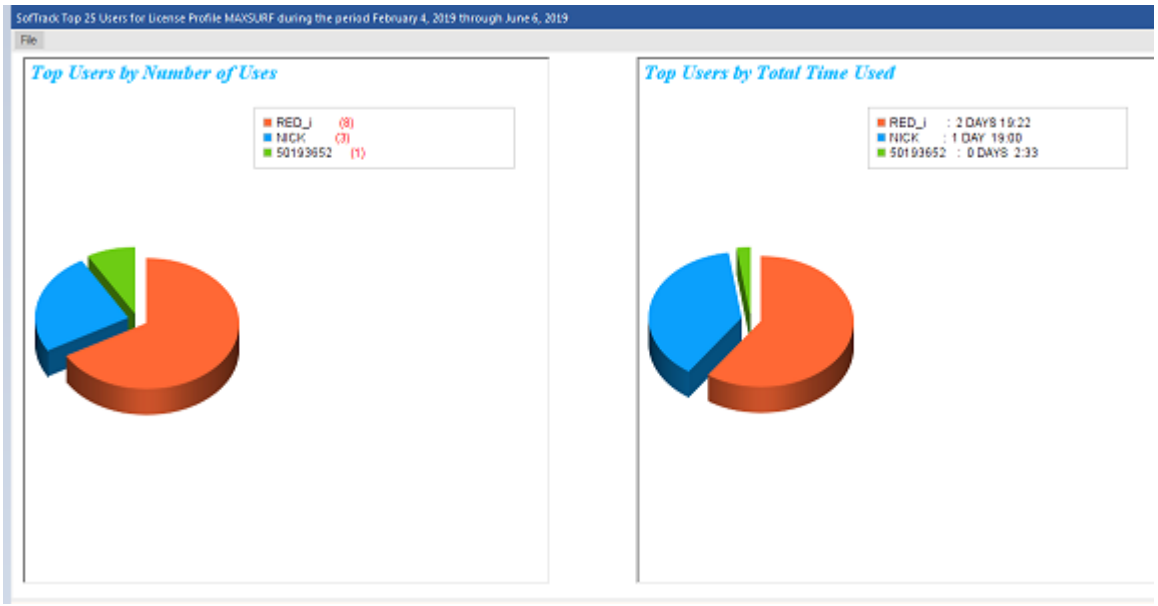


Figure 7-28

Its File menu also includes the **Save to HTML** option. When selected, the resulting HTML file created embeds all images directly into the file so you can easily share the file with others. Because this window is a fixed sized, the Pie Charts will always be the same size, however, instead of being placed side-by-side, the HTML result will vertically stack the two Pie Charts.

License Profile Reports: History Graph View Toggle Blocked Usage

When viewing the History Graph, by default, Normal Usage and Blocked Usage are displayed. To view only Normal Usage, click **Toggle Blocked Usage** in the Options menu. When the view is toggled, the Y-axis will change to closely align with the maximum Normal Usage value:

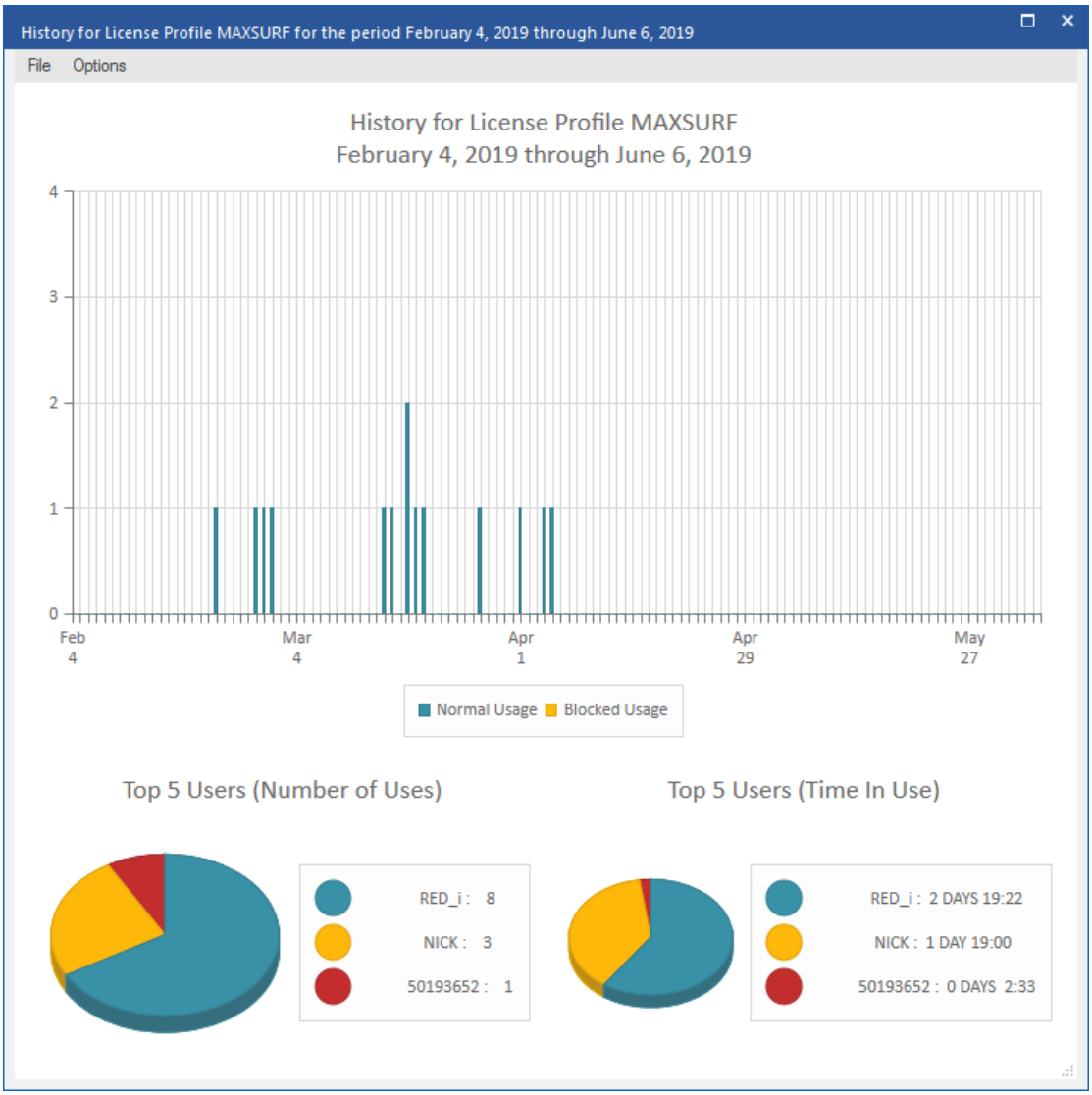


Figure 7-29

License Profile Reports: Intra-day History Graph of usage every 30 minutes

If you click on any of the blue bars shown in the History Graph, you will be presented with an intra-day graph showing Maximum Concurrent in-use values and count of queued or blocked events for each 30-minute period during that entire day:

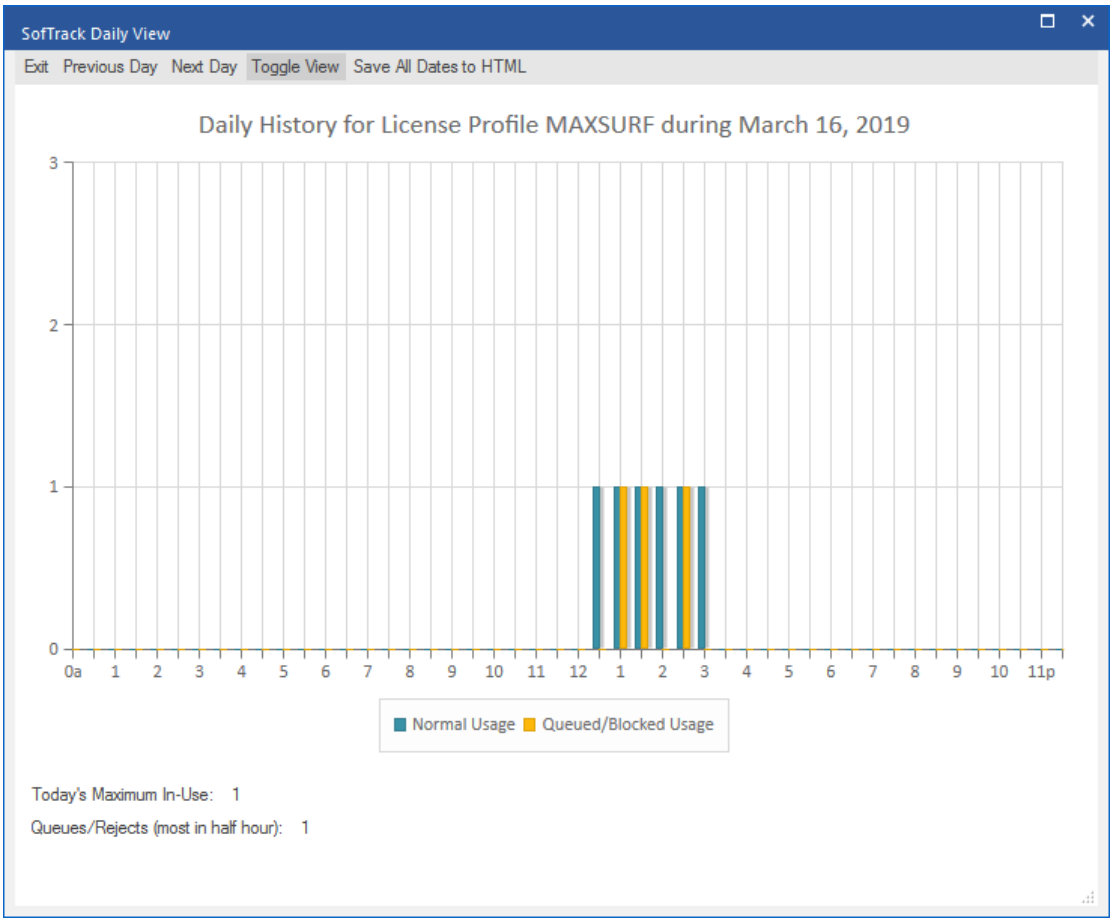


Figure 7-30

The **Previous Day** and **Next Day** menu items allow you to conveniently move between days of the graph. The **Toggle View** button will toggle the view between showing the screen above and a screen that only shows the Normal Usage bars.

Click on the **Save All Dates to HTML** menu item to create a report of all intra-day usage for the current reporting time period. When selected, the resulting HTML file created embeds all images directly into the file so you can easily share the file with others.

The following image shows an example HTML report showing all dates:

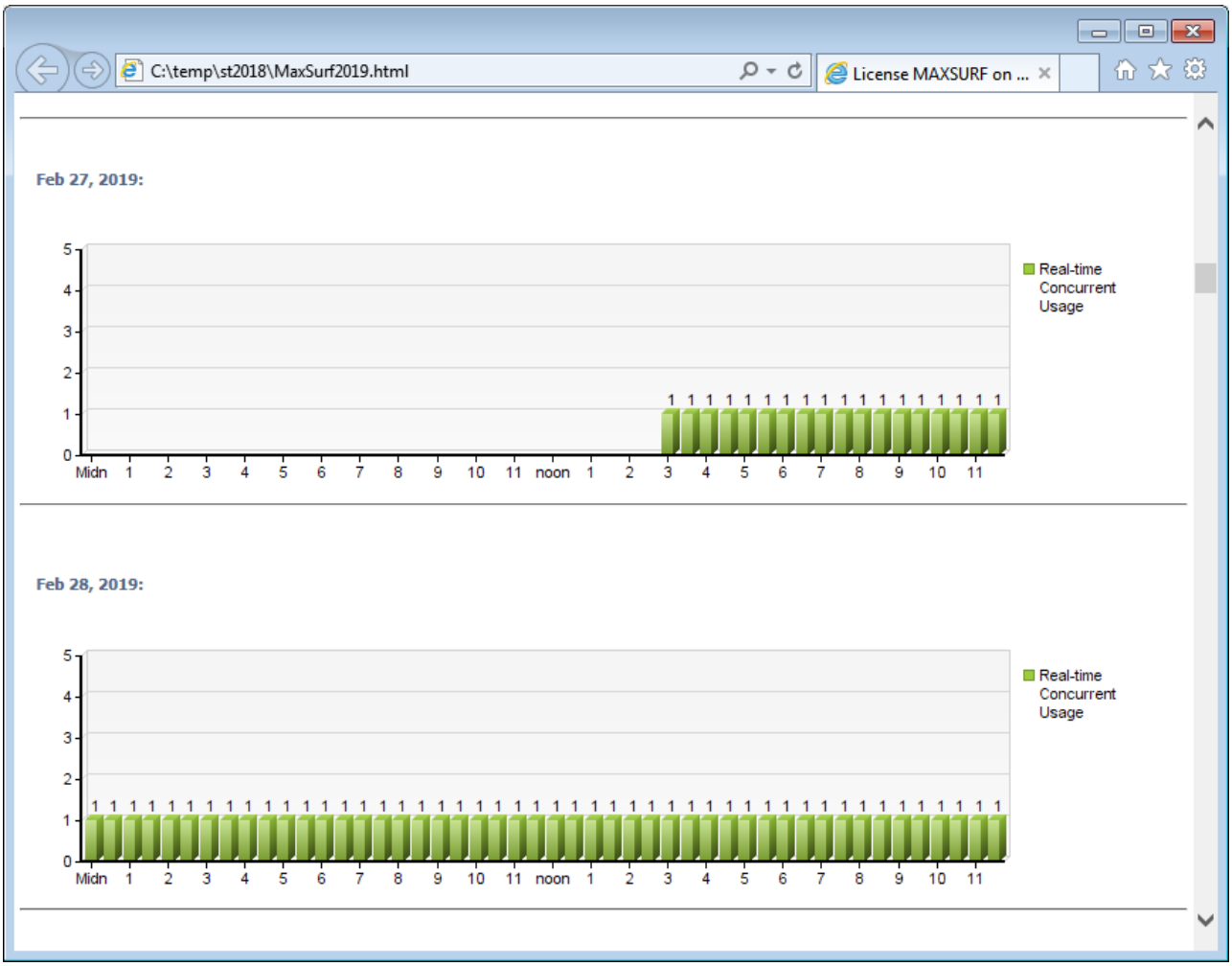


Figure 7-31

License Profile Reports: Active Users

Viewing Active Users is further detailed in Chapter 5. See Monitoring Active License Use. You can use `SOFTRACK_CONSOLE.EXE` or `STUSER.EXE` (detailed in Chapter 7) to view the Active Users.

To use `SOFTRACK_CONSOLE.EXE`, start by opening `SOFTRACK_CONSOLE.EXE`. Select the server and then click the "Profiles" tab, select the desired License Profile.

Click the **View Active Users** button, and a screen similar to the following will appear:

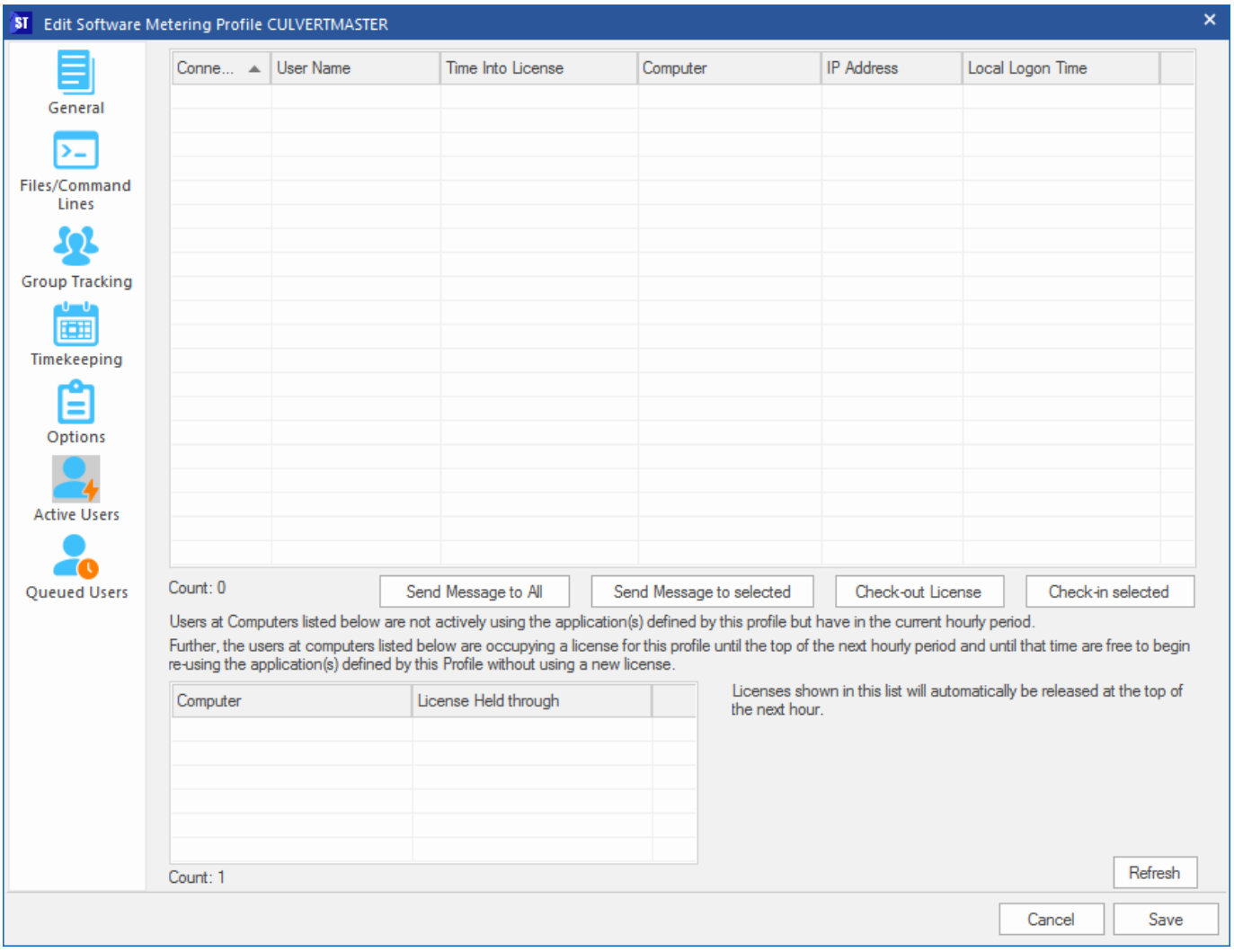
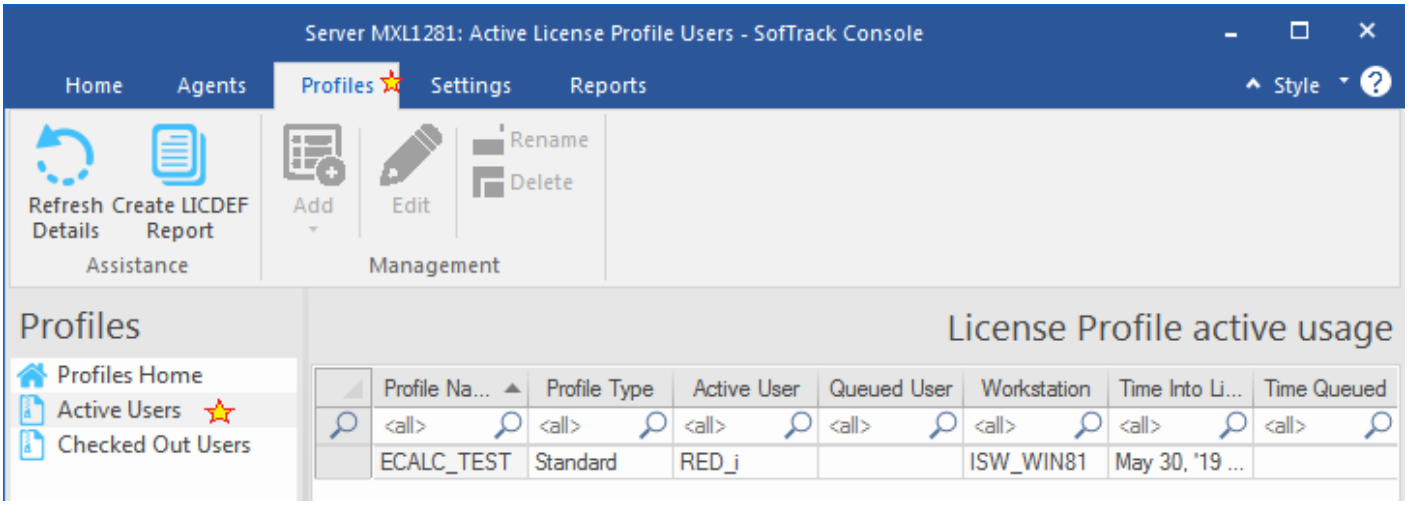


Figure 7-32

To view Active Users across all profiles open `SOFTRACK_CONSOLE.EXE`, click the "Profiles" tab, select the **Active Users** section:



Batch-Mode Reporting of Metering Activity ST2K_RPT.EXE

SofTrack for Windows includes the `ST2K_RPT.EXE` batch-mode reporting tool for server-based metering. It is found in the **TOOLS\NT_2K** subdirectory of the product installation. This tool allows you to quickly produce the server-based metering activity reports you need from a batch-mode environment, which allows you to produce the reports via a batch file or other scripting tool. At present, this tool does not provide for reporting of Global License Activity—only activity on a server-by-server basis.

To use, open an MS-DOS (CMD.EXE) window. Use Windows **Start** and **Run** and enter **`cmd.exe`** to open the MS-DOS window.

To begin, type **`ST2K_RPT -?`** <enter>:

Figure 7-47

The screen will display all the currently available options.

To view a quick License Summary report, type:

`ST2K_RPT -nSERVER` <enter>

where SERVER is the Windows server you want to report.
If you are running `ST2K_RPT.EXE` on the desired server, you can type **`ST2K_RPT`** <enter>, and it will default to the local machine.

The following example is for the server **integrity-2k**:

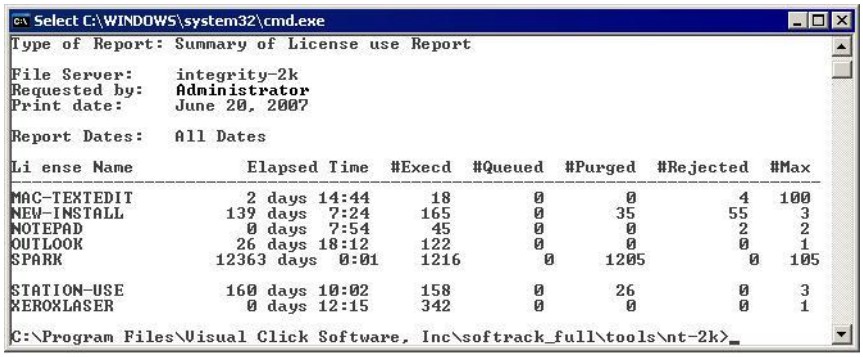


Figure 7-48

To redirect the output to a file, simply use the greater than symbol (>), as in:

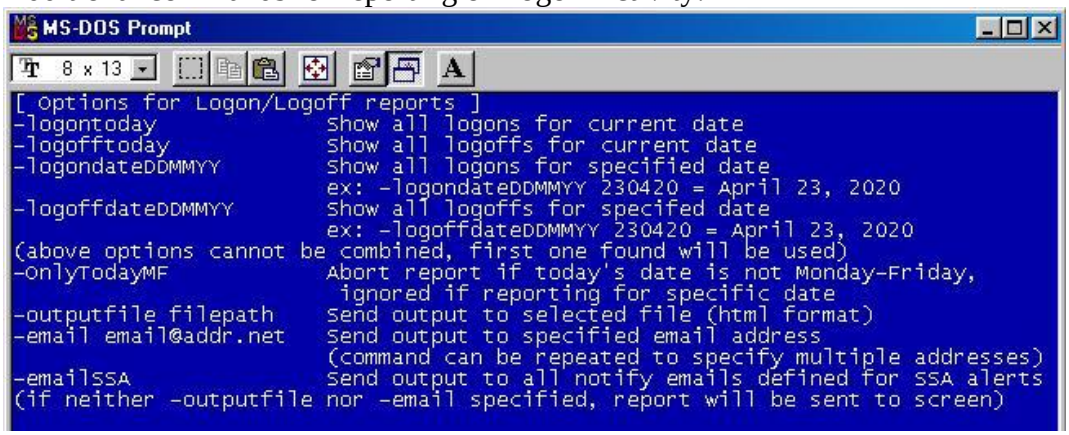
```
ST2K_RPT -nintegrity-2k >output.txt
```

Batch-Mode Reporting of Metering Activity: Web-Based Reporting

In the product installation directory, under the **TOOLS\SUPPORT SCRIPTS** subdirectory, you will find available scripts/utilities to create web-based reporting from reports generated by `ST2K_RPT.EXE`.

Batch-Mode Reporting and Emailing of Logon Activity

Additional commands for reporting of Logon Activity:




```
[ Options for Logon/Logoff reports ]
-logontoday              Show all logons for current date
-logofftoday             Show all logoffs for current date
-logondateDDMMYY         Show all logons for specified date
                         ex: -logondateDDMMYY 230420 = April 23, 2020
-logoffdateDDMMYY        Show all logoffs for specifed date
                         ex: -logoffdateDDMMYY 230420 = April 23, 2020

(above options cannot be combined, first one found will be used)

-OnlyTodayMF             Abort report if today's date is not Monday-Friday,
                          ignored if reporting for specific date
-outputfile filepath     Send output to selected file (html format)
-email email@addr.net    Send output to specified email address
                         (command can be repeated to specify multiple addresses)
-emailSSA                Send output to all notify emails defined for SSA alerts
(if neither -outputfile nor -email specified, report will be sent to screen)
```

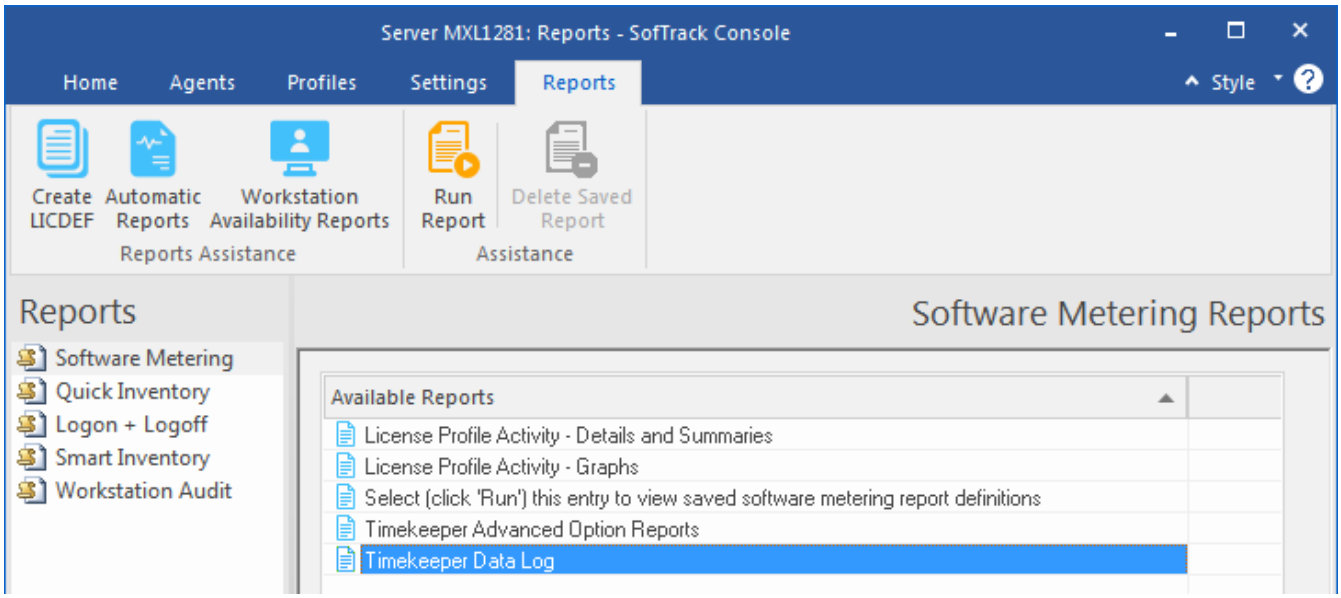
Example Usage:
St2k_rpt –logondateDDMMYY 260720 – email support@softwaremetering.com

The above example usage must be performed at the host for the SofTrack Server Agent and the SofTrack Server Agent must have an email configuration

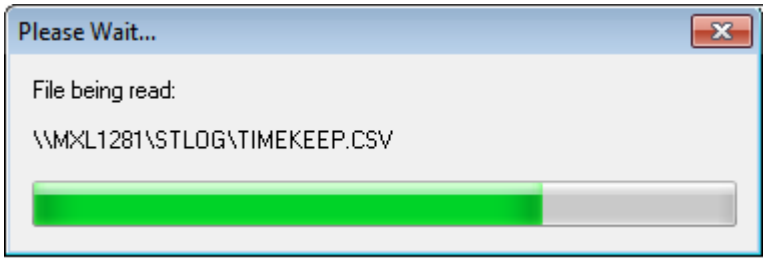
As an additional idea, the Windows Task Scheduler (native tool built-in to Windows®) can be used to receipt automatic reports at a scheduled time.

Interactive Reporting of Classic Timekeeping Activity

For License Profiles that include use of the Classic Timekeeping option, there is the Timekeeping Activity Report. To begin, open and click the **Timekeeper Data Log** report option.



As the report is being built you will see a progress window:



When the report is ready a new window will appear:

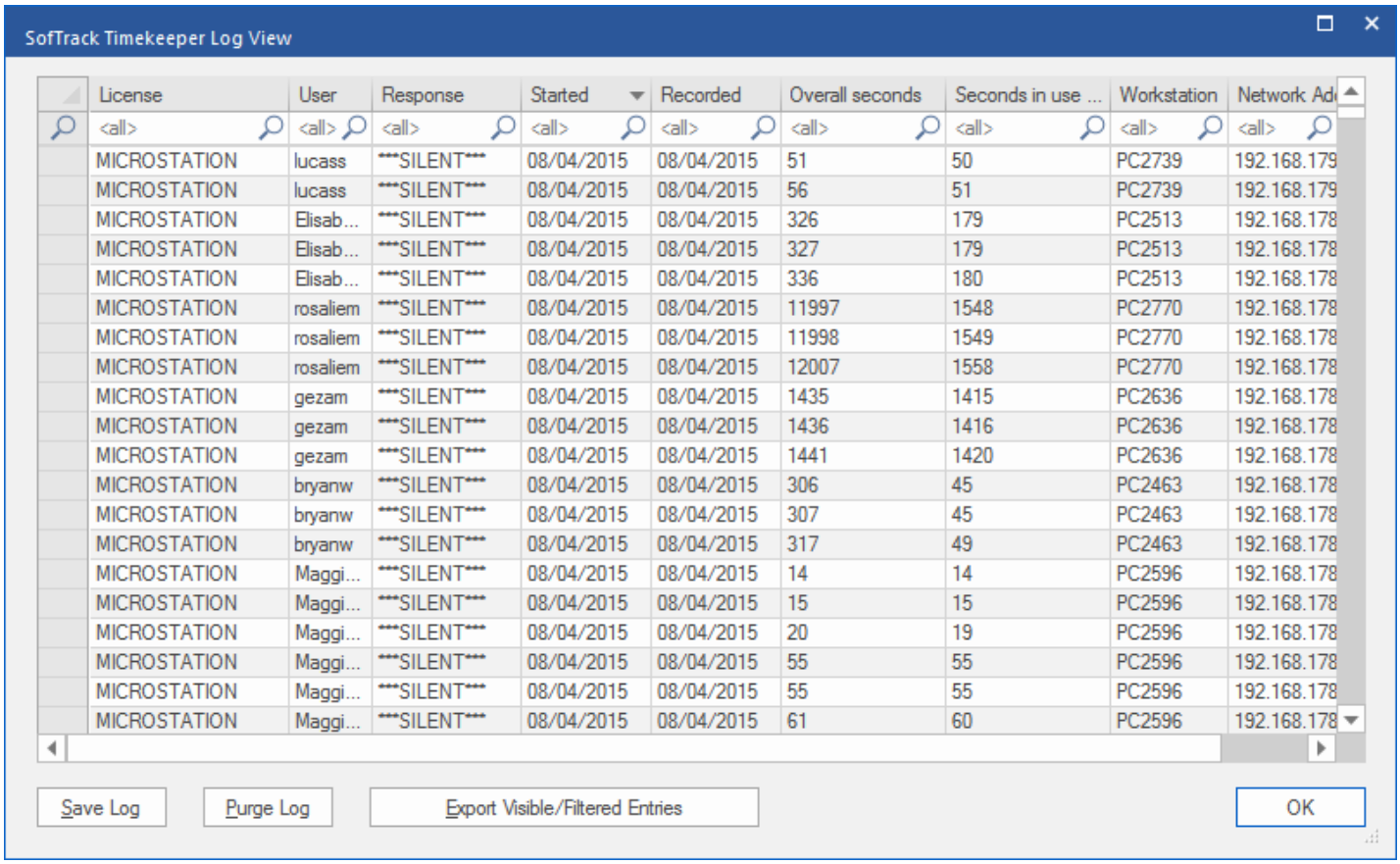


Figure 7-49

The columns include:

- License Profile Name
- User Name
- Response given to the Timekeeping Prompt
- Start Time
- Stop Time
- Overall seconds in use
- Active seconds in use (i.e., amount of time application was the active window and not a background window)
- Workstation Name
- Workstation Network Address

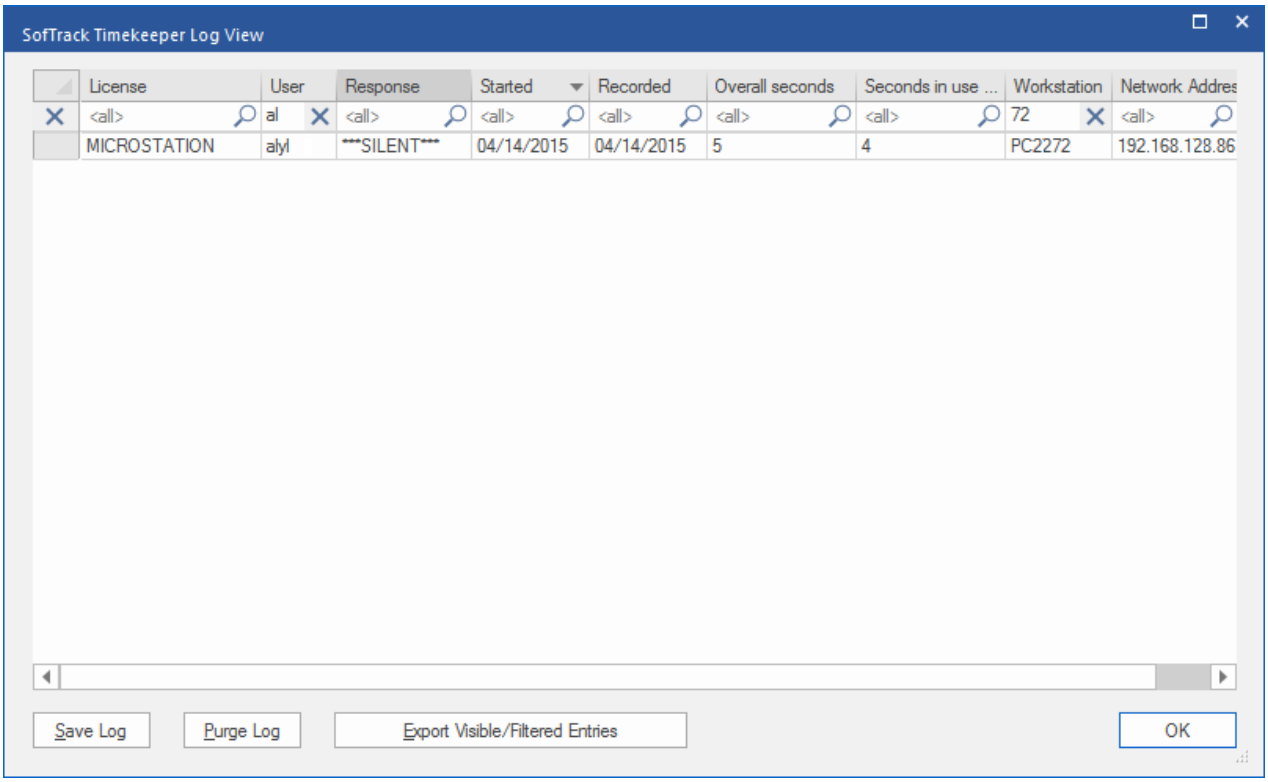
The **Save Log** button will copy the Timekeeping Log file (which is a comma-delimited file, also known as a `CSV` file) to a location of your choice.

The **Purge Log** button will erase the Timekeeping Log file, and all its contents *will be lost*. The Timekeeping log file is `TIMEKEEP.CSV`, and it is stored in the `METER.LOG` directory.

The **Export Visible/Filtered Entries** button will save those selected records.

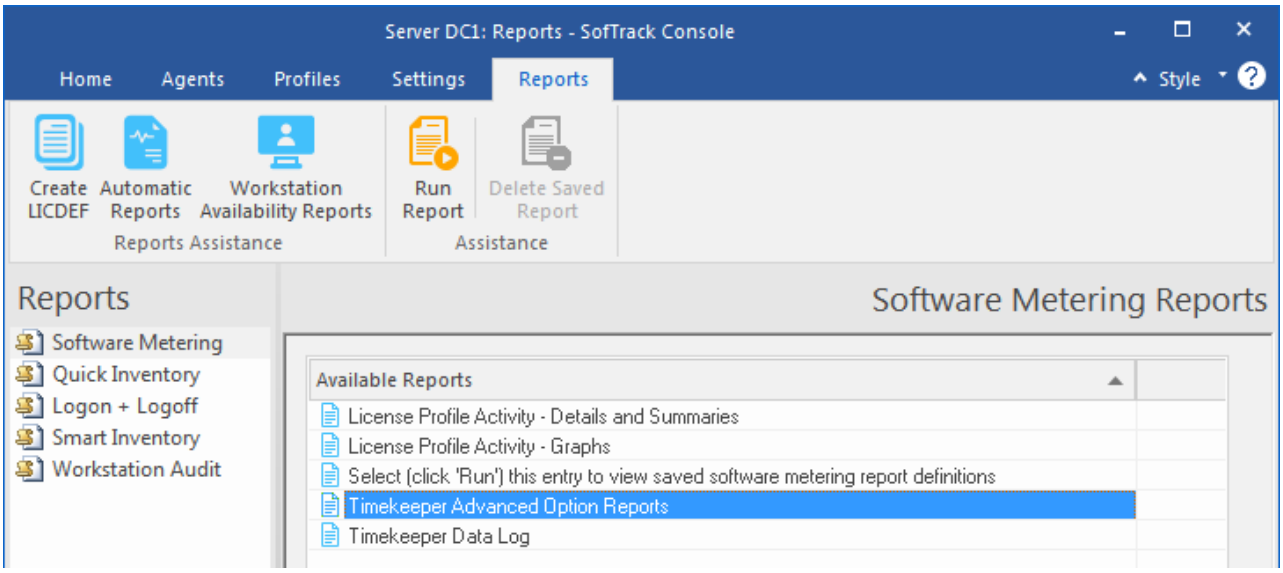
Notice the top of each column as a filter bar, this allows you to quickly filter the results by one or more

columns:

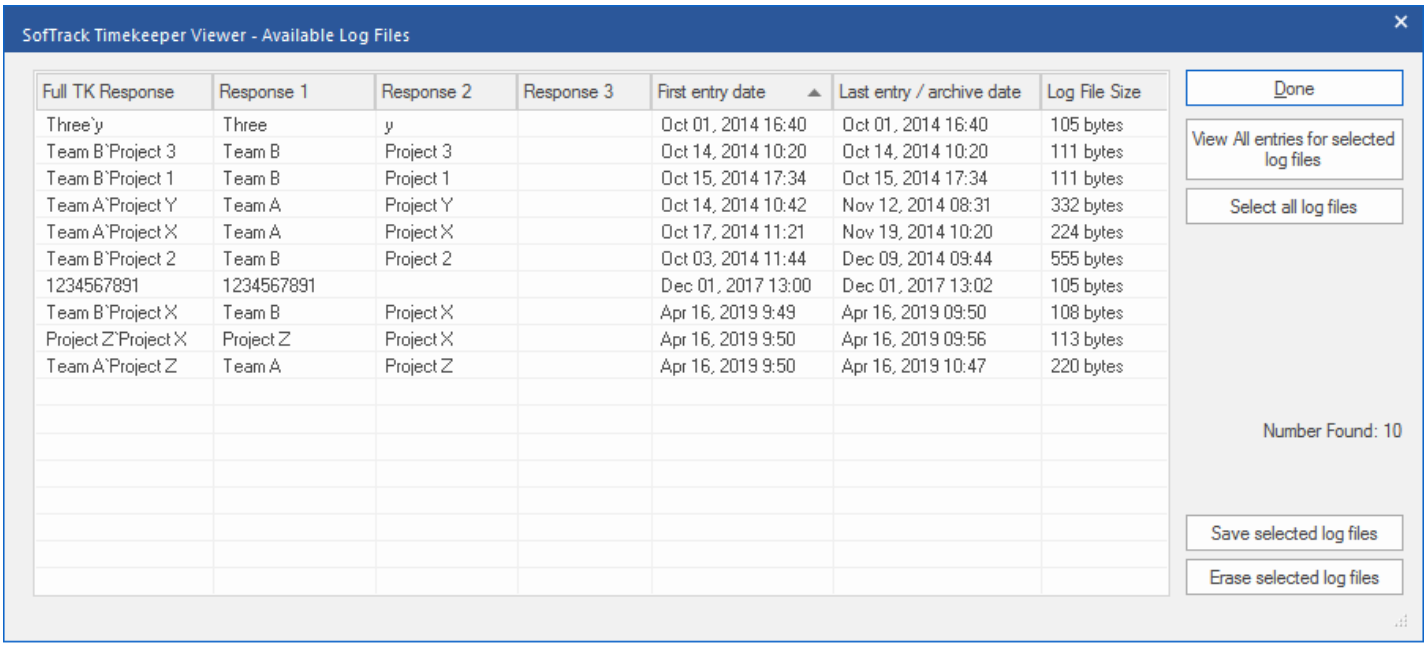


Interactive Reporting of Advanced Timekeeping Activity

For License Profiles that include use of the Advanced Timekeeping option, there is the Timekeeper Advanced Option Reporter. To begin, open and click the **Timekeeper Advanced Option Reports** option:

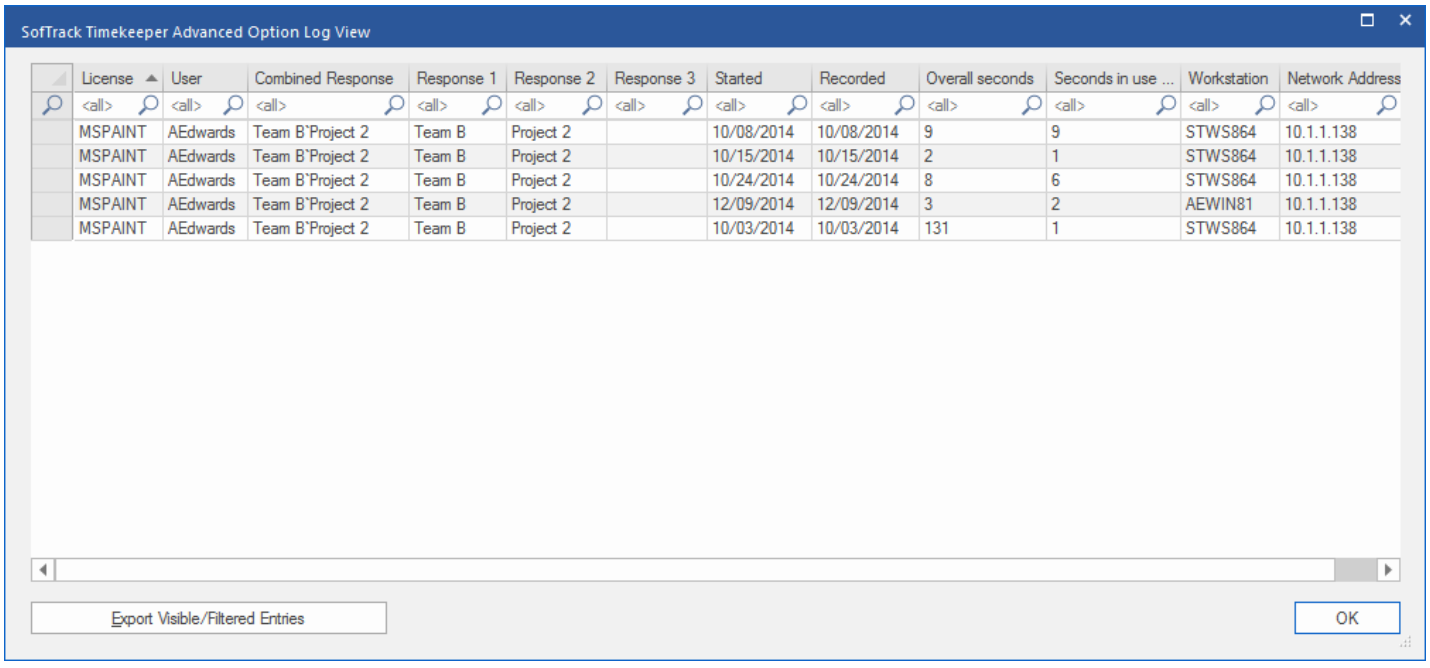


Click **Run Report** and the list of available Advanced Timekeeping Log files appears:



The Full TK Response column is actually the filename column. As user activity is recorded, each includes the pre-defined selection they chose and that "combined selection" is used as the basis for the filename used to store that timekeeper activity. The columns Response 1, 2 and 3 are presented so you can more easily sort of each as required.

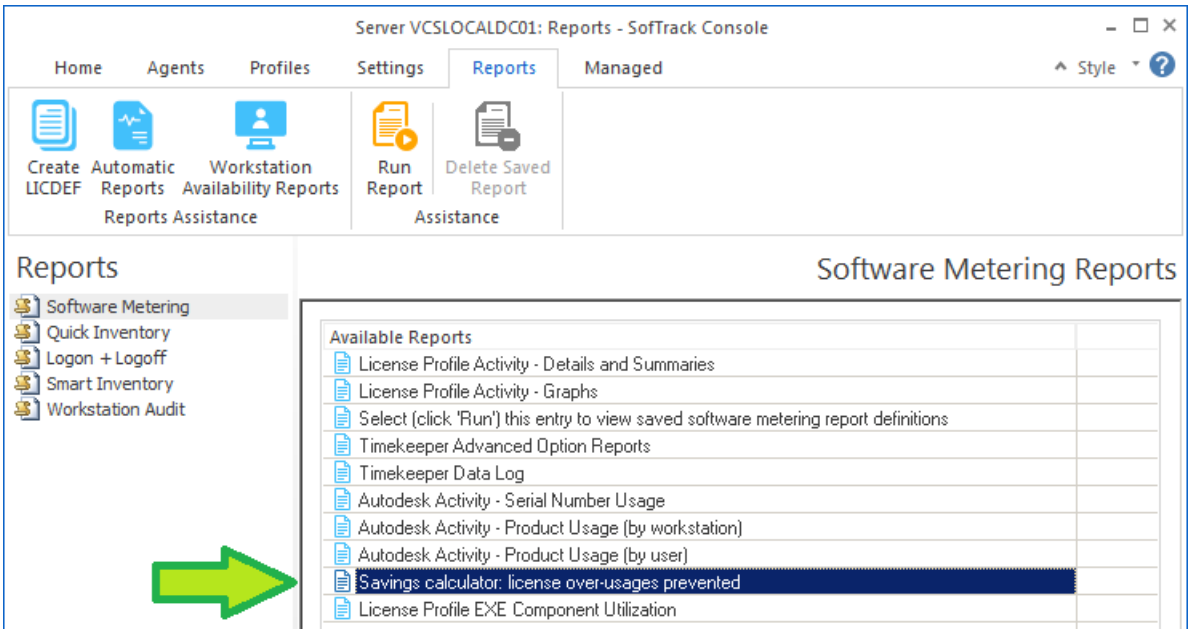
To view the actual timekeeper data, select one or more entries and click View All entries for selected log files:



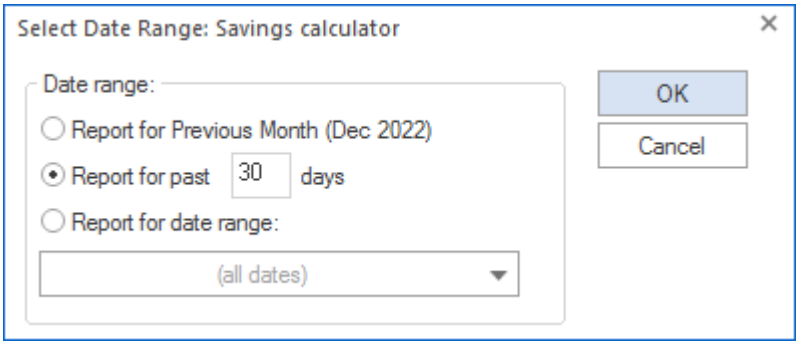
Notice the top of each column includes a search filter; you can use any combination of column filters to filter the results as required.

Savings calculator: license over-usages prevented

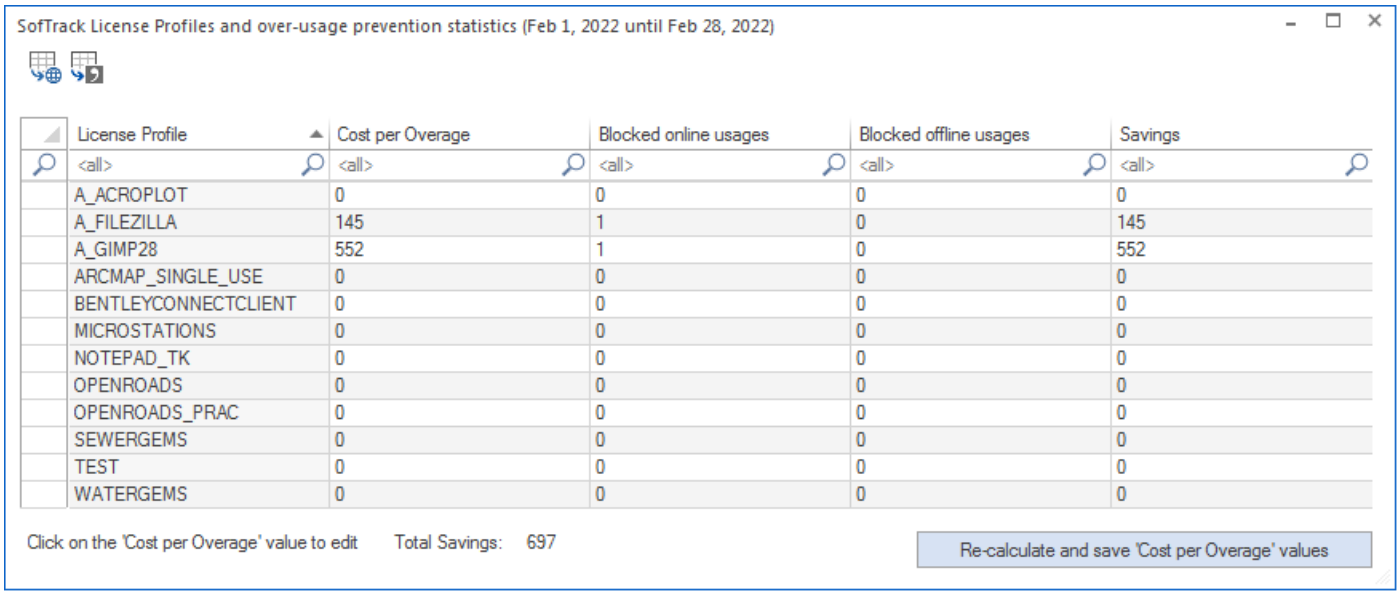
Similar to the Cost Savings report, the savings calculator report is intended to determine savings based on the number of usages that were blocked due to no license being available. This report is found in the Reports section:



To run, double click or click the Run Report ribbon button. A date range prompt will be presented:



The date range is used to determine the software metering records to retrieve. Once the date range is entered, the report will begin and when ready, present the findings.



License Profile	Cost per Overage	Blocked online usages	Blocked offline usages	Savings
A_ACROPLOT	0	0	0	0
A_FILEZILLA	145	1	0	145
A_GIMP28	552	1	0	552
ARCMAP_SINGLE_USE	0	0	0	0
BENTLEYCONNECTCLIENT	0	0	0	0
MICROSTATIONS	0	0	0	0
NOTEPAD_TK	0	0	0	0
OPENROADS	0	0	0	0
OPENROADS_PRAC	0	0	0	0
SEWERGEMS	0	0	0	0
TEST	0	0	0	0
WATERGEMS	0	0	0	0

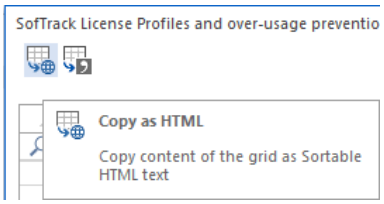
The report focuses on blocked usages and provides a separate indication for when usages were blocked while the user was online and offline from the SofTrack Server Agent.

The *Cost per Overage* value is directly entered (and remembered). To set a value for *Cost per Overage*, click on the column of a License Profile and enter the value. The value entered is in whole number, no partial values such as cents.

License Profile	Cost per Overage
A_ACROPLOT	0
A_FILEZILLA	145
A_GIMP28	765
ARCMAP_SINGLE_USE	0
BENTLEYCONNECTCLIENT	0
MICROSTATIONS	0
NOTEPAD_TK	0
OPENROADS	0
OPENROADS_PRAC	0
SEWERGEMS	0
TEST	0
WATERGEMS	1425

To save the new value(s) entered, click the button: *Re-calculate and save 'Cost per Overage' values*.

To save a copy of the report, use the buttons at the top of the report view, the first will save to a sortable HTML file and the other to CSV.



Interactive Reporting of Quick Inventory Data

SofTrack provides a Quick Inventory feature that is fully described in Chapter 8. To start the Quick Inventory Reporting feature, open `SOFTRACK_CONSOLE.EXE`, click the "Reports" tab, select the Quick Inventory section and then select the desired report.

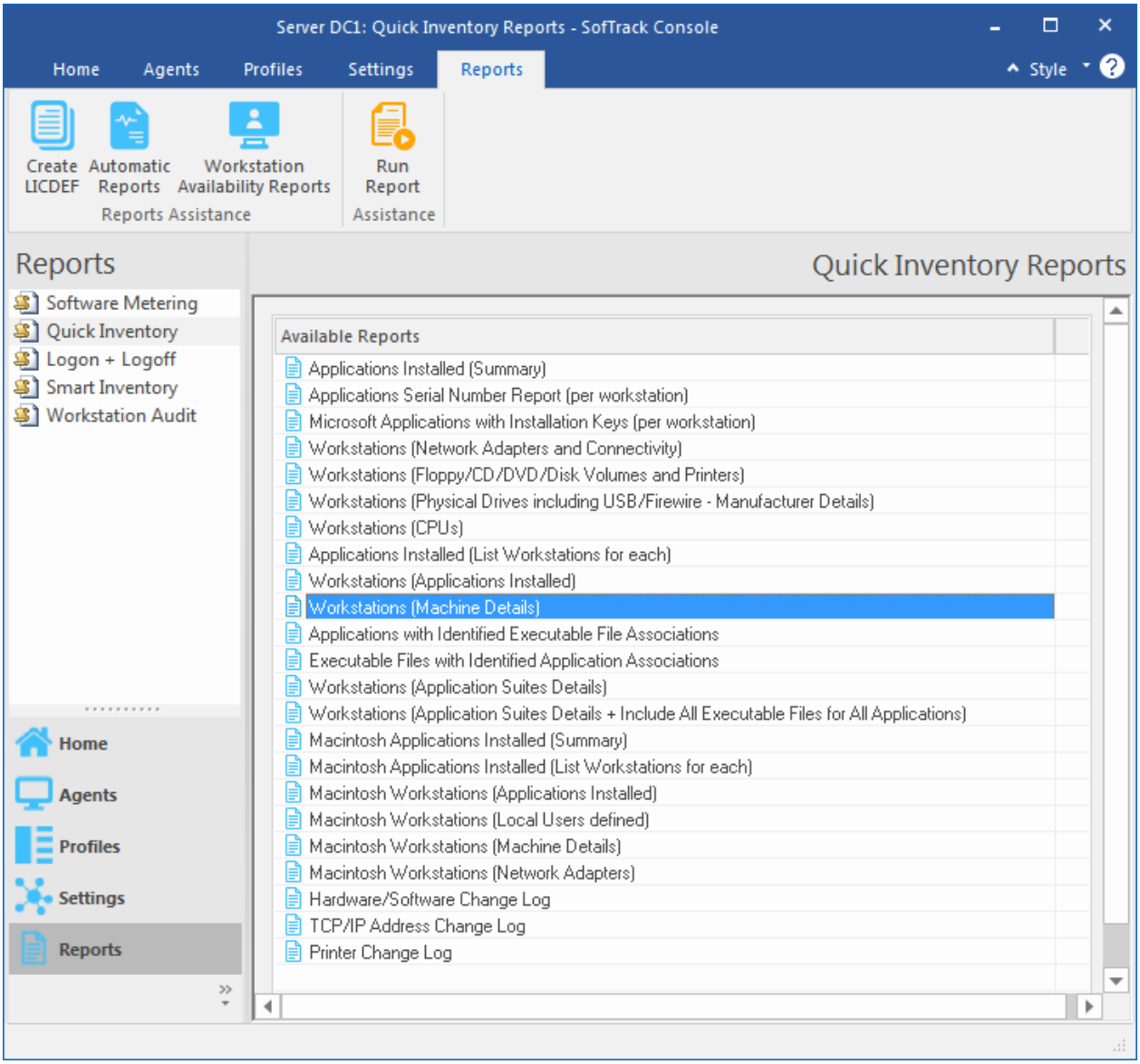


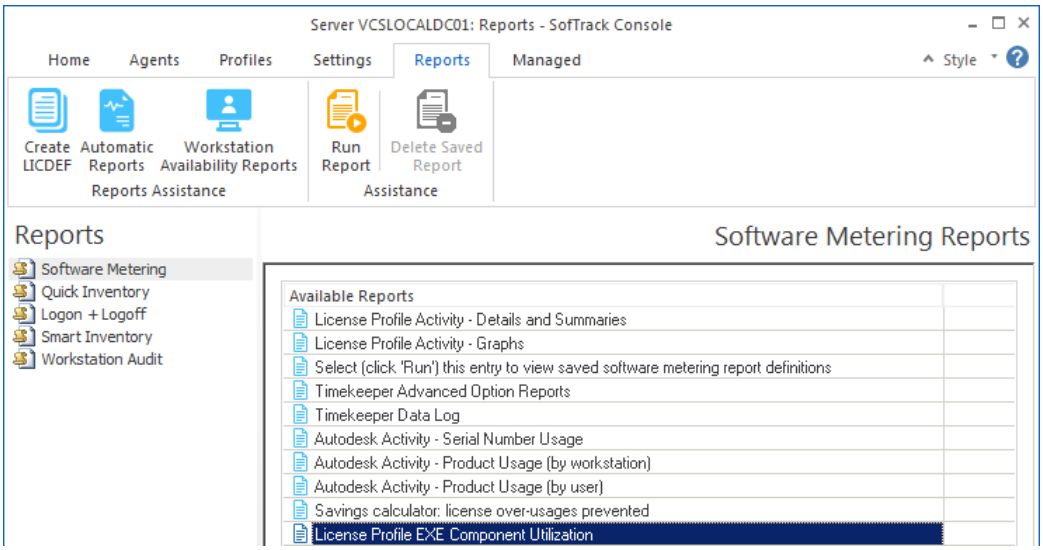
Figure 7-50

Please refer to the next chapter for more information on the Quick Inventory feature.

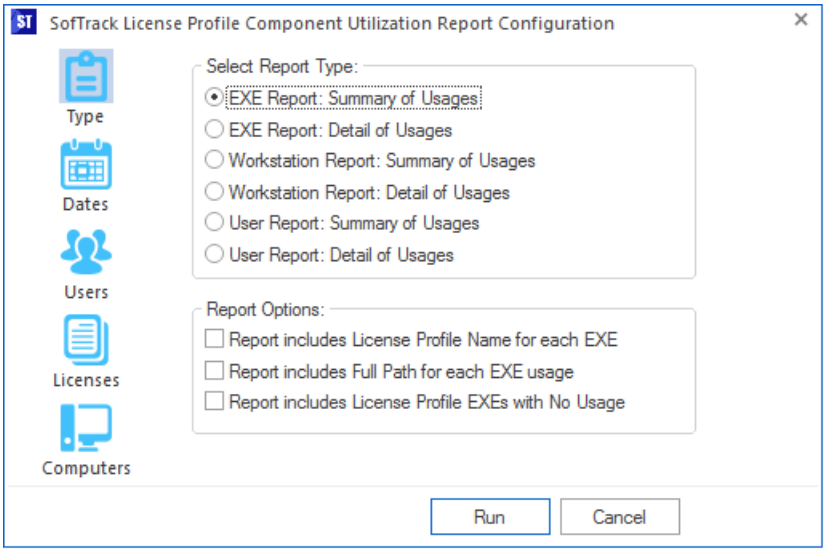
Interactive Reporting of License Profile EXE Component Utilization

SofTrack's EXE Component Utilization Reports provide details of how each executable file is utilized. The executable files included in the report are those defined in each selected License Profile. Please note, it is possible to create SofTrack License Profile(s) that specify any arrangement of executable files and specify "allow overuse" so usage is not specifically controlled. This allows products such as Adobe® Cloud applications to be included in a single license profile to determine specific usage of each executable file.

To begin, open `SOFTRACK_CONSOLE.EXE`, select the server and then click the "Reports" tab. Next, select "Software Metering" section. Click on "License Profile EXE Component Utilization", finally click the **Run Report** button.



A popup window will appear as users and workstations are pre-loaded. And then the following will appear:



As shown above, there are 6 main report types:

- EXE Report: Summary of Usages
- EXE Report: Detail of Usages
- Workstation Report: Summary of Usages
- Workstation Report: Detail of Usages
- User Report: Summary of Usages
- User Report: Detail of Usages

Each can be further defined by the following options:

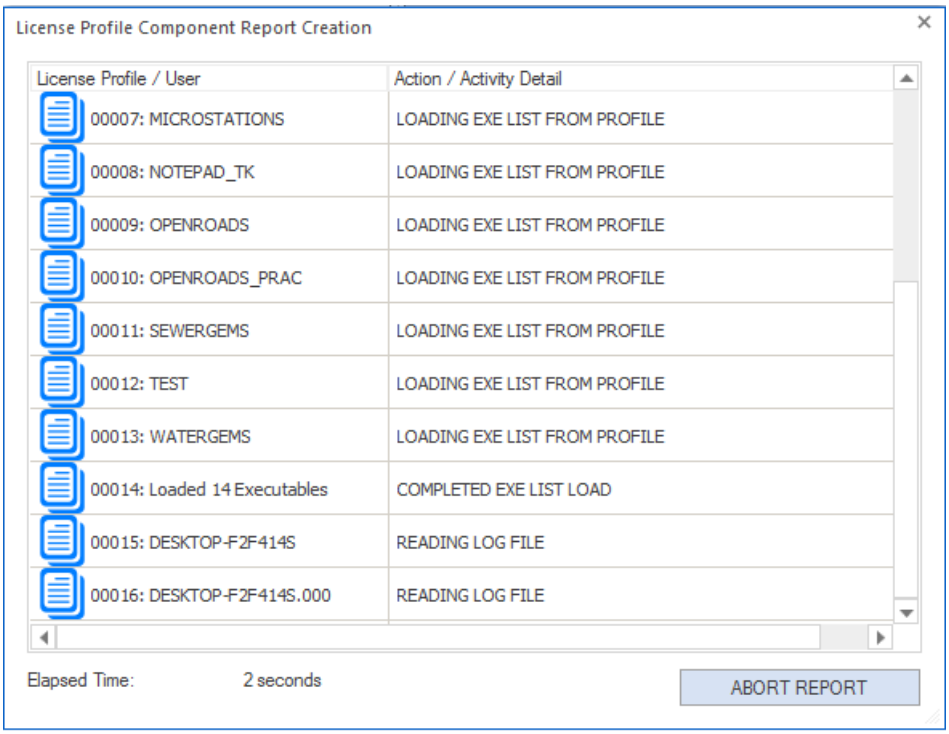
- Report includes License Profile Name for each EXE
- Report includes Full Path for each EXE usage
- Report includes License Profile EXEs with No Usage

Each of the above reports can be further refined by License Profiles, Workstations and Users. The default is to use all License Profiles, all Workstations and all Users.

Finally, a date range is selected. The default is the past 30 days.

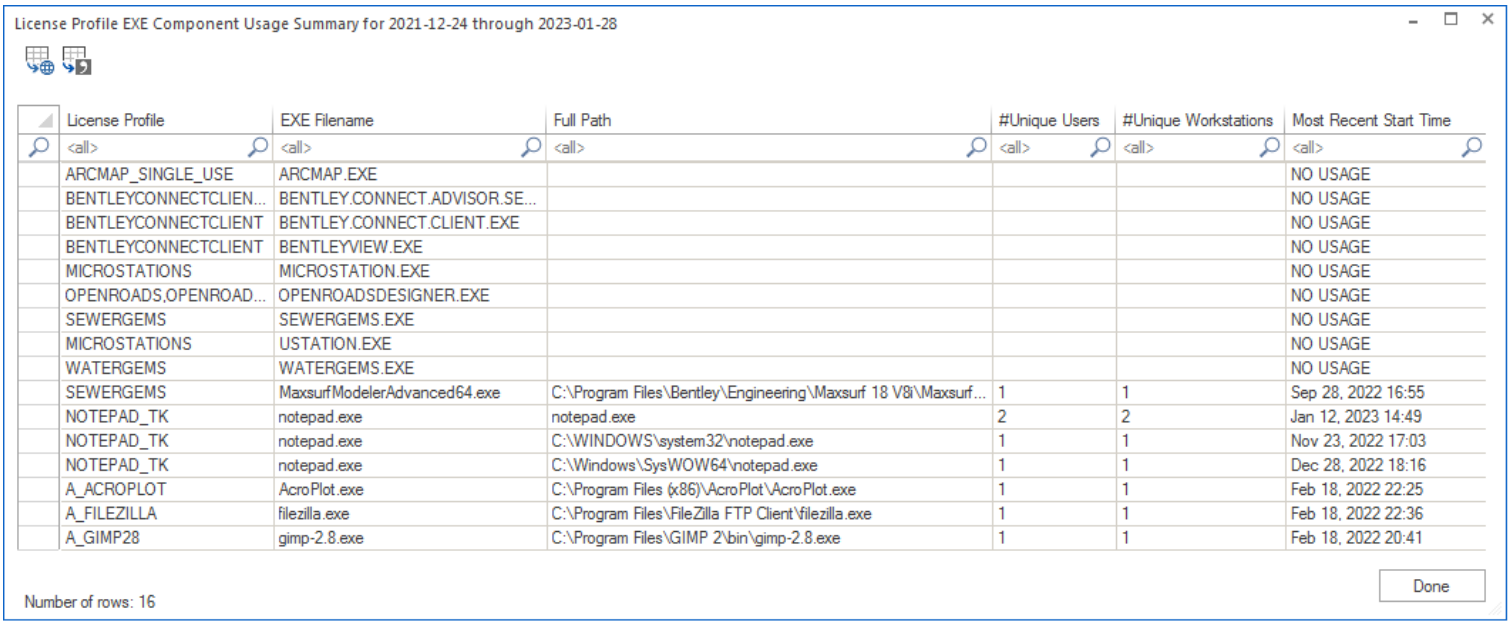
Once the report selections are configured, click the Run button. The resulting report proceeds as follow:

- Build a license of all EXE files based on the selected License Profiles
- Scan workstation audit log(s) for each selected Workstation (only those files with activity within the selected date range) (must enable auditing of application launches)
- If defined, filter users to be included in the report.



The "ABORT REPORT" button will cancel further processing and present partial results.

Once processing is completed the report will be shown:



License Profile EXE Component Usage Summary for 2021-12-24 through 2023-01-28

License Profile	EXE Filename	Full Path	#Unique Users	#Unique Workstations	Most Recent Start Time
ARCMAP_SINGLE_USE	ARCMAP.EXE				NO USAGE
BENTLEYCONNECTCLIEN...	BENTLEY.CONNECT.ADVISOR.SE...				NO USAGE
BENTLEYCONNECTCLIENT	BENTLEY.CONNECT.CLIENT.EXE				NO USAGE
BENTLEYCONNECTCLIENT	BENTLEYVIEW.EXE				NO USAGE
MICROSTATIONS	MICROSTATION.EXE				NO USAGE
OPENROADS,OPENROAD...	OPENROADSDESIGNER.EXE				NO USAGE
SEWERGEMS	SEWERGEMS.EXE				NO USAGE
MICROSTATIONS	USTATION.EXE				NO USAGE
WATERGEMS	WATERGEMS.EXE				NO USAGE
SEWERGEMS	MaxsurfModelerAdvanced64.exe	C:\Program Files\Bentley\Engineering\Maxsurf 18 V8i\Maxsurf...	1	1	Sep 28, 2022 16:55
NOTEPAD_TK	notepad.exe	notepad.exe	2	2	Jan 12, 2023 14:49
NOTEPAD_TK	notepad.exe	C:\WINDOWS\system32\notepad.exe	1	1	Nov 23, 2022 17:03
NOTEPAD_TK	notepad.exe	C:\Windows\SysWOW64\notepad.exe	1	1	Dec 28, 2022 18:16
A_ACROPLOT	AcroPlot.exe	C:\Program Files (x86)\AcroPlot\AcroPlot.exe	1	1	Feb 18, 2022 22:25
A_FILEZILLA	filezilla.exe	C:\Program Files\FileZilla FTP Client\filezilla.exe	1	1	Feb 18, 2022 22:36
A_GIMP28	gimp-2.8.exe	C:\Program Files\GIMP 2\bin\gimp-2.8.exe	1	1	Feb 18, 2022 20:41

Number of rows: 16

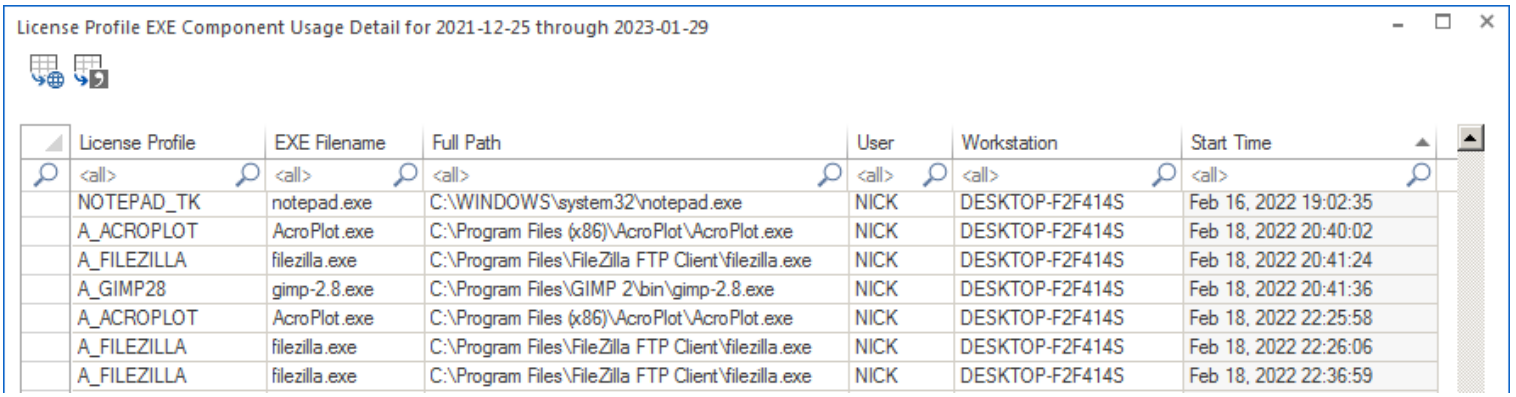
Done

Notice at the top left, the resulting report can be exported to a sortable HTML or CSV. When the 'Full Path' is included, the path(s) are separately shown. With some applications the path will indicate the version being used.

The usages shown do not include overall usage time or idle vs active time. Only the initial usage times are tracked (i.e. each time the user opens an application).

You benefit by knowing where specific application executables are being utilized or not.

Sample screenshots of each report type, the caption at top of each image indicates report type:



License Profile EXE Component Usage Detail for 2021-12-25 through 2023-01-29

License Profile	EXE Filename	Full Path	User	Workstation	Start Time
NOTEPAD_TK	notepad.exe	C:\WINDOWS\system32\notepad.exe	NICK	DESKTOP-F2F414S	Feb 16, 2022 19:02:35
A_ACROPLOT	AcroPlot.exe	C:\Program Files (x86)\AcroPlot\AcroPlot.exe	NICK	DESKTOP-F2F414S	Feb 18, 2022 20:40:02
A_FILEZILLA	filezilla.exe	C:\Program Files\FileZilla FTP Client\filezilla.exe	NICK	DESKTOP-F2F414S	Feb 18, 2022 20:41:24
A_GIMP28	gimp-2.8.exe	C:\Program Files\GIMP 2\bin\gimp-2.8.exe	NICK	DESKTOP-F2F414S	Feb 18, 2022 20:41:36
A_ACROPLOT	AcroPlot.exe	C:\Program Files (x86)\AcroPlot\AcroPlot.exe	NICK	DESKTOP-F2F414S	Feb 18, 2022 22:25:58
A_FILEZILLA	filezilla.exe	C:\Program Files\FileZilla FTP Client\filezilla.exe	NICK	DESKTOP-F2F414S	Feb 18, 2022 22:26:06
A_FILEZILLA	filezilla.exe	C:\Program Files\FileZilla FTP Client\filezilla.exe	NICK	DESKTOP-F2F414S	Feb 18, 2022 22:36:59

License Profile Workstation EXE Component Usage Summary for 2021-12-25 through 2023-01-29

License Profile	Workstation	EXE Filename	#Users	#Usages	Most Recent Start Time
ARCMAP_SINGLE_USE		ARCMAP.EXE			NO USAGE
BENTLEYCONNECTCLIEN...		BENTLEY.CONNECT.ADVISOR...			NO USAGE
BENTLEYCONNECTCLIENT		BENTLEY.CONNECT.CLIENT.E...			NO USAGE
BENTLEYCONNECTCLIENT		BENTLEYVIEW.EXE			NO USAGE
MICROSTATIONS		MICROSTATION.EXE			NO USAGE
OPENROADS,OPENROAD...		OPENROADSDESIGNER.EXE			NO USAGE
SEWERGEMS		SEWERGEMS.EXE			NO USAGE
MICROSTATIONS		USTATION.EXE			NO USAGE
WATERGEMS		WATERGEMS.EXE			NO USAGE
SEWERGEMS	DESKTOP-F2F414S	MaxsurfModelerAdvanced64.exe	1	10	Sep 28, 2022 16:55
NOTEPAD_TK	DESKTOP-F2F414S	notepad.exe	1	105	Jan 12, 2023 14:49
A_ACROPLOT	DESKTOP-F2F414S	AcroPlot.exe	1	2	Feb 18, 2022 22:25
A_FILEZILLA	DESKTOP-F2F414S	filezilla.exe	1	3	Feb 18, 2022 22:36
A_GIMP28	DESKTOP-F2F414S	gimp-2.8.exe	1	1	Feb 18, 2022 20:41
NOTEPAD_TK	ISW_WIN81	notepad.exe	1	1	Aug 10, 2022 10:29

Done

Number of rows: 15

License Profile Workstation EXE Component Usage Detail for 2021-12-25 through 2023-01-29

License Profile	Workstation	EXE Filename	User	Start Time
SEWERGEMS	DESKTOP-F2F414S	MaxsurfModelerAdvanced64.exe	NICK	Aug 30, 2022 16:23:15
SEWERGEMS	DESKTOP-F2F414S	MaxsurfModelerAdvanced64.exe	NICK	Aug 30, 2022 16:26:48
SEWERGEMS	DESKTOP-F2F414S	MaxsurfModelerAdvanced64.exe	NICK	Aug 30, 2022 16:32:34
SEWERGEMS	DESKTOP-F2F414S	MaxsurfModelerAdvanced64.exe	NICK	Aug 30, 2022 16:42:54
NOTEPAD_TK	DESKTOP-F2F414S	notepad.exe	NICK	Sep 26, 2022 19:15:17
SEWERGEMS	DESKTOP-F2F414S	MaxsurfModelerAdvanced64.exe	NICK	Sep 28, 2022 16:50:07
SEWERGEMS	DESKTOP-F2F414S	MaxsurfModelerAdvanced64.exe	NICK	Sep 28, 2022 16:55:51
NOTEPAD_TK	DESKTOP-F2F414S	notepad.exe	NICK	Nov 23, 2022 15:49:21

License Profile User EXE Component Usage Summary for 2021-12-25 through 2023-01-29

License Profile	User	EXE Filename	#Workstations	#Usages	Most Recent Start Time
<all>	<all>	<all>	<all>	<all>	<all>
ARCMAP_SINGLE_USE		ARCMAP.EXE			NO USAGE
BENTLEYCONNECTCLIEN...		BENTLEY.CONNECT.ADVI...			NO USAGE
BENTLEYCONNECTCLIENT		BENTLEY.CONNECT.CLIE...			NO USAGE
BENTLEYCONNECTCLIENT		BENTLEYVIEW.EXE			NO USAGE
MICROSTATIONS		MICROSTATION.EXE			NO USAGE
OPENROADS,OPENROAD...		OPENROADSDESIGNER.E...			NO USAGE
SEWERGEMS		SEWERGEMS.EXE			NO USAGE
MICROSTATIONS		USTATION.EXE			NO USAGE
WATERGEMS		WATERGEMS.EXE			NO USAGE
A_GIMP28	NICK	gimp-2.8.exe	1	1	Feb 18, 2022 20:41
A_ACROPLOT	NICK	AcroPlot.exe	1	2	Feb 18, 2022 22:25
A_FILEZILLA	NICK	filezilla.exe	1	3	Feb 18, 2022 22:36
NOTEPAD_TK	RED_i	notepad.exe	1	1	Aug 10, 2022 10:29
SEWERGEMS	NICK	MaxsurfModelerAdvanced6...	1	10	Sep 28, 2022 16:55
NOTEPAD_TK	NICK	notepad.exe	1	105	Jan 12, 2023 14:49

Done

Number of rows: 15

License Profile User EXE Component Usage Detail for 2021-12-25 through 2023-01-29

License Profile	User	EXE Filename	Workstation	Start Time
<all>	<all>	<all>	<all>	<all>
WATERGEMS		WATERGEMS.EXE		NO USAGE
MICROSTATIO...		USTATION.EXE		NO USAGE
SEWERGEMS		SEWERGEMS.EXE		NO USAGE
OPENROADS,...		OPENROADSDESIGNER.E...		NO USAGE
MICROSTATIO...		MICROSTATION.EXE		NO USAGE
BENTLEYCON...		BENTLEYVIEW.EXE		NO USAGE
BENTLEYCON...		BENTLEY.CONNECT.CLIE...		NO USAGE
BENTLEYCON...		BENTLEY.CONNECT.ADVI...		NO USAGE
ARCMAP_SING...		ARCMAP.EXE		NO USAGE
A_ACROPLOT	NICK	AcroPlot.exe	DESKTOP-F2F414S	Feb 18, 2022 20:40:02
A_FILEZILLA	NICK	filezilla.exe	DESKTOP-F2F414S	Feb 18, 2022 20:41:24
A_GIMP28	NICK	gimp-2.8.exe	DESKTOP-F2F414S	Feb 18, 2022 20:41:36
A_ACROPLOT	NICK	AcroPlot.exe	DESKTOP-F2F414S	Feb 18, 2022 22:25:58
A_FILEZILLA	NICK	filezilla.exe	DESKTOP-F2F414S	Feb 18, 2022 22:26:06
A_FILEZILLA	NICK	filezilla.exe	DESKTOP-F2F414S	Feb 18, 2022 22:36:59

License Profiles Definition Report

The License Profiles Definition report generates a text-based report that details the definitions of each License Profile on the current server. The report is in a text format with headers and page number footer that is intended to be a permanent record of your definitions that you can 3-hole punch and save.

As needed, the SofTrack Support Team may request a copy of your License Profiles report to help them assist you.

To generate the License Profiles Definition report, open `SOFTRACK_CONSOLE.EXE`, click the "Reports" tab and then click the **Create LICDEF** button:

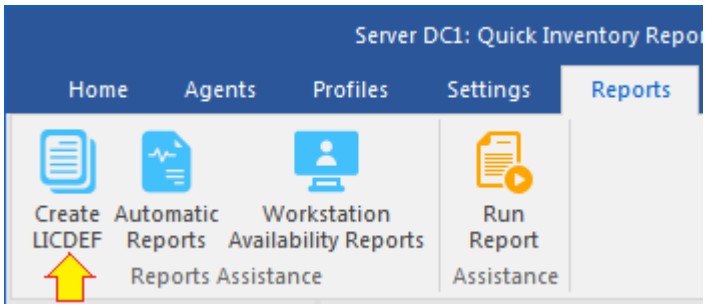


Figure 7-51

You will be presented with a dialog requesting the name of the Output Filename. The default is `LICDEF.TXT`.

Once you have selected the destination path, click **Save**. The report will be generated and control returned to `SOFTRACK_CONSOLE.EXE`'s main screen.

To print the report, if needed, we recommend opening the output file with your favorite word processing application, such as Word or Notepad.

Automatic Autodesk® Reporting including Plugin and Addin usage

SofTrack's Automatic Autodesk® Reporting is detailed in Chapter 12. SofTrack's Automatic reporting of Autodesk® Plugins and Addins is also detailed in Chapter 12.

Automatic Software Metering Reports

The Automatic Software Metering Reports option creates web pages using standard HTML and CSS coding and will work with all browsers. Each report is automatically created by the SofTrack Server Agent and require no configuration or action other than those defined in this section.

There are two primary types of reports created. One showing up-to-the-minute License Profile activity. The other are administrative reports showing completed usage in three time frames: the past week (Monday-Friday), the current month-to-date and the current calendar quarter-to-date.

To generate Automatic Software Metering reports, open `SOFTRACK_CONSOLE.EXE`, click the "Reports" tab and click the **Automatic Reports** button:

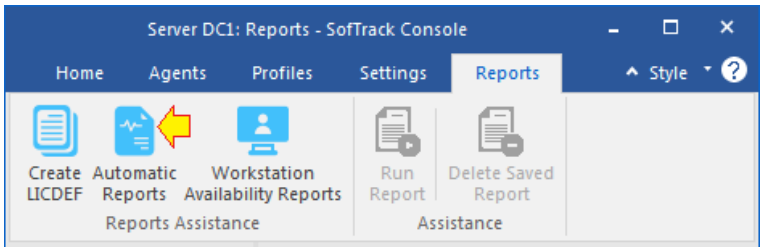


Figure 7-52

You will be presented with the following configuration screen:

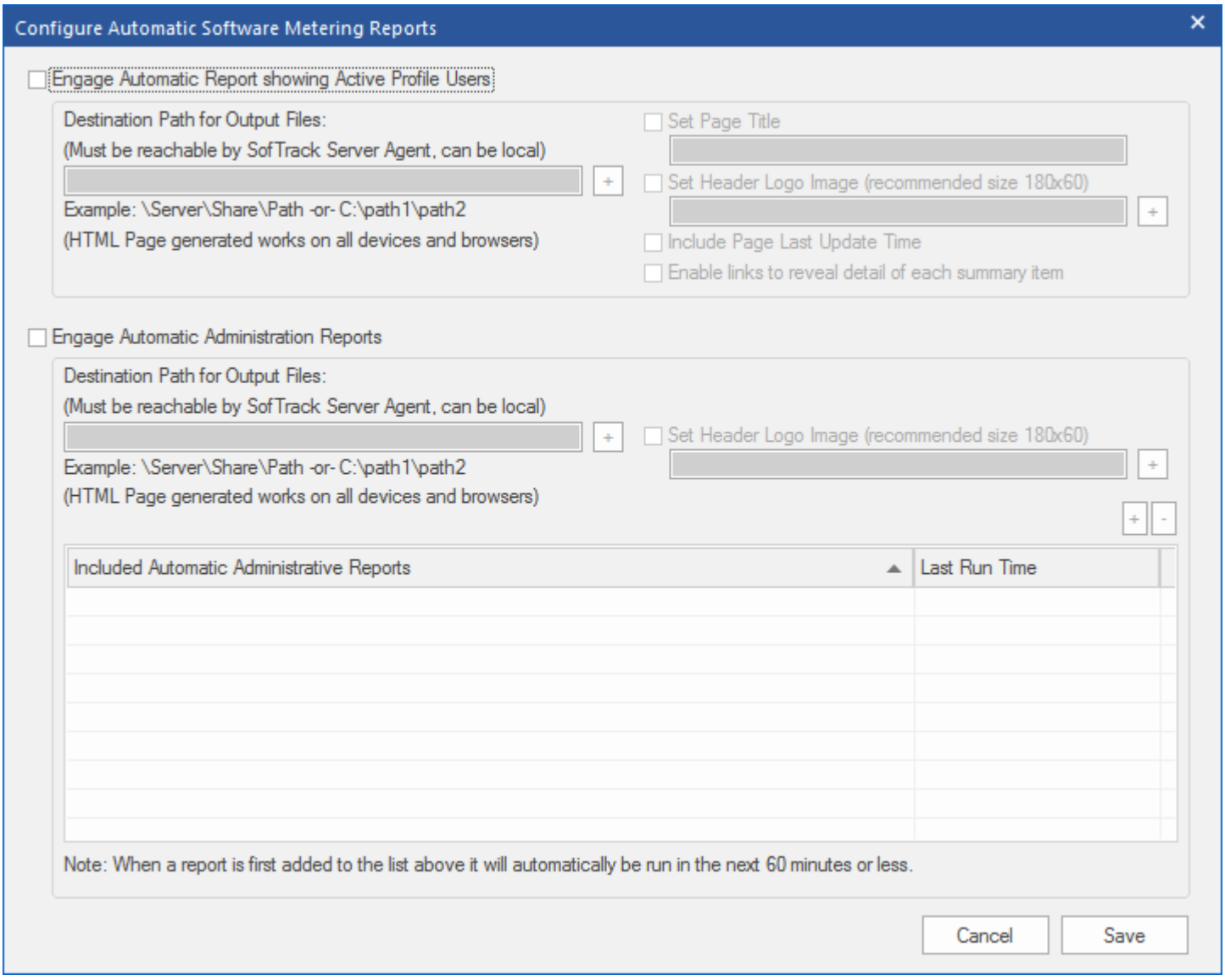


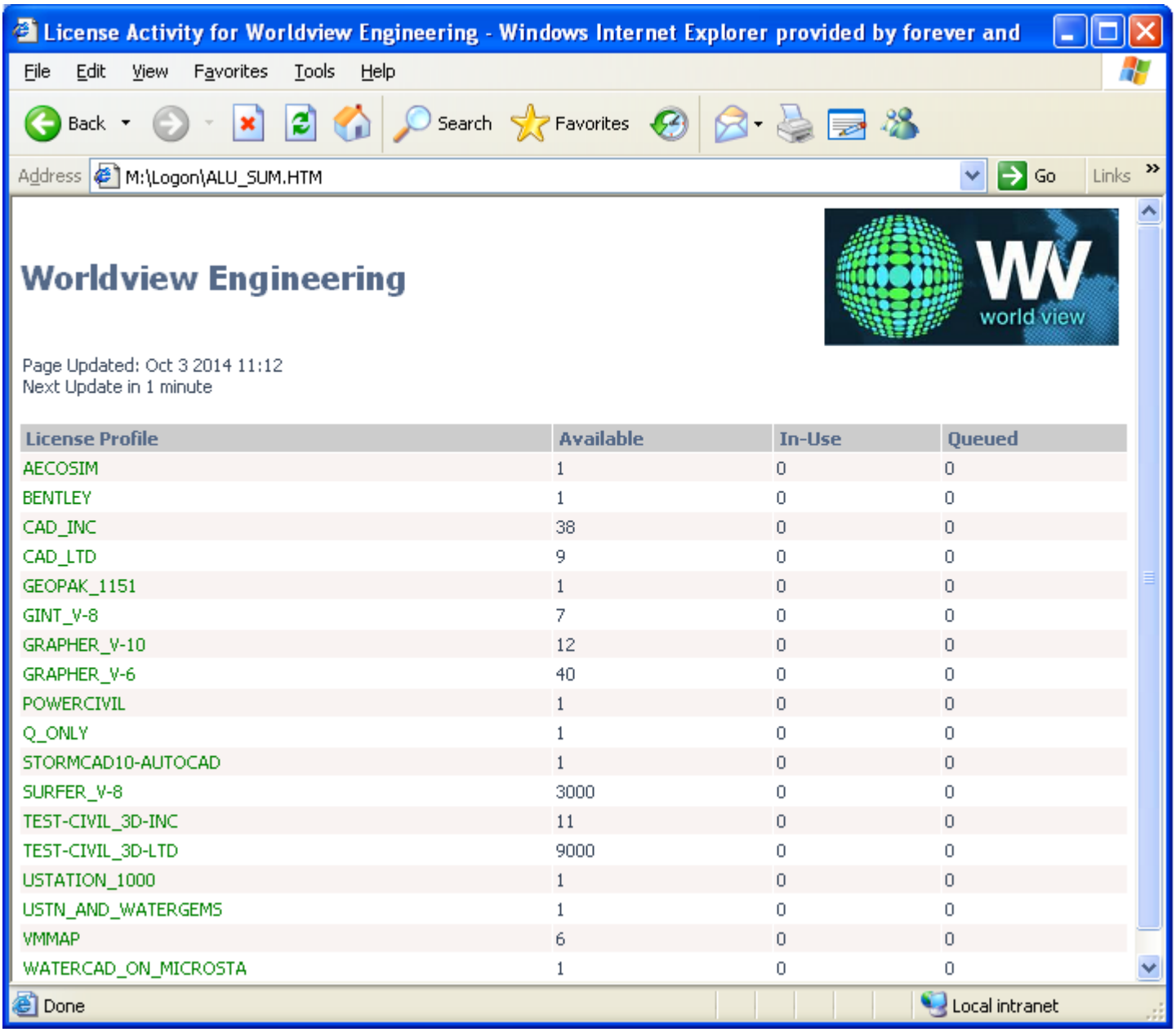
Figure 7-53

The **Destination Path for Output Files** must be filled in for each option you engage. If you engage an option and do not specify an existing path (where the share, and any path defined have previously been created) then ***no report*** will be created.

Automatic Active User View Web pages

The first option, **Engage Automatic Report showing Active Profile Users**, has been specifically designed to benefit your users. When engaged, it will automatically generate a web-page report (lead filename: ALU_SUM.HTM) of all License Profile activity each minute.

In the following sample Active Profile Users report you will see "Available" values that are large, for instance, 9000. These large values are due to a License Profile being set to "Allow Overflow" which intrinsically defines these large values.



License Profile	Available	In-Use	Queued
AECOSIM	1	0	0
BENTLEY	1	0	0
CAD_INC	38	0	0
CAD_LTD	9	0	0
GEOPAK_1151	1	0	0
GINT_V-8	7	0	0
GRAPHER_V-10	12	0	0
GRAPHER_V-6	40	0	0
POWERCIVIL	1	0	0
Q_ONLY	1	0	0
STORMCAD10-AUTOCAD	1	0	0
SURFER_V-8	3000	0	0
TEST-CIVIL_3D-INC	11	0	0
TEST-CIVIL_3D-LTD	9000	0	0
USTATION_1000	1	0	0
USTN_AND_WATERGEMS	1	0	0
VMMAP	6	0	0
WATERCAD_ON_MICROSTA	1	0	0

Figure 7-54

The name “Worldview Engineering” is configured by the “Set Page Title” option. The graphic image shown is configured by the “Set Header Logo Image File” option. The file you select will be copied to the filename “ALU_LOGON.PNG” and stored in the “METER.LOG” share path at the SofTrack Server Host.

The License Profiles listed are shown in **green** text, this indicates more than 50% of the licenses configured are currently available. The text of the profile name will be **red** if all licenses are currently in-use. The text of the profile name will be **orange** if more than 50% of the licenses are currently in-use.

If you include the “Enable links to reveal detail of each summary items” option you can click on the License Profile name to view its current users:

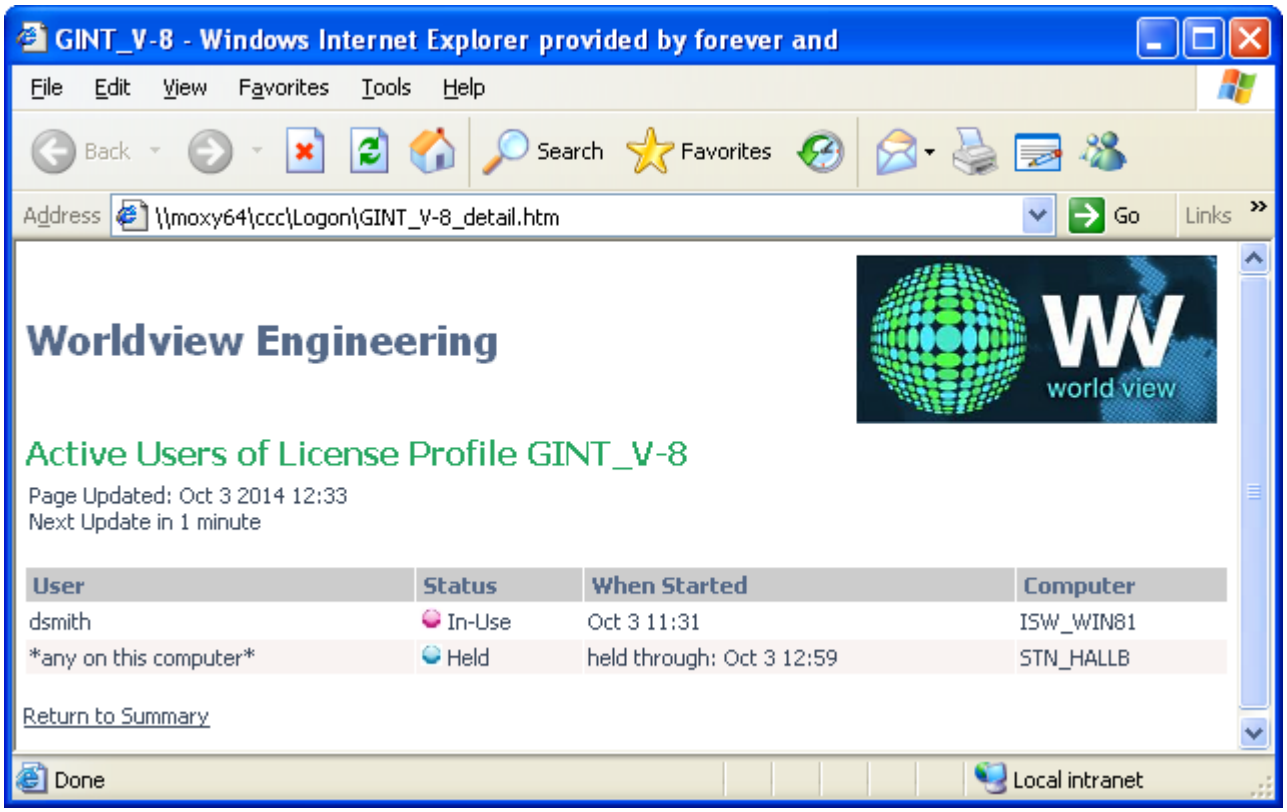
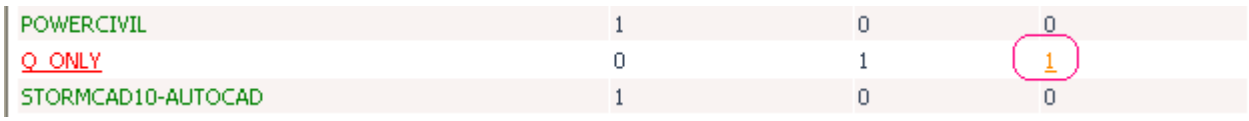


Figure 7-56

The list of active users includes those "actively" using the license and those "holding" a license. Licenses are held for one of the following reasons:

- The License Profile is defined as an Calendar 10-minute profile type and the user has exited usage and the license is held as configured
- The License Profile is defined as an Calendar Hour profile type and the user has exited usage and the license is held as configured
- The License Profile is defined as a Calendar Day profile type and the user has exited usage and the license is held as configured
- The License Profile includes queue hold time and a license is reserved for a queued user

Also, if you include the "Enable links to reveal detail of each summary items" option and the license currently has queued users:



You can click on the "**orange**" queued value (circled in above image) and view the currently queued users:

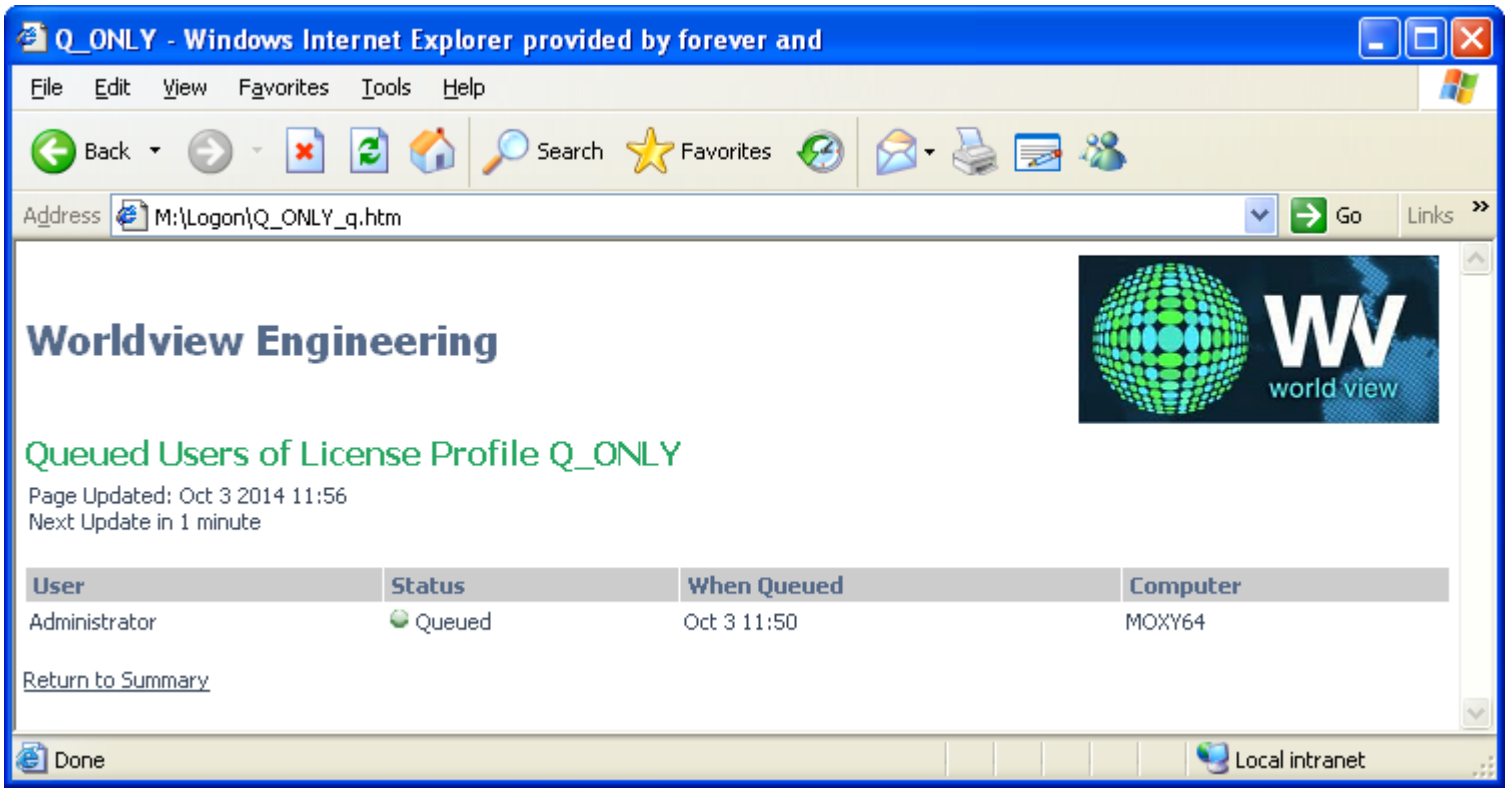


Figure 7-57

The list of queued users is listed in "queue order"; this means, the first user shown will be the next "queued user" to be notified when a license becomes available.

Automatic Manager Software Metering Report Web pages

The second option, **Engage Automatic Administration Reports**, has been specifically designed to benefit your management. When engaged, it will automatically generate web-page based reports for each report type you specifically include.

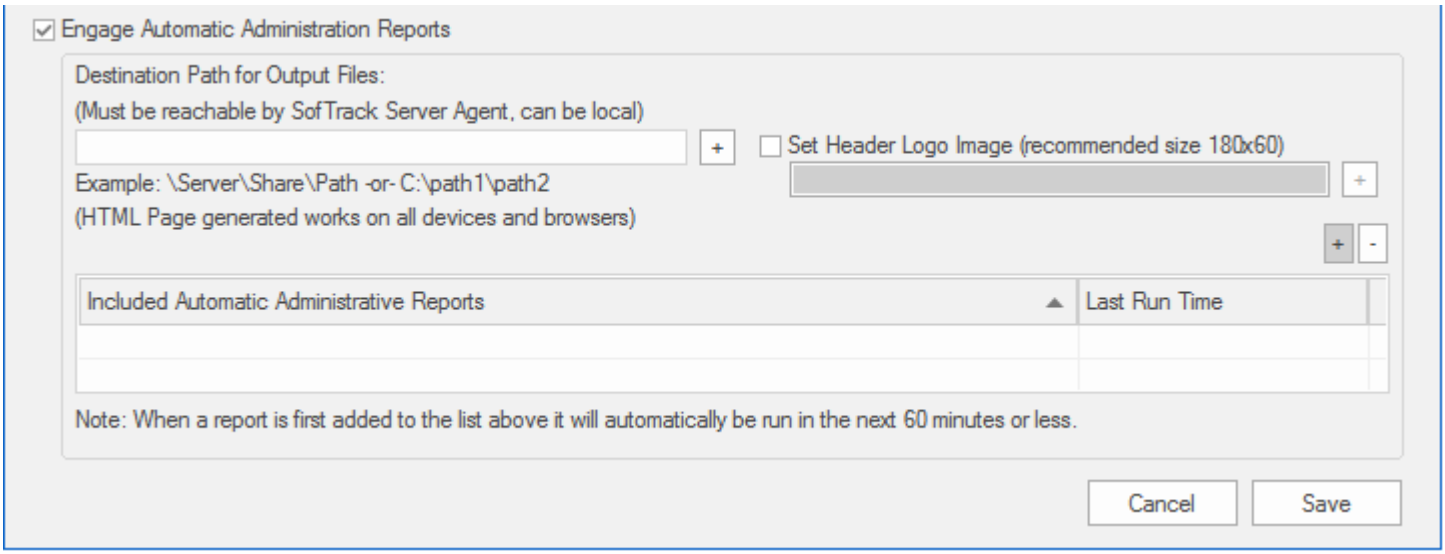
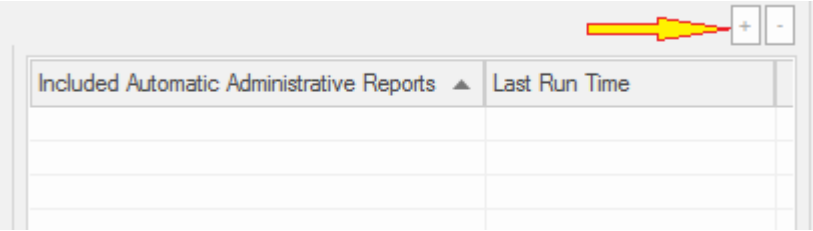


Figure 7-57

The **Destination Path for Output Files** must be filled in for each option you engage. If you engage an option and do not specify an existing path (where the share, and any path defined have previously been created) then ***no report*** will be created.

When engaging Automatic Administration Reports individual reports are added by clicking the [+] button at the top right of the list of Included Automatic Administration Reports:



When the [+] is clicked, the following window will appear:

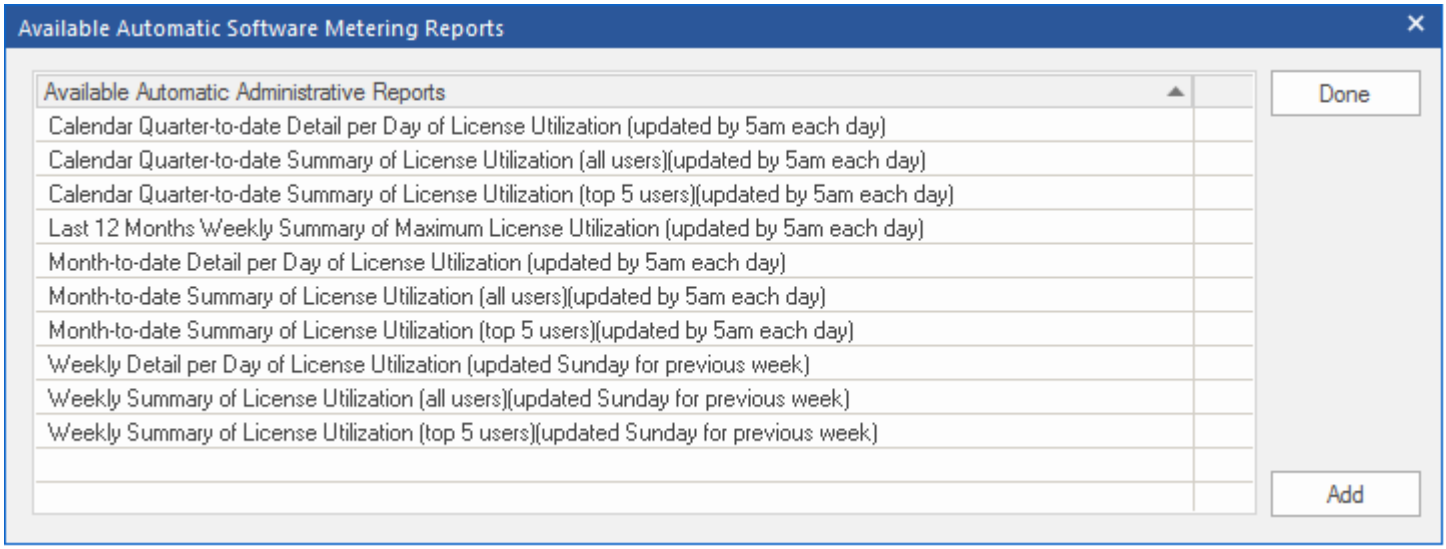


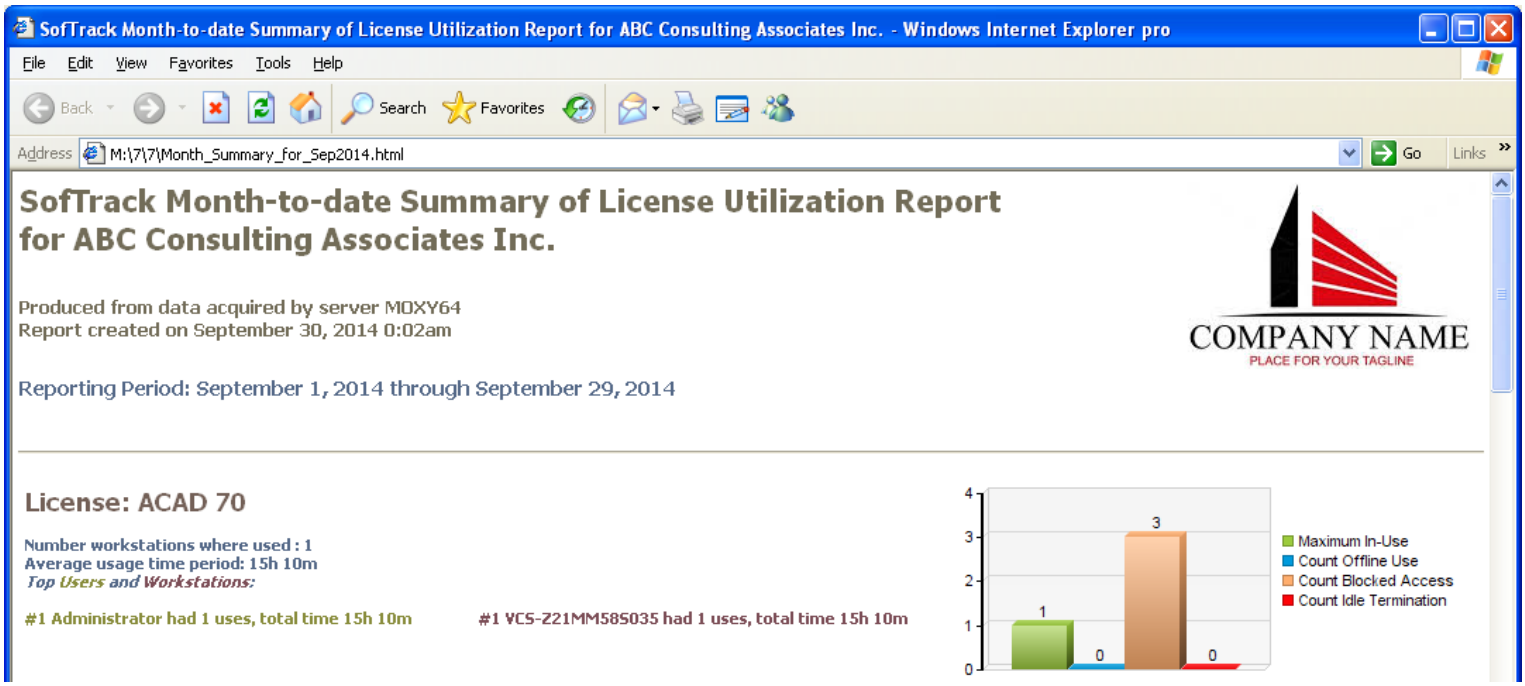
Figure 7-58

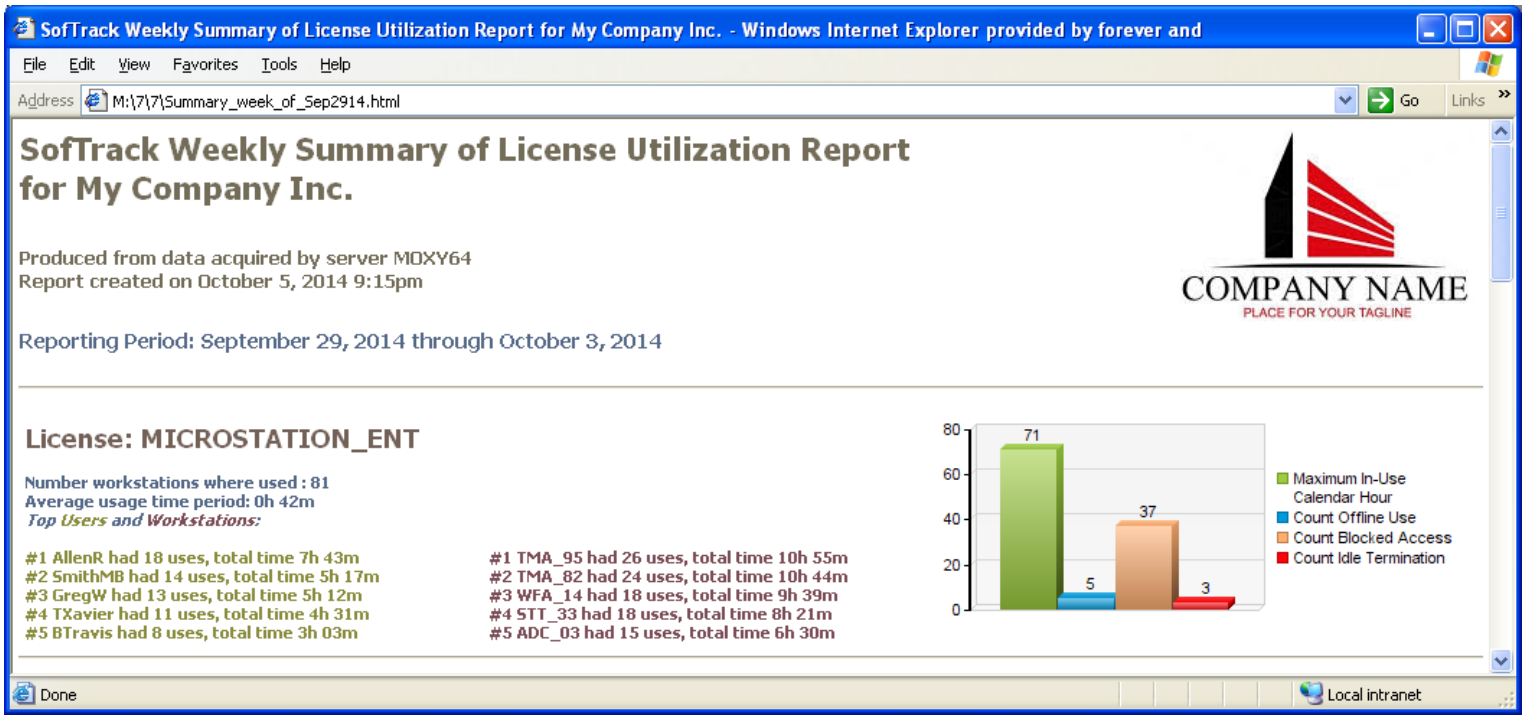
Select the reports to include. For each report selected, when first selected, the report will automatically be run within the first hour after you SAVE the configuration.

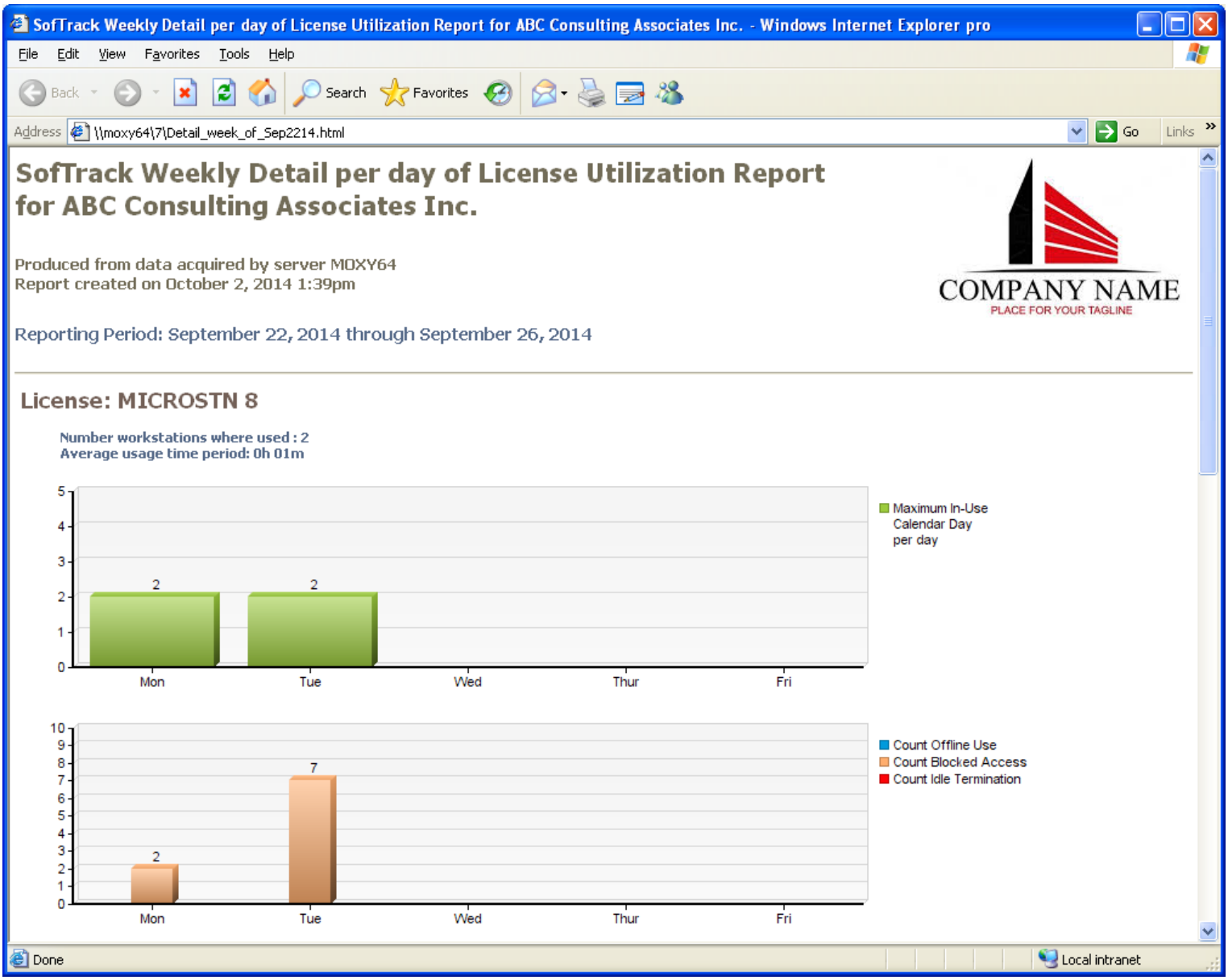
After the initial report is produced, subsequent updates to each report will occur as indicated.

For each report generated, it will create an HTML filename and a folder with the same name plus "_img". This folder is used to store the images for the report.

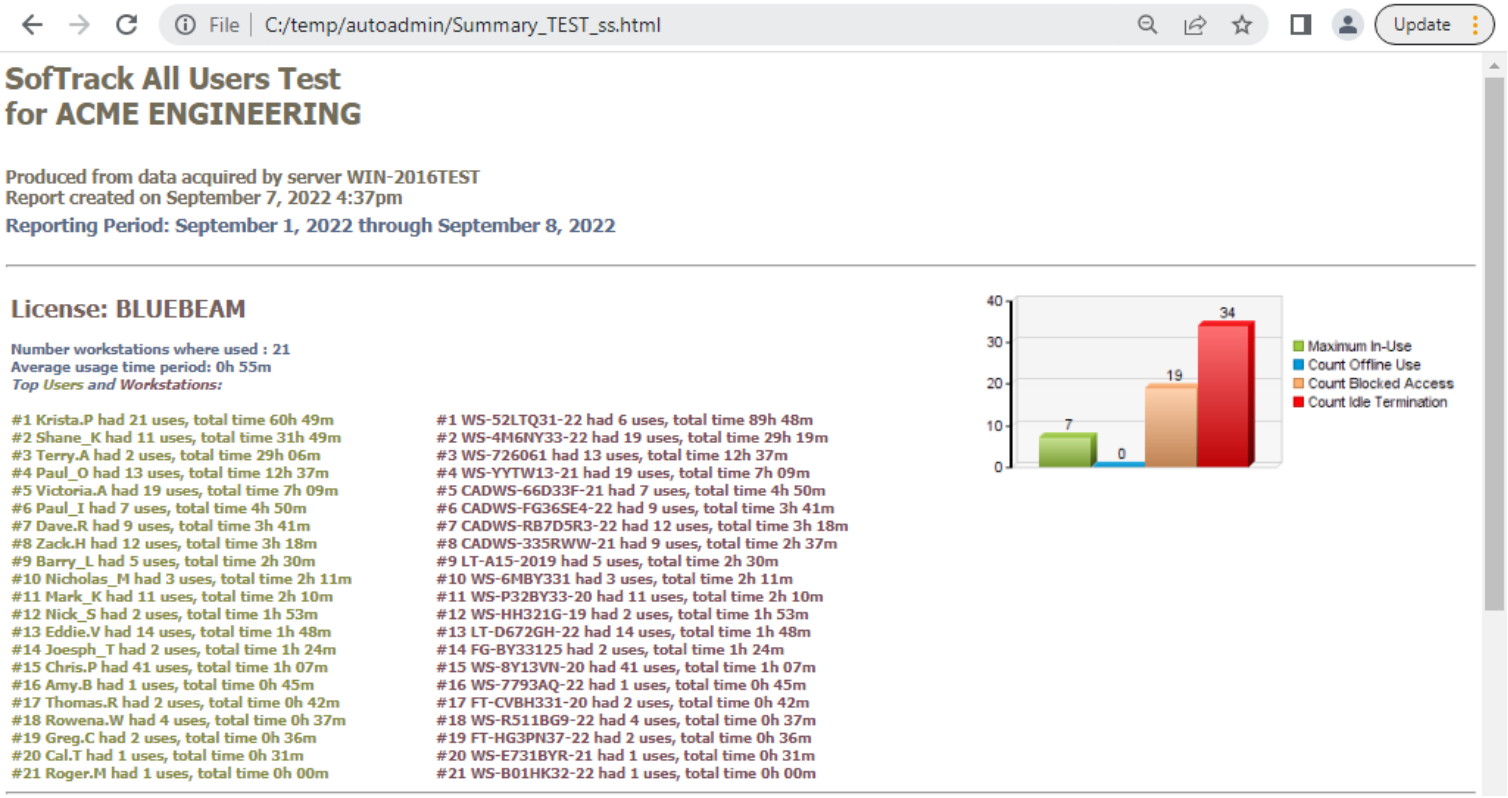
In the following sample reports notice that some indicate "Calendar 10-minute" or "Calendar Day" or "Calendar Hour", these correspond to SofTrack's License Profile options "Calendar 10-minute" and "Calendar Day" and "Calendar Hour" which were specifically created to serve the Bentley® customer.


SofTrack Month-to-date Summary of License Utilization Report for ABC Consulting Associates Inc. - Windows Internet Explorer pro
File Edit View Favorites Tools Help
Back Search Favorites
Address M:\7\7\Month_Summary_for_Sep2014.html
Go Links
SofTrack Month-to-date Summary of License Utilization Report for ABC Consulting Associates Inc.
Produced from data acquired by server MOXY64
Report created on September 30, 2014 0:02am
Reporting Period: September 1, 2014 through September 29, 2014
COMPANY NAME
PLACE FOR YOUR TAGLINE
License: ACAD 70
Number workstations where used : 1
Average usage time period: 15h 10m
Top Users and Workstations:
#1 Administrator had 1 uses, total time 15h 10m
#1 VCS-Z21MM585035 had 1 uses, total time 15h 10m
4
3
2
1
0
1
0
3
0
Maximum In-Use
Count Offline Use
Count Blocked Access
Count Idle Termination

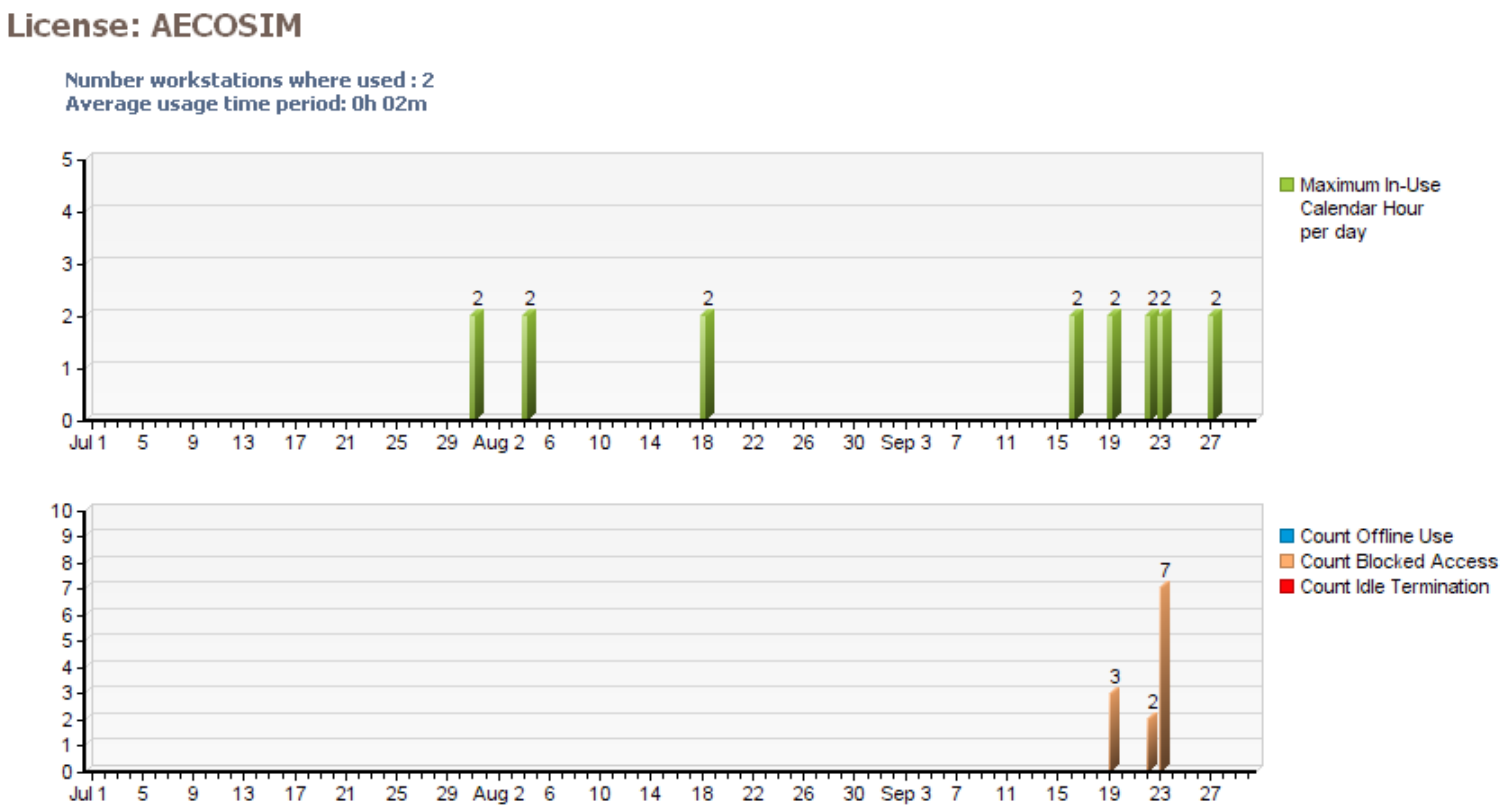

SofTrack Weekly Summary of License Utilization Report for My Company Inc. - Windows Internet Explorer provided by forever and
File Edit View Favorites Tools Help
Address M:\7\7\Summary_week_of_Sep2914.html
Go Links
SofTrack Weekly Summary of License Utilization Report for My Company Inc.
Produced from data acquired by server MOXY64
Report created on October 5, 2014 9:15pm
Reporting Period: September 29, 2014 through October 3, 2014
COMPANY NAME
PLACE FOR YOUR TAGLINE
License: MICROSTATION_ENT
Number workstations where used : 81
Average usage time period: 0h 42m
Top Users and Workstations:
#1 AllenR had 18 uses, total time 7h 43m
#2 SmithMB had 14 uses, total time 5h 17m
#3 GregW had 13 uses, total time 5h 12m
#4 TXavier had 11 uses, total time 4h 31m
#5 BTravis had 8 uses, total time 3h 03m
#1 TMA_95 had 26 uses, total time 10h 55m
#2 TMA_82 had 24 uses, total time 10h 44m
#3 WFA_14 had 18 uses, total time 9h 39m
#4 STT_33 had 18 uses, total time 8h 21m
#5 ADC_03 had 15 uses, total time 6h 30m
80
60
40
20
0
71
5
37
3
Maximum In-Use Calendar Hour
Count Offline Use
Count Blocked Access
Count Idle Termination
Done
Local intranet


SofTrack Weekly Detail per day of License Utilization Report for ABC Consulting Associates Inc. - Windows Internet Explorer pro
File Edit View Favorites Tools Help
Back Search Favorites
Address \\moxy64\7\Detail_week_of_Sep2214.html
Go Links
SofTrack Weekly Detail per day of License Utilization Report for ABC Consulting Associates Inc.
Produced from data acquired by server MOXY64
Report created on October 2, 2014 1:39pm
COMPANY NAME
PLACE FOR YOUR TAGLINE
Reporting Period: September 22, 2014 through September 26, 2014
License: MICROSTN 8
Number workstations where used : 2
Average usage time period: 0h 01m
Maximum In-Use Calendar Day per day
Mon Tue Wed Thur Fri
Count Offline Use
Count Blocked Access
Count Idle Termination
Done
Local intranet

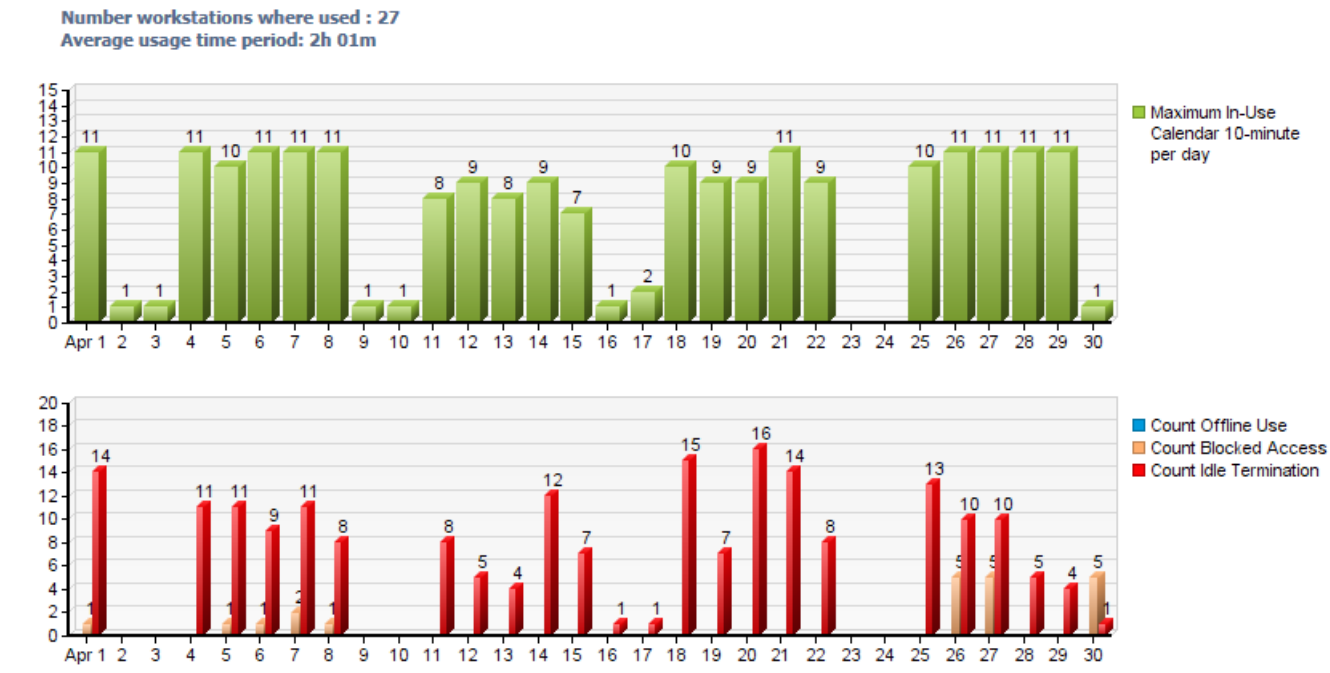
The following shows details of a report that includes ALL USERS and ALL COMPUTERS during the reporting period:



The following shows details for a Calendar Quarter. Notice the image above recognizes “Maximum In-Use Calendar Day per day” and the image below recognizes “Maximum In-Use Calendar Hour per day”.



The following shows details for a single month. Notice the image below recognizes "Maximum In-Use Calendar 10-minute day".



STUSER

IMPORTANT: STUSER can be pushed to your users via the MSI Method and choose the Advanced Installation option. For details, refer to Chapter 3.

Overview

SofTrack's STUSER utility is a tool available to you, the administrator and all your users. No special privileges are required to use `STUSER.EXE`.

STUSER provides a method to view the current users of selected License Profiles on selected servers. Because of this, STUSER will only render data when the SofTrack Server Agent (SSA) is active.

You may also consider the Automatic Active User Report that is generated as a web page once a minute by the SofTrack Server Agent. Any user with access to the folder you configure can use this report. Your users may find it easier to use.

You will find the `STUSER.EXE` and `STUSER.DLL` files in the product installation directory under the **TOOLS\STUSER.RAW** subdirectory. To install, simply copy these files to any destination directory you require.

On each workstation you run `STUSER.EXE` on, it will create the following registry key:

```
HKEY_CURRENT_USER\Software\SofTrackUser
```

Within this key it will maintain a list of all Windows servers that have been identified by the workstation. This registry key is maintained to accelerate the connection to the Windows servers for active user viewing. If the local user's security disallows creation or maintenance of this registry key, it will not be created and no error will be produced. The key is meant to provide a convenience when browsing Windows servers while using STUSER and is not required.

STUSER command line options include:

/server SERVERNAME

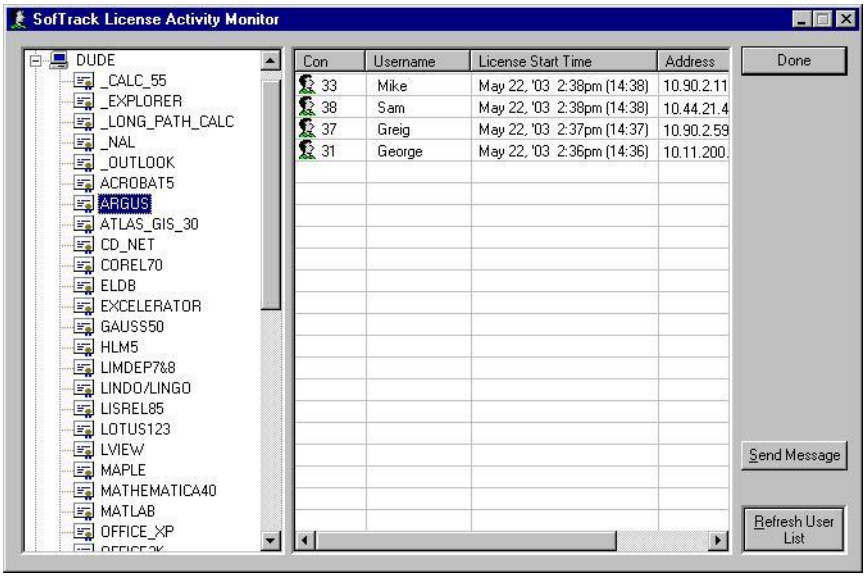
/systray

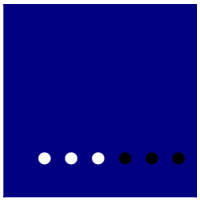
Sample run line:

STUSER /server FS1 /systray

This would cause STUSER to connect to the server named FS1 (the name of the server hosting the SofTrack Server Agent) and to run in the system tray (lower right corner of the desktop). To use, <right click> on the STUSER icon in the system tray and select "View Activity".

The following is a sample screen from STUSER:





Chapter 8 Inventory

Inventory: Overview

SofTrack's Quick Inventory and Smart Inventory features help you determine which applications and hardware are installed and in use within your enterprise. Collection of the inventory is performed by a simple and lightweight data gathering agent that can be run in your logon scripts, by the SofTrack Local Workstation Agent (see Chapter 3), directly from a USB drive (for disconnected machines) or by any automated means. The Smart Inventory feature includes ongoing auditing of application launches to further determine where applications are installed and are in use or are never used.

SofTrack's Managed Applications feature helps you interactively manage your software purchases, contracts, licenses, renewal dates and more.

The following sections detail the specifics of SofTrack's Quick Inventory, Smart Inventory and Managed Applications features.

Quick Inventory: Overview

The SofTrack Quick Inventory feature maintains, per workstation, data regarding the last collection only. There is no archive of history stored. The inventory data is stored in the **Computers** subdirectory, which is located in the directory you selected for the `METER.LOG` path. Within the **Computers** subdirectory you will find a listing of all the workstations, by name that have been inventoried. The files are in a binary format that is extracted by `SOFTRACK_CONSOLE.EXE` for reporting. The reports are found under the "Reports" tab using the Quick Inventory section.

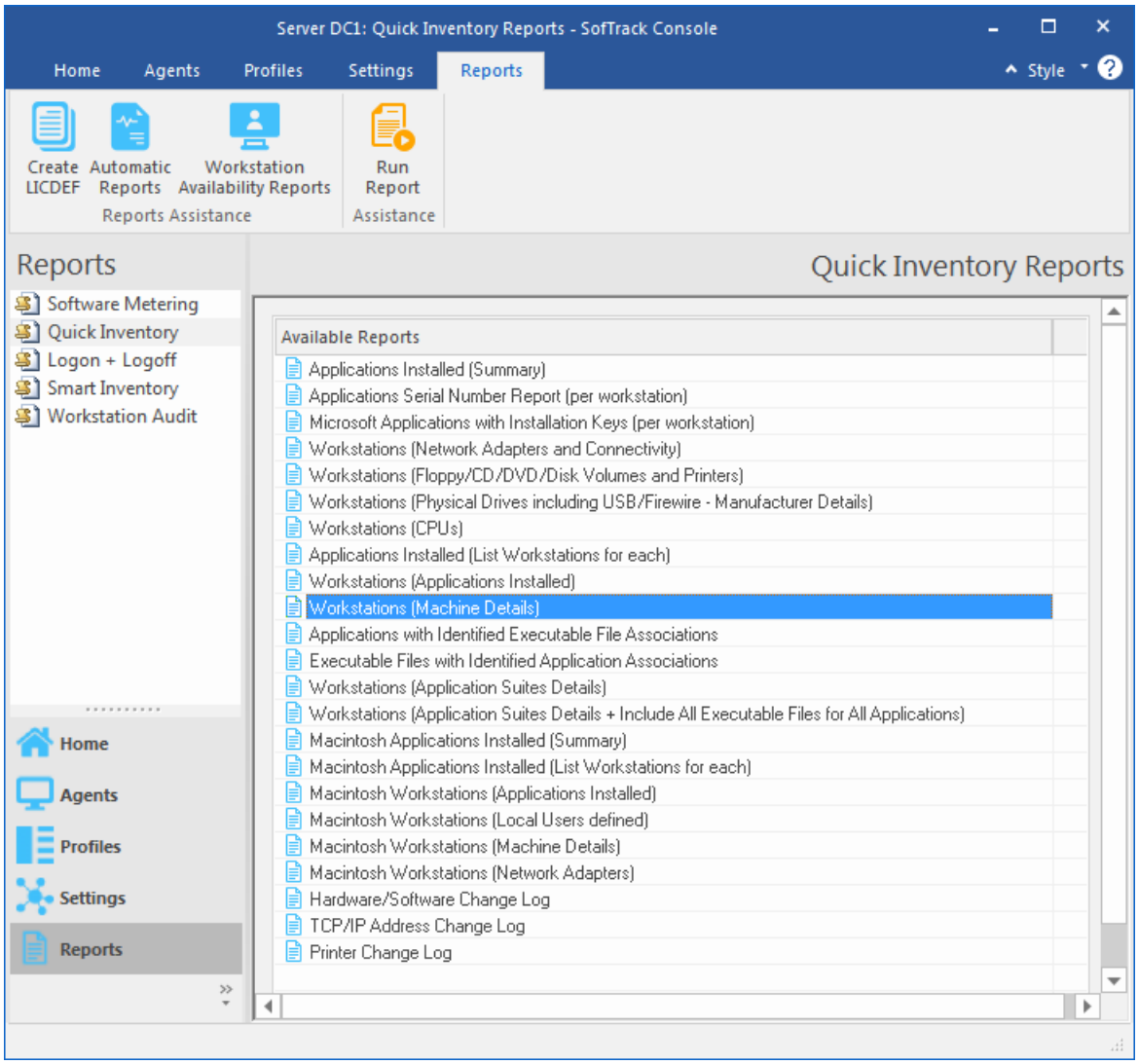


Figure 8-1

The Inventory data that is collected is gathered from the Add/Remove programs section of the workstation's registry. The hardware details are collected from other parts of the workstation's registry.

The inventory data gathered allows `SOFTRACK_CONSOLE.EXE` to produce *very useful* reports:

- Applications Installed Summary
- Applications Serial Number Report per workstation
- Microsoft Applications with Installation Keys per workstation
- Applications Installed, listing Workstations for each
- Applications with Identified Executable File Associations
- Executable Files with Identified Applications Associations
- Workstations, applications installed on each
- Workstations, installation details including RAM, RAM type, O/S version, service pack level, manufacturer, serial number, and more
- Workstation (Network Adapters and Connectivity)

- Workstation (Disk Drives and Printers)
- Workstation CPUs
- Managed Applications Configurable Database

Reports are first sent to a preview screen where you can then select to save them in printer-ready format with headers and page number footers, or in comma-separated values (`CSV`) format for easy importing to your favorite spreadsheet or SQL database for further review.

Installing the Quick Inventory Agent

IMPORTANT: Before you begin, note that the Quick Inventory Agent (QIA) installation method detailed here installs *only* the Quick Inventory Agent. If you have installed the Local Workstation Agent (LWA) using its default options, you will *not* need to also install the Quick Inventory Agent as it will already be present on your workstation. The steps below apply *only* to those who prefer to install the QIA *without* the LWA. Note that if you install *only* the QIA, you will *not* be able to take advantage of LWA functions, such as Smart Inventory, Local Application Metering, Idle Detection, and Timekeeping. If you want to install these features, refer to the LWA installation detailed in Chapter 3.

MSI Method

1. From the **Install.QIA.only** folder of the product installation, copy the QIASETUP.MSI to the workstation and double-click to launch it.
2. Click **Next** in the Welcome dialog.
3. Select **Typical Installation** in the Installation Method dialog and then click **Next**.
4. In the Server Name dialog, type the name of the server hosting the SSA. Then, click **Next**.
5. Click **Install** in the Ready to Install dialog and wait for the installation to complete.
6. Reboot the workstation.

MSI Method – Options : Installation Method Dialog

In the **Installation Method** dialog, you can select a **Typical Installation** or an **Advanced Installation**.

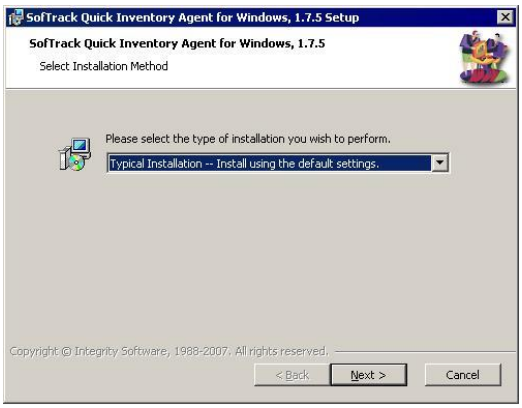


Figure 8-2

- **Typical Installation –** Selecting this option will perform an installation of the QIA using default settings. This option provides the fastest method for installing the QIA.
- **Advanced Installation –** Selecting this option will allow you to modify default settings prior to installation.

MSI Method – Options : Server Name Dialog

The **Server Name** dialog allows you to enter the name of the server hosting the SofTrack Server Agent (SSA).

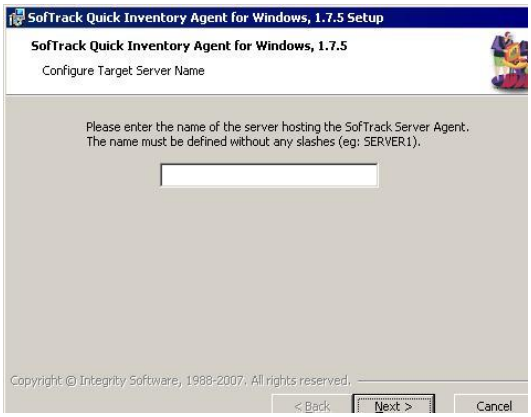


Figure 8-3

MSI Advanced Install: Configure Inventory Interval Dialog

If you selected the **Advanced Installation** option in the **Installation Method** dialog, the **Configure Inventory Interval** dialog will appear after you click **Next** in the **Server Name** dialog. This dialog allows to you to modify default installation settings.

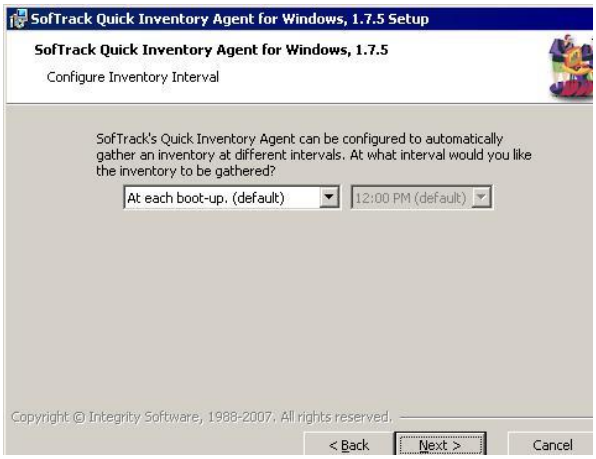


Figure 8-4

Manual Method

In the product installation directory under the **TOOLS\QIA.raw** directory, you will find `INVENTRY.EXE`, `_SMBIOS_.EXE`, and `STNW32.DLL`. The `STNW32.DLL` file can be safely ignored for Windows server installations, as it is exclusively used for connecting to NetWare servers. The `_SMBIOS_.EXE` file can be safely ignored for Windows Vista and later installations (i.e. Windows 7, Windows 8, Windows 10 and later).

Steps to *directly* perform the Quick Inventory Data Collection:

1. The SofTrack Server Agent (SSA) must be active at the server that will host the inventory records. The records will be stored in individual files named after the submitting workstation within the **Computers** subdirectory located in the directory selected for the `METER.LOG` path.

2. Run **INVENTRY SERVER_NAME** at each workstation you want to inventory. The SERVER_NAME is the same name that is used when mapping a share path via the NET USE command. It is ***not*** an Internet name, such as server.acme or www.servername.org, which your server may also be *known* as. You can also use the IPv4 address of the server such as INVENTRY 10.10.5.32

3. (Optional) Append a blank space and then an * after the SERVER_NAME (INVENTRY SERVER_NAME *) to receive a verbose listing of the inventory data that will be sent to the server. This output can be redirected to a text file:

   ```
   INVENTRY SERVER_NAME * >output.txt
   ```

   Step 3 is ***not required*** for to produce Quick Inventory Reports.

Steps to perform the Quick Inventory Data Collection automatically via the SofTrack LWA:

1. The SSA must be active at the server that will host the inventory records. The records will be stored in individual files named after the submitting workstation within the **Computers**

subdirectory located in the directory selected for the `METER.LOG` path.

2. Copy both `INVENTRY.EXE` and `_SMBIOS_.EXE (for Windows XP and earlier)` to the *same directory* where `STLWA_NT.EXE` is located. When the SofTrack LWA initially loads, it will *automatically run* **INVENTRY SERVER_NAME**, where SERVER_NAME is the same server the LWA has been configured to report to.

IMPORTANT: If `INVENTRY.EXE` and `_SMBIOS_.EXE` are not located in the same directory as `STLWA_NT.EXE` the inventory will not be run, even if if the files are on a search path.

Push Console

Please refer to Chapter 3 for instructions regarding use of the Push Console as a means to distribute the Quick Inventory Agent.

Quick Inventory: Reports

SofTrack's Quick Inventory Report generation does not require the SSA to be active. Each Report described below is accessed by opening `SOFTRACK_CONSOLE.EXE` and clicking on Quick Inventory section in the "Reports" tab. Each report can be saved in printer-ready format or in comma-delimited format. And, for reports that feature columns of data, each column can be used to sort the report. To sort, simply click on the column header. Further, for those quick inventory reports including columns, each column includes a search filter so you can easily filter results as required.

The following sections provide more details about several of the Quick Inventory reports that can be generated using SofTrack.

Note: The following sections do not review each possible Quick Inventory report.

Applications: Summary

The following is collected:

- Application Name
- Version
- Publisher
- Number of Workstations where found

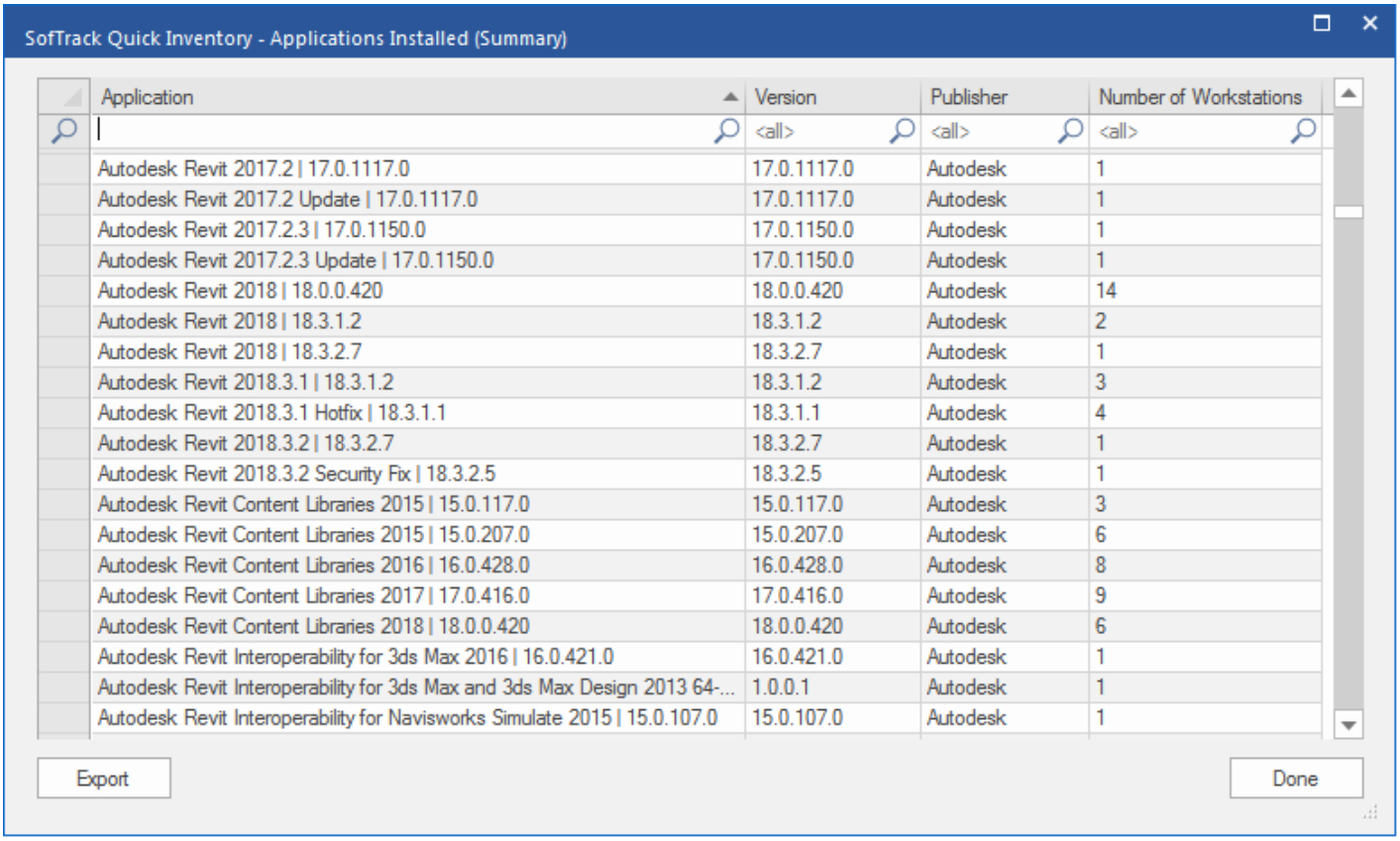


Figure 8-5

Applications: Workstations

The following is collected:

- Application Name
- List of Workstations where installed

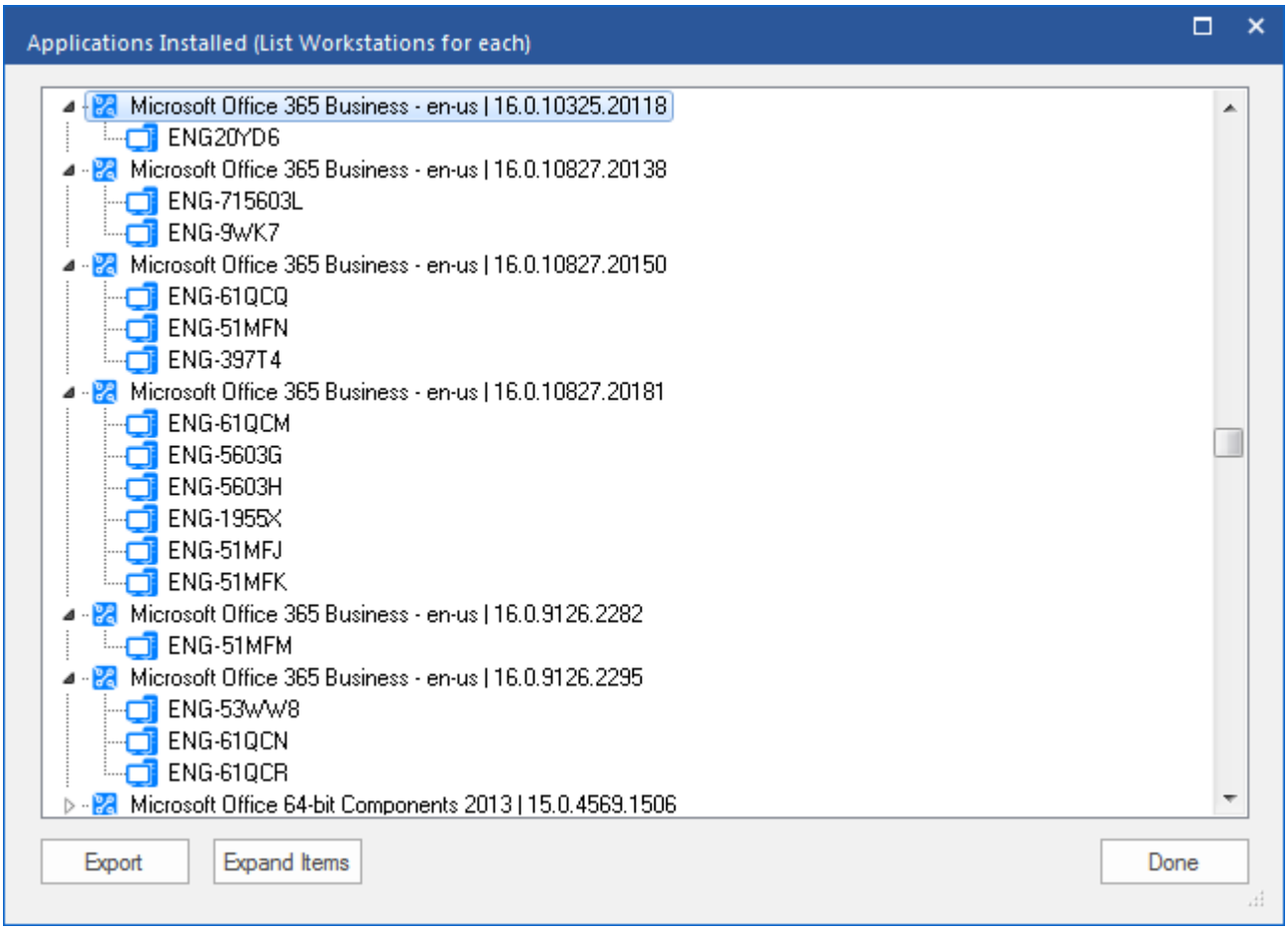


Figure 8-6

Applications: Executable Files

The following is collected:

- Application Name
- List of executable files found via our patent-pending processes to be associated with use of the identified application

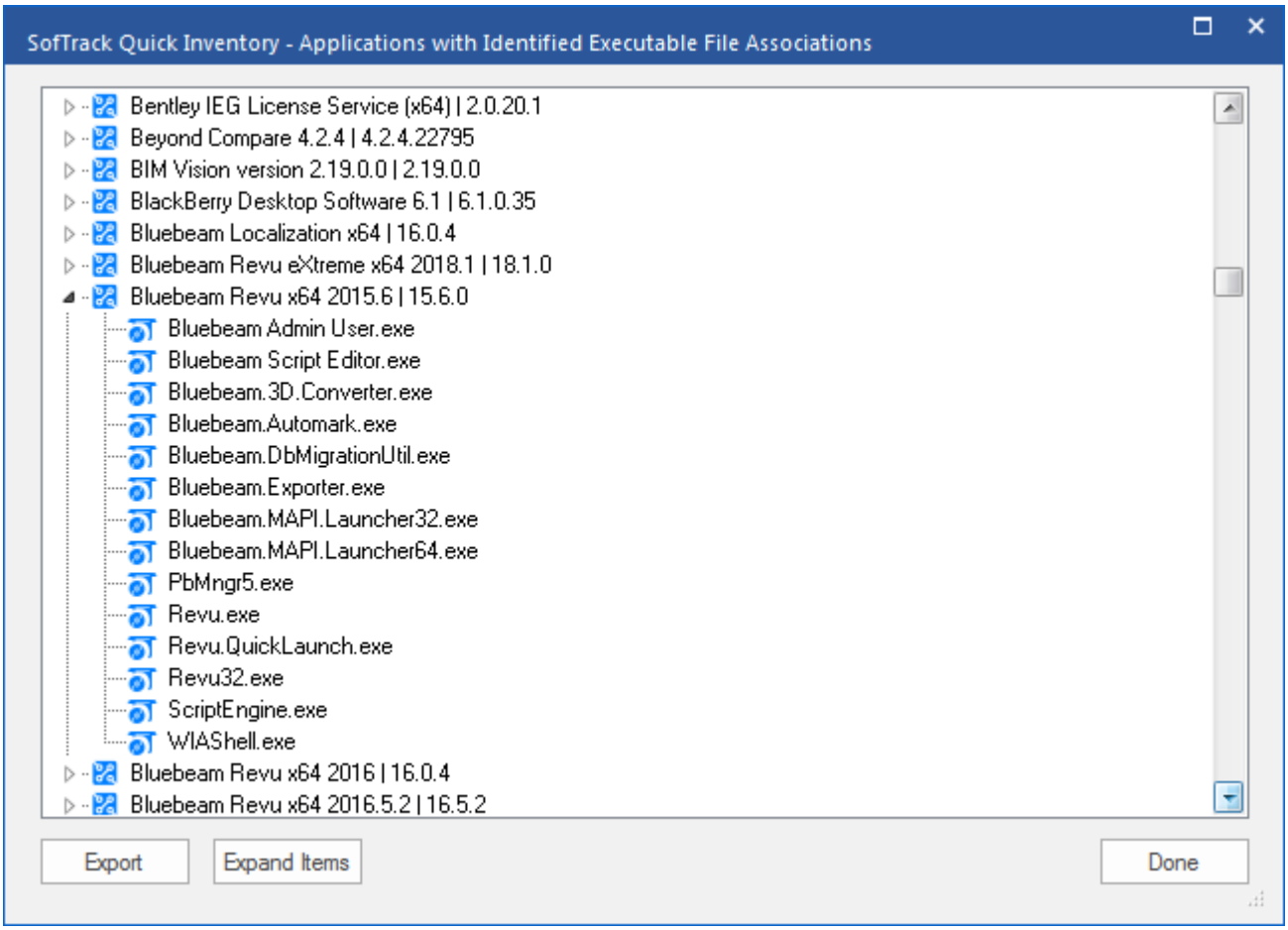


Figure 8-7

Executable Files: Applications

The following is collected:

- Executable filename
- List of applications found via our patent-pending processes to be associated with the identified executable file

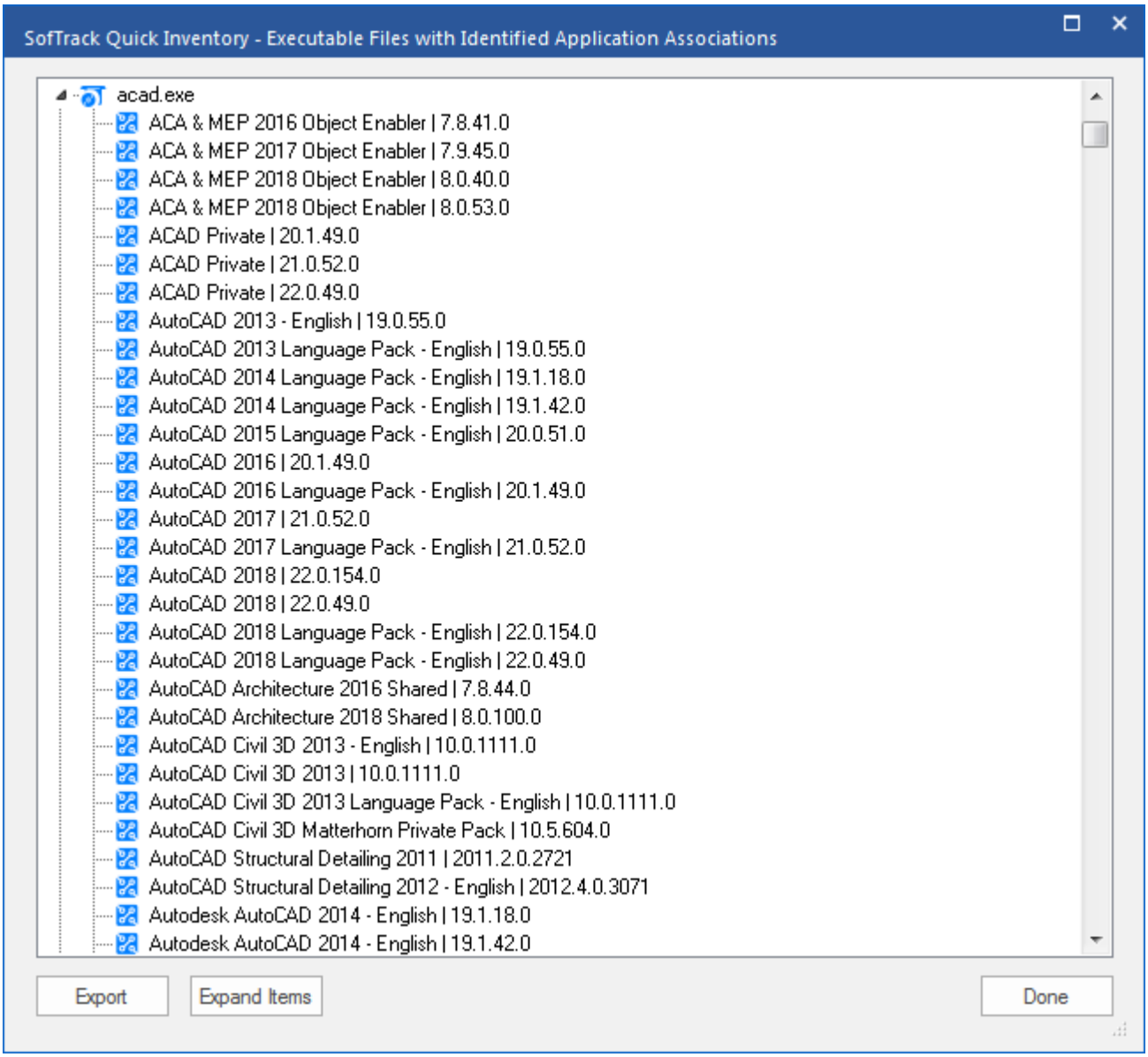


Figure 8-8

Workstations: Applications

The following is collected:

- Workstation Name
- List of Applications installed on selected workstation

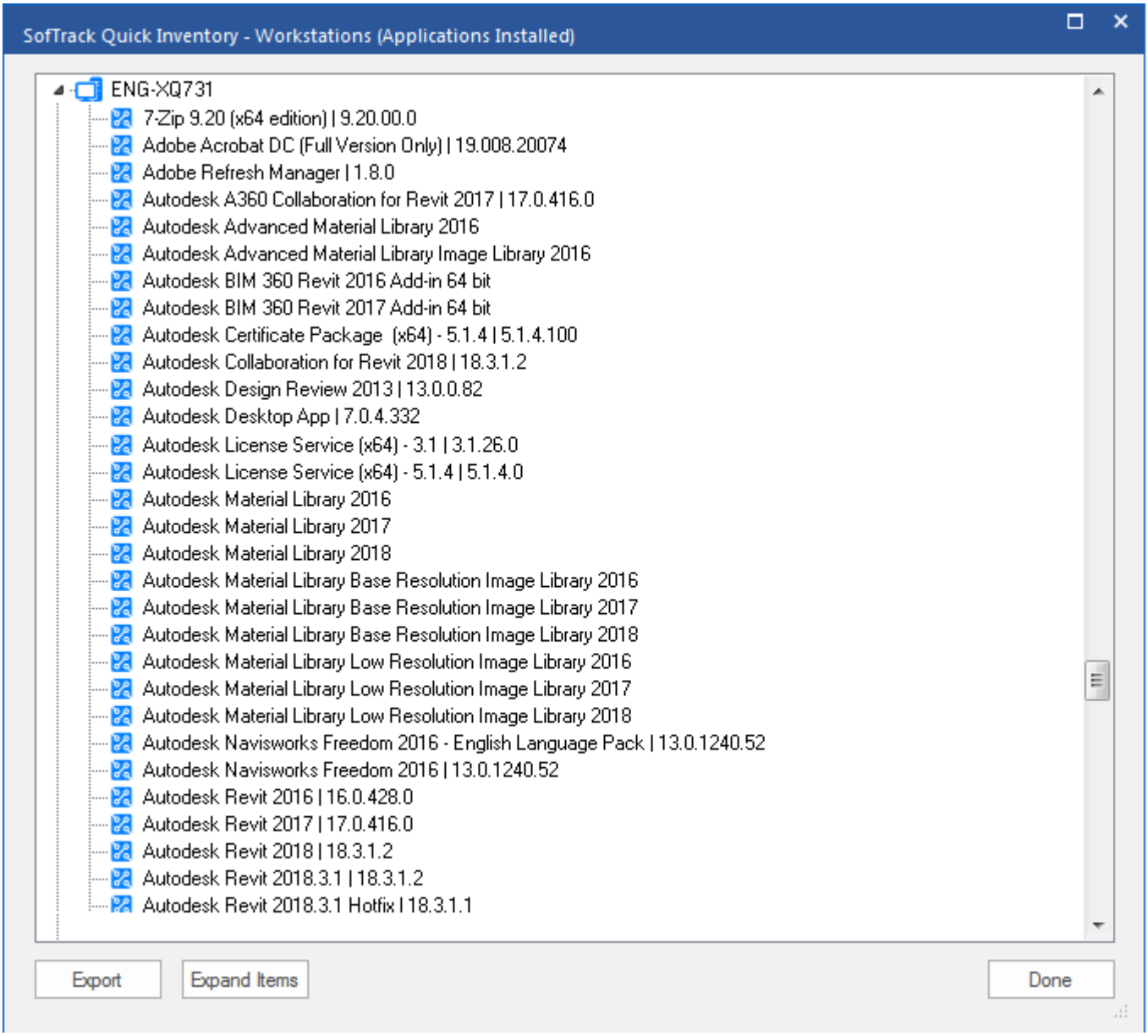
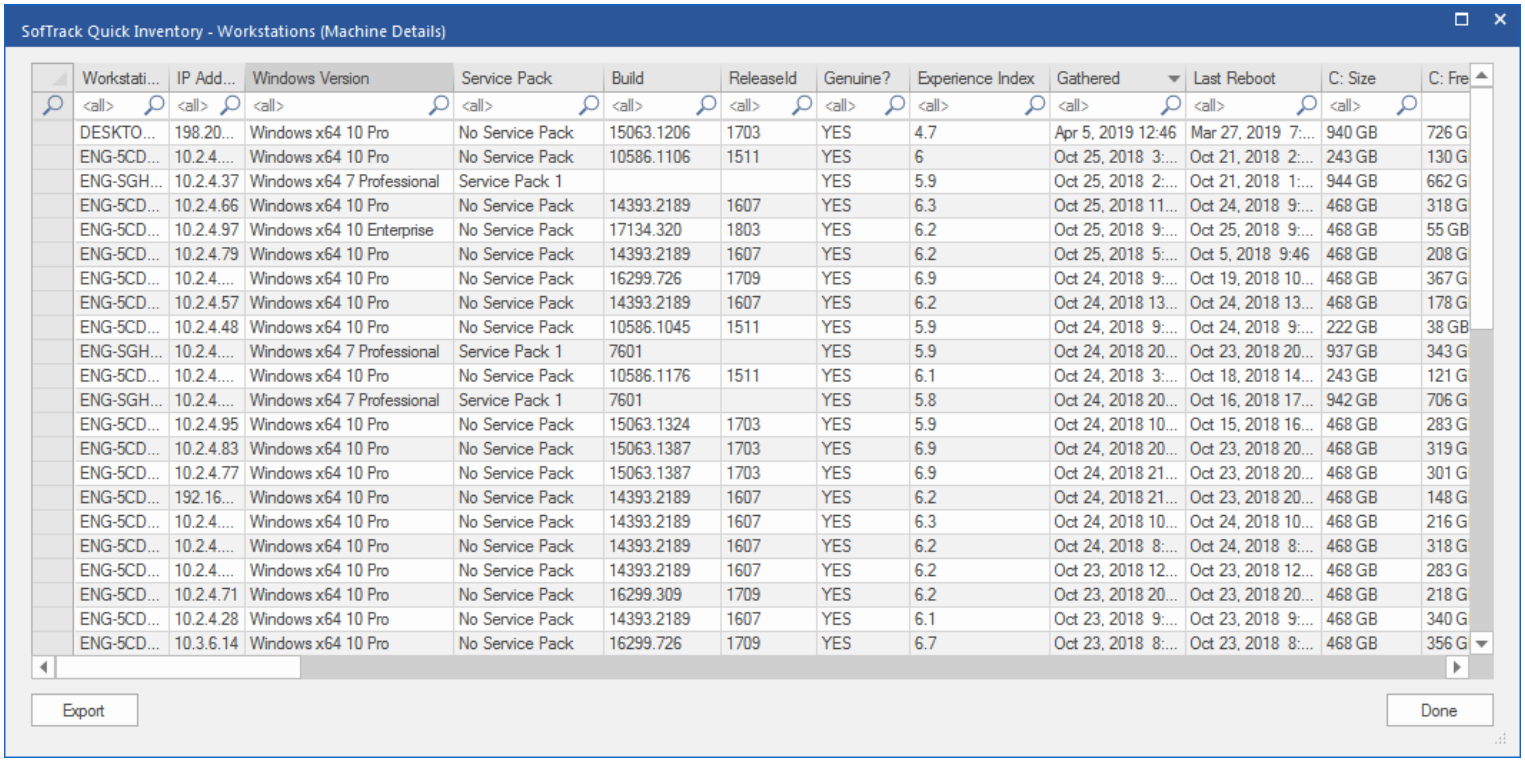


Figure 8-9

Workstations: Installation Details

The following is collected:

- Workstation Name
- TCP/IP Address
- Workstation Description (Free-form Windows field)
- Windows Version
- Service Pack Level
- Windows Installation Key
- Build
- ReleaseID
- Genuine
- Experience Index
- Last Reboot
- Time Zone
- C: Drive Size
- C: Drive Free Space
- Physical RAM installed
- Type of RAM installed in Bank 1 (each RAM bank will include part number and serial number if provided by BIOS)
- Type of RAM installed in Bank 2
- Type of RAM installed in Bank 3
- Type of RAM installed in Bank 4
- Type of RAM installed in Bank 5
- Type of RAM installed in Bank 6
- Machine Type (from Registry)
- BIOS Date (from Registry)
- Manufacturer
- Model Name
- Serial Number (assigned by Manufacturer)
- Internet Explorer version
- CPU 0 Vendor
- CPU 0 Type
- CPU 0 Speed in MHz
- CPU 1 Vendor
- CPU 1 Type
- CPU 1 Speed in MHz
- Network Adapters Installed (first 3)
- Primary Video Adapter Model, Version & Driver
- Resolution of Monitors 1-4



Workstati...	IP Add...	Windows Version	Service Pack	Build	ReleaseId	Genuine?	Experience Index	Gathered	Last Reboot	C: Size	C: Fre
DESKTO...	198.20...	Windows x64 10 Pro	No Service Pack	15063.1206	1703	YES	4.7	Apr 5, 2019 12:46	Mar 27, 2019 7:...	940 GB	726 G
ENG-5CD...	10.2.4....	Windows x64 10 Pro	No Service Pack	10586.1106	1511	YES	6	Oct 25, 2018 3:...	Oct 21, 2018 2:...	243 GB	130 G
ENG-SGH...	10.2.4.37	Windows x64 7 Professional	Service Pack 1			YES	5.9	Oct 25, 2018 2:...	Oct 21, 2018 1:...	944 GB	662 G
ENG-5CD...	10.2.4.66	Windows x64 10 Pro	No Service Pack	14393.2189	1607	YES	6.3	Oct 25, 2018 11...	Oct 24, 2018 9:...	468 GB	318 G
ENG-5CD...	10.2.4.97	Windows x64 10 Enterprise	No Service Pack	17134.320	1803	YES	6.2	Oct 25, 2018 9:...	Oct 25, 2018 9:...	468 GB	55 GB
ENG-5CD...	10.2.4.79	Windows x64 10 Pro	No Service Pack	14393.2189	1607	YES	6.2	Oct 25, 2018 5:...	Oct 5, 2018 9:46	468 GB	208 G
ENG-5CD...	10.2.4....	Windows x64 10 Pro	No Service Pack	16299.726	1709	YES	6.9	Oct 24, 2018 9:...	Oct 19, 2018 10...	468 GB	367 G
ENG-5CD...	10.2.4.57	Windows x64 10 Pro	No Service Pack	14393.2189	1607	YES	6.2	Oct 24, 2018 13...	Oct 24, 2018 13...	468 GB	178 G
ENG-5CD...	10.2.4.48	Windows x64 10 Pro	No Service Pack	10586.1045	1511	YES	5.9	Oct 24, 2018 9:...	Oct 24, 2018 9:...	222 GB	38 GB
ENG-SGH...	10.2.4....	Windows x64 7 Professional	Service Pack 1	7601		YES	5.9	Oct 24, 2018 20...	Oct 23, 2018 20...	937 GB	343 G
ENG-5CD...	10.2.4....	Windows x64 10 Pro	No Service Pack	10586.1176	1511	YES	6.1	Oct 24, 2018 3:...	Oct 18, 2018 14...	243 GB	121 G
ENG-SGH...	10.2.4....	Windows x64 7 Professional	Service Pack 1	7601		YES	5.8	Oct 24, 2018 20...	Oct 16, 2018 17...	942 GB	706 G
ENG-5CD...	10.2.4.95	Windows x64 10 Pro	No Service Pack	15063.1324	1703	YES	5.9	Oct 24, 2018 10...	Oct 15, 2018 16...	468 GB	283 G
ENG-5CD...	10.2.4.83	Windows x64 10 Pro	No Service Pack	15063.1387	1703	YES	6.9	Oct 24, 2018 20...	Oct 23, 2018 20...	468 GB	319 G
ENG-5CD...	10.2.4.77	Windows x64 10 Pro	No Service Pack	15063.1387	1703	YES	6.9	Oct 24, 2018 21...	Oct 23, 2018 20...	468 GB	301 G
ENG-5CD...	192.16...	Windows x64 10 Pro	No Service Pack	14393.2189	1607	YES	6.2	Oct 24, 2018 21...	Oct 23, 2018 20...	468 GB	148 G
ENG-5CD...	10.2.4....	Windows x64 10 Pro	No Service Pack	14393.2189	1607	YES	6.3	Oct 24, 2018 10...	Oct 24, 2018 10...	468 GB	216 G
ENG-5CD...	10.2.4....	Windows x64 10 Pro	No Service Pack	14393.2189	1607	YES	6.2	Oct 24, 2018 8:...	Oct 24, 2018 8:...	468 GB	318 G
ENG-5CD...	10.2.4....	Windows x64 10 Pro	No Service Pack	14393.2189	1607	YES	6.2	Oct 23, 2018 12...	Oct 23, 2018 12...	468 GB	283 G
ENG-5CD...	10.2.4.71	Windows x64 10 Pro	No Service Pack	16299.309	1709	YES	6.2	Oct 23, 2018 20...	Oct 23, 2018 20...	468 GB	218 G
ENG-5CD...	10.2.4.28	Windows x64 10 Pro	No Service Pack	14393.2189	1607	YES	6.1	Oct 23, 2018 9:...	Oct 23, 2018 9:...	468 GB	340 G
ENG-5CD...	10.3.6.14	Windows x64 10 Pro	No Service Pack	16299.726	1709	YES	6.7	Oct 23, 2018 8:...	Oct 23, 2018 8:...	468 GB	356 G

Figure 8-10

Workstations: Windows Update Components

This report collects, per worsktation, data regarding Windows Update Components and the status of each

The following is collected:

SofTrack Quick Inventory - Workstations - Windows Update Components

Workstation	Date	KB	Operation	Status	Description
<all>	<all>	<all>	<all>	<all>	<all>
DESKTOP-F2F414S	2017-09-20 19:40	KB4022405	Installation	Succeeded	2017-06 Update for Windows 10 Version 1703 for x64-based Systems (KB4022405)
DESKTOP-UAB4GC7	2023-09-05 21:34	KB4023057	Installation	In Progress	2023-08 Update for Windows 10 Version 22H2 for x64-based Systems (KB4023057)
DESKTOP-F2F414S	2017-10-10 18:56	KB4041676	Installation	Succeeded	2017-10 Cumulative Update for Windows 10 Version 1703 for x64-based Systems (KB4041676)
DESKTOP-F2F414S	2018-05-09 02:59	KB4093432	Installation	Succeeded	2018-04 Update for Windows 10 Version 1703 for x64-based Systems (KB4093432)
DESKTOP-F2F414S	2018-05-09 13:35	KB4103731	Installation	Failed	2018-05 Cumulative Update for Windows 10 Version 1703 for x64-based Systems (KB4103731)

Workstations: Microsoft Cloud Joined

This report collects, per workstation, whether or not the workstation has been joined to Microsoft Cloud (i.e. Azure/EntraID) as indicated by TenantID. Note, it is possible for a single workstation to be joined to multiple TenantIDs. And, the Workstation Name and Device Name are typically the same value. The UserEmail is the user account used to join the workstation to Microsoft Cloud.

The following is collected:

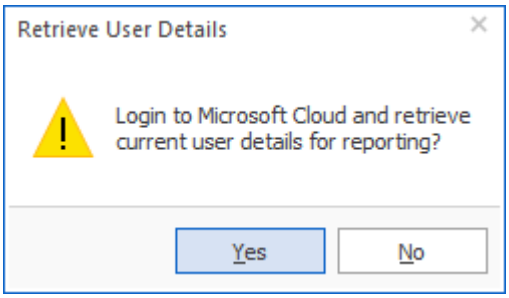
SofTrack Quick Inventory - Workstations - Microsoft Cloud Joined

Workstation	TenantID	Device	UserEmail
<all>	<all>	<all>	<all>
DESKTOP-UAB4GC7	65977bcb-f9f3-4206-a3bf-c...	DESKTOP-UAB4GC7	jtx@stevegarmsdemovisualclick.onmicrosoft.com

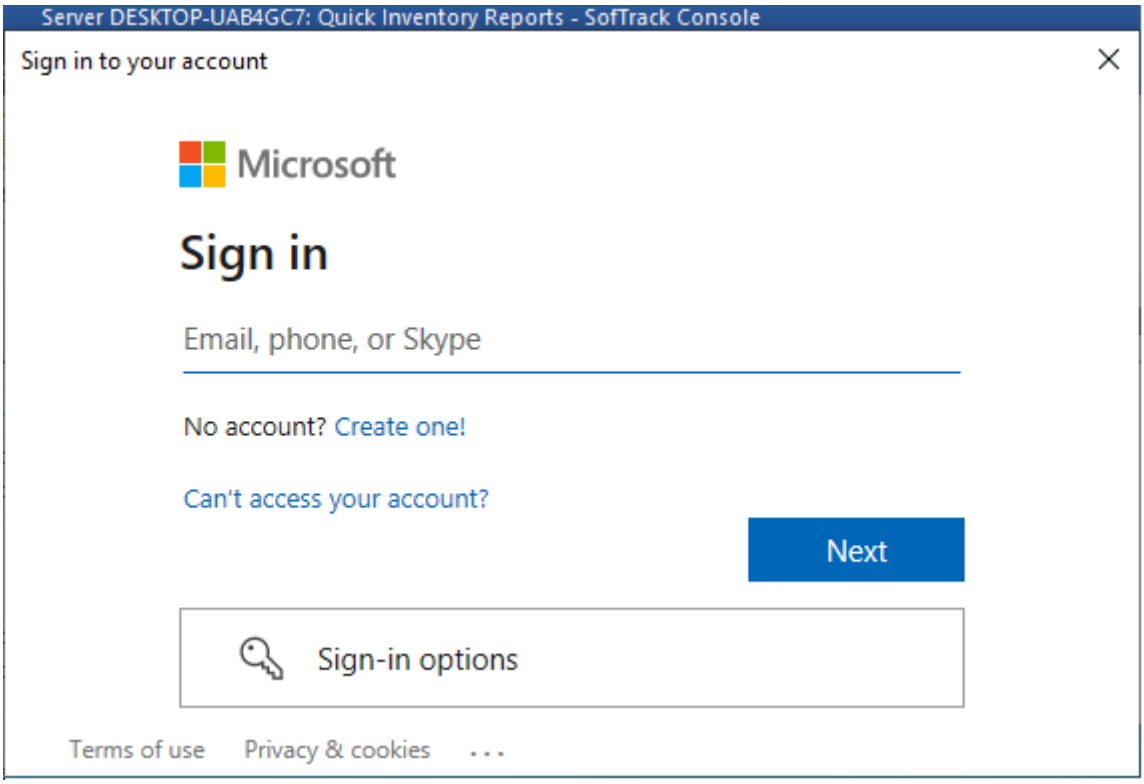
Workstations: Microsoft Cloud Joined + User Details

This report is based on the Microsoft Cloud Joined report, however, it will also collect user details for each worsktation licenses using the UserEmail as reference to the UserPrincipalName value stored on each Azure/EntraID user object.

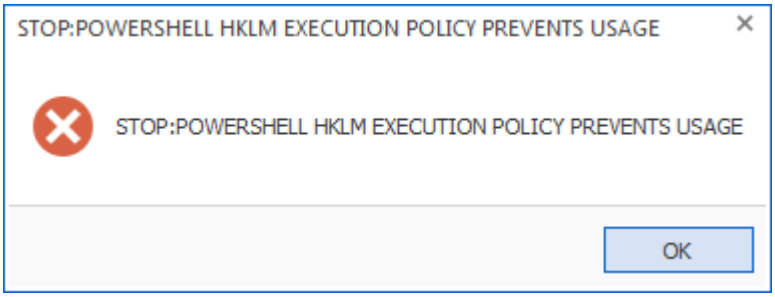
When selected, this report will show a prompt:

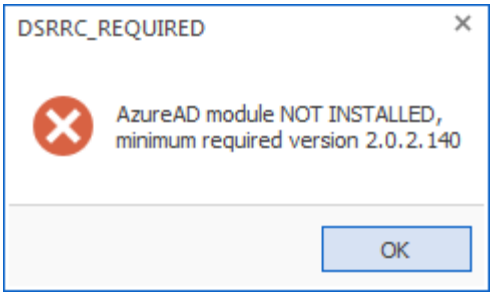


Click Yes and a prompt similar to the following should appear:



If PowerShell execution policy or the AzureAD module is not installed (or is too old) the following will appear instead:

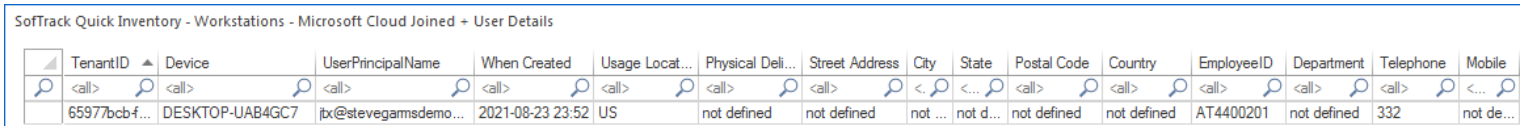




Remediation for both the above errors are detailed in the following sections.

If gathering of user details is successful the report will be shown including details:

The following is collected:



The *When Created* column represents when the user account was created.

If there are multiple Microsoft Cloud Tenants, logon to each (separately) and the details of each will be stored in the STLOG path with a unique file named for each Tenant. Filename format:

```
CLOUD_TENANT_65977bcb-{tenantID}.CSV
```

When running the report, all the Tenant files gathered will be used to reconcile the data using the UserEmail of the workstation that was Cloud Joined to the UserPrincipalName of the user account.

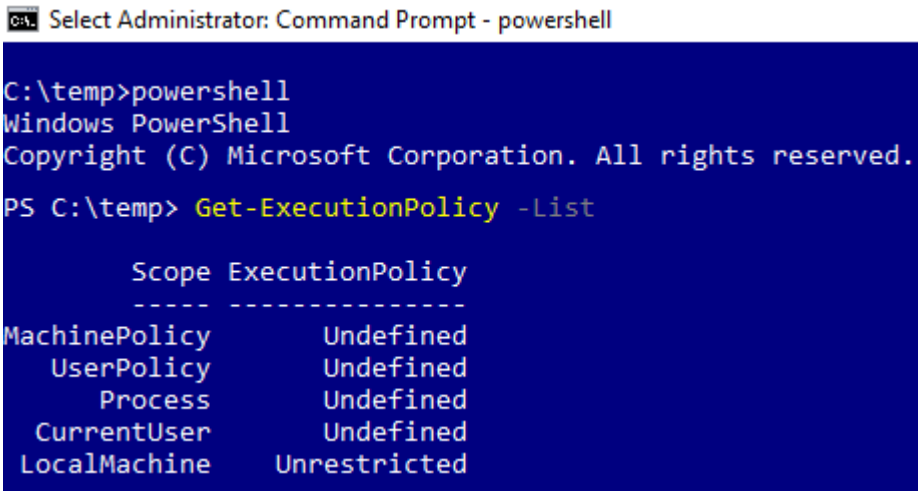
Unless user details of changed, you do not need to run the PowerShell query each time you run the report.

Workstations Cloud Report: Setting PowerShell Execution Policy

To ensure the Workstation Microsoft Cloud Joined + User Details Report can gather user details, it is important to set the PowerShell Execution Policy to RemoteSigned or Unrestricted or Bypass. The default PowerShell Execution Policy on Windows® servers is RemoteSigned.

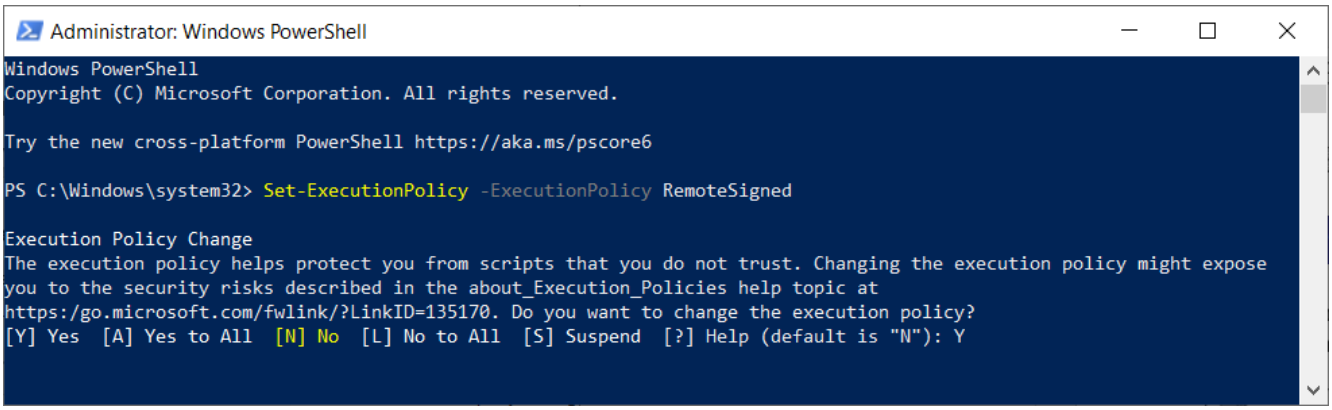
To verify and change the Policy, open a PowerShell session As Administrator on the workstation where SofTrack Console will be utilized and enter the command:

```
Get-ExecutionPolicy –List
```



To SET the policy for any user on the workstation use the PowerShell command:

```
Set-ExecutionPolicy –ExecutionPolicy RemoteSigned
```



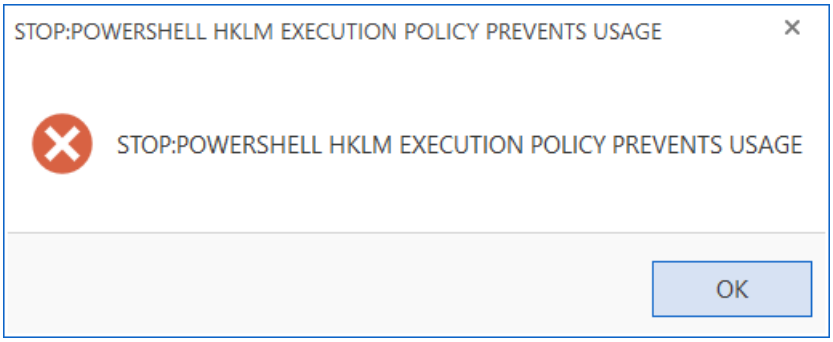
And to ensure a local user policy is not conflicting use the PowerShell command:

```
Set-ExecutionPolicy –ExecutionPolicy Undefined –Scope CurrentUser
```

To SET the policy for the current user on the workstation use the PowerShell command:

```
Set-ExecutionPolicy –ExecutionPolicy RemoteSigned –Scope CurrentUser
```

If the PowerShell Excecution Policy is not configured as indicated the following message will appear when attempting to gather user details:

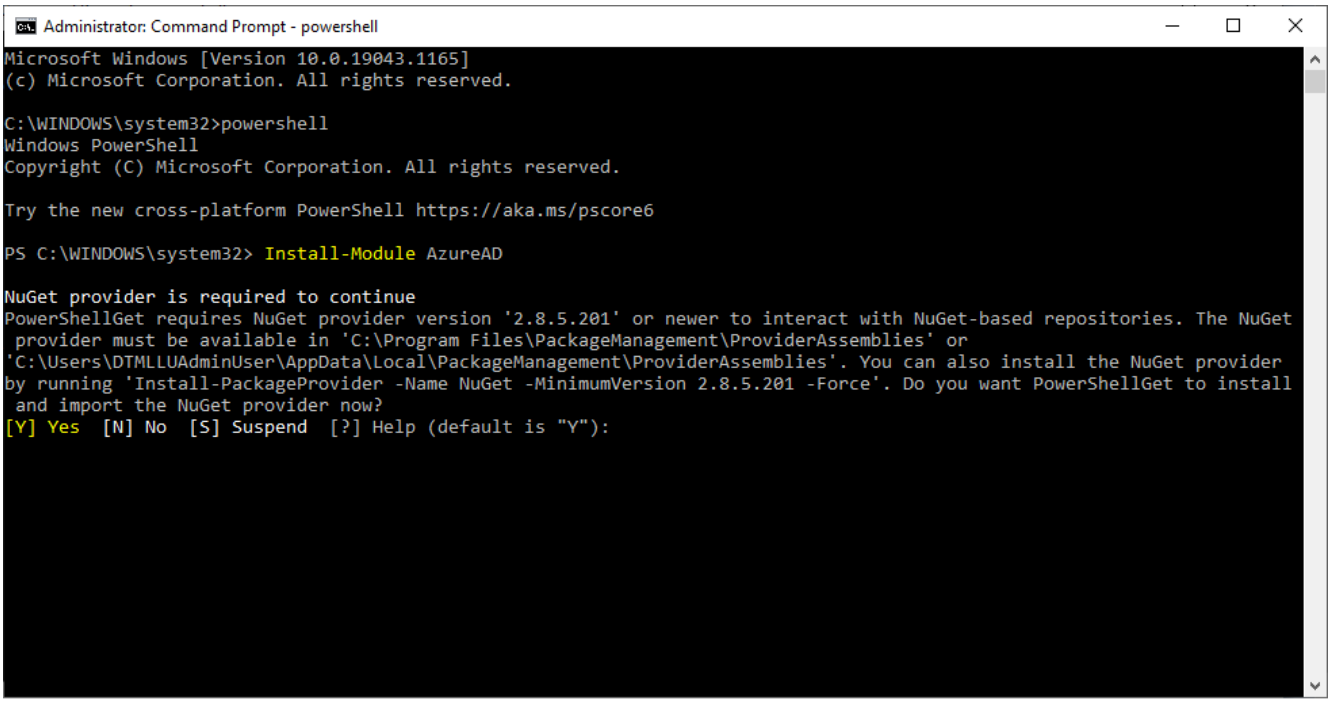


Workstations Cloud Report: Installation of PowerShell Module: AzureAd

To begin, open a PowerShell session As Administrator on the workstation where SofTrack Console will be utilized and enter the command At the PowerShell prompt enter the command

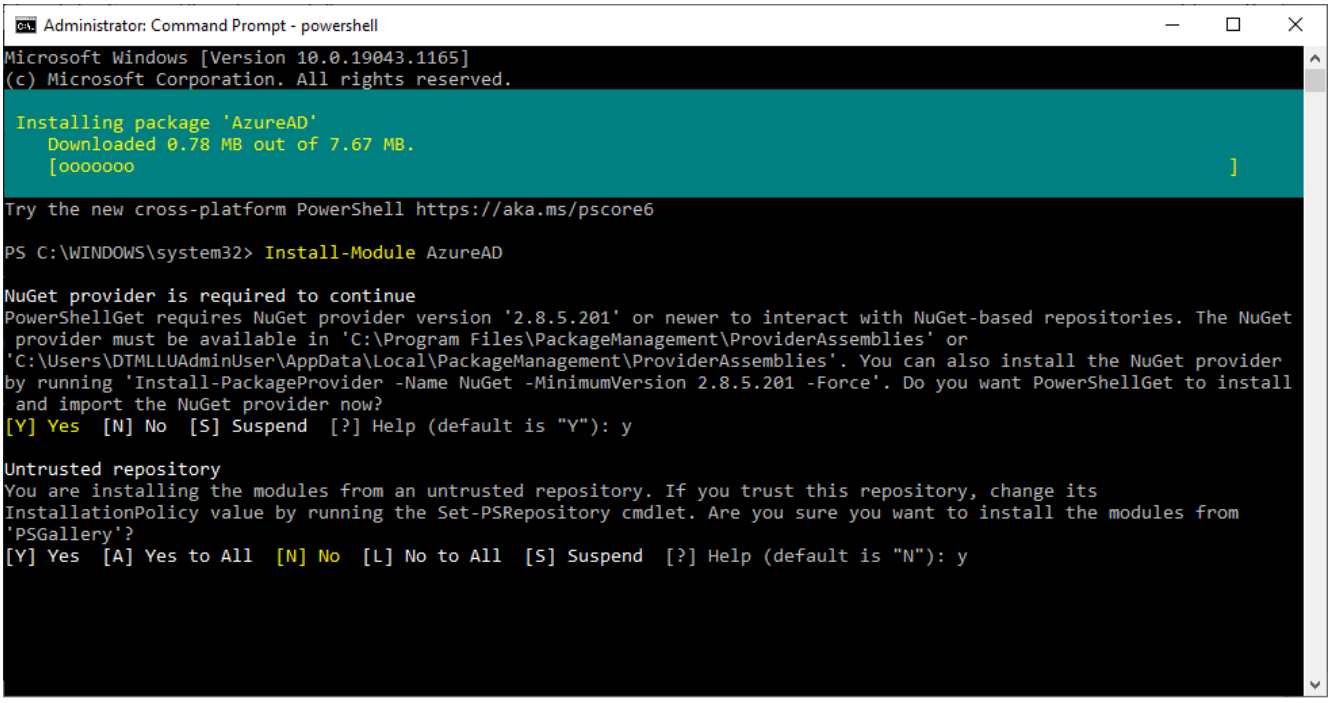
```
Install-Module AzureAD
```

Sample:



If any prompts regarding “Do you want to install…”, answer Yes:

The installation continues:

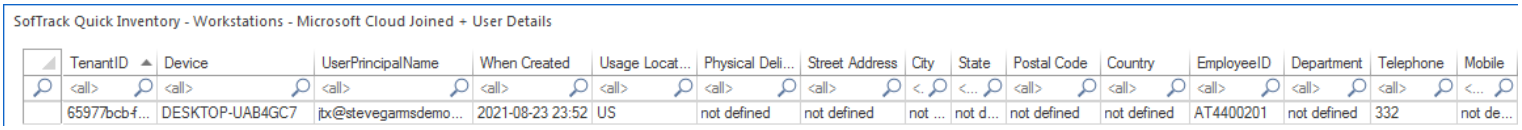


If any prompts concerning “Untrusted repository” occur, answer Yes to continue. It is noted that Microsoft® defaults its repositories to untrusted, with additional effort not documented here, that can

be changed. But, for purposes of setting up PowerShell for use by the SofTrack Console it is not required.

If a previous version of the AzureAD module is installed you may need to add the following to successfully complete the installation:

```
Install-Module AzureAD -Force -AllowClobber
```


SofTrack Quick Inventory - Workstations - Microsoft Cloud Joined + User Details

TenantID	Device	UserPrincipalName	When Created	Usage Locat...	Physical Deli...	Street Address	City	State	Postal Code	Country	EmployeeID	Department	Telephone	Mobile
<all>	<all>	<all>	<all>	<all>	<all>	<all>	<...	<...	<all>	<all>	<all>	<all>	<all>	<...
65977bcb-f...	DESKTOP-UAB4GC7	jtx@stevegarmsdemo...	2021-08-23 23:52	US	not defined	not defined	not ...	not d...	not defined	not defined	AT4400201	not defined	332	not de...

Smart Inventory: Overview

SofTrack's Smart Inventory feature helps you determine how software is used in your enterprise. Smart Inventory is the result of combining the data gathered by Quick Inventory with auditing of actual software use via the SofTrack Local Workstation Agent (LWA) (see Chapter 3).

Use of the SofTrack LWA automatically tracks every application launch. If the Quick Inventory data has been gathered, the SofTrack Server Agent (SSA) will automatically begin to track each distinct application launched as reported by the LWA. The SSA, per workstation, will record the number of times each application, by its filename, has been used and the most recent use.

The combined Quick Inventory and Use data results in the following three Smart Inventory reports:

- Application Usage Summary—Number of workstations where installed and whether or not used
- NOT USED List—Workstations where Applications are installed but not used
- Workstation Usage Summary—Applications installed, how many times used, and most recent use

These powerful reports provide reporting of overall application usage that detail where applications are installed and where they are used, allowing you to determine where you can safely uninstall unused applications.

The reports are first displayed in a preview screen where you can then select to save them in printer-ready format with headers and page number footers, or in comma-separated values (CSV) format for easy importing to your favorite spreadsheet or database for further review.

Smart Inventory: How

SofTrack's Smart Inventory is the result of installing and using the Quick Inventory module and the SofTrack Local Workstation Agent (see Chapter 3)—there are no other configuration requirements.

The Quick Inventory module, per workstation, gathers the filenames identified for each

installed application, while the LWA captures each application use. At the core of this process is the SofTrack Server Agent (SSA), which automatically detects that a specific workstation's Quick Inventory has been gathered and will then automatically begin recording each application launched on that workstation as reported by the LWA. This process involves the creation of `.WRK` and `.APP` files in the **Computers** subdirectory located in the directory select for the `METER.LOG` path. For each workstation a `.WRK` file will be used as a "scratch" file to quickly record the launched applications as reported by the LWA. Once every 15 minutes a background process awakens and converts the entries within the `.WRK` files into permanent entries within the `.APP` file. The file format of both files is private and subject to change. At the present time, the `.APP` file contains a single entry for each filename launched. The `.APP` file is a "mini database" that is critical to the creation of the Smart Inventory reports.

Smart Inventory: Reports

SofTrack's Smart Inventory report generation does not require the SSA to be active. Each report described below is accessed by opening `SOFTRACK_CONSOLE.EXE` and selecting the server and then clicking the "Reports" tab and then the Smart Inventory section. Each report can be saved in a printer-ready format or in comma-delimited format. And for reports that feature columns of data, each column can be used to sort the report. To sort, simply click on the column header.

The following Smart Inventory reports are available.

Applications Usage Summary

Number of workstations where installed and whether or not used. The following is collected:

- Application Name
- Version
- Publisher
- Number of Workstations where the application is installed
- Number of Workstations where the application has been used
  Indicates where application has been used since tracking of application use began.

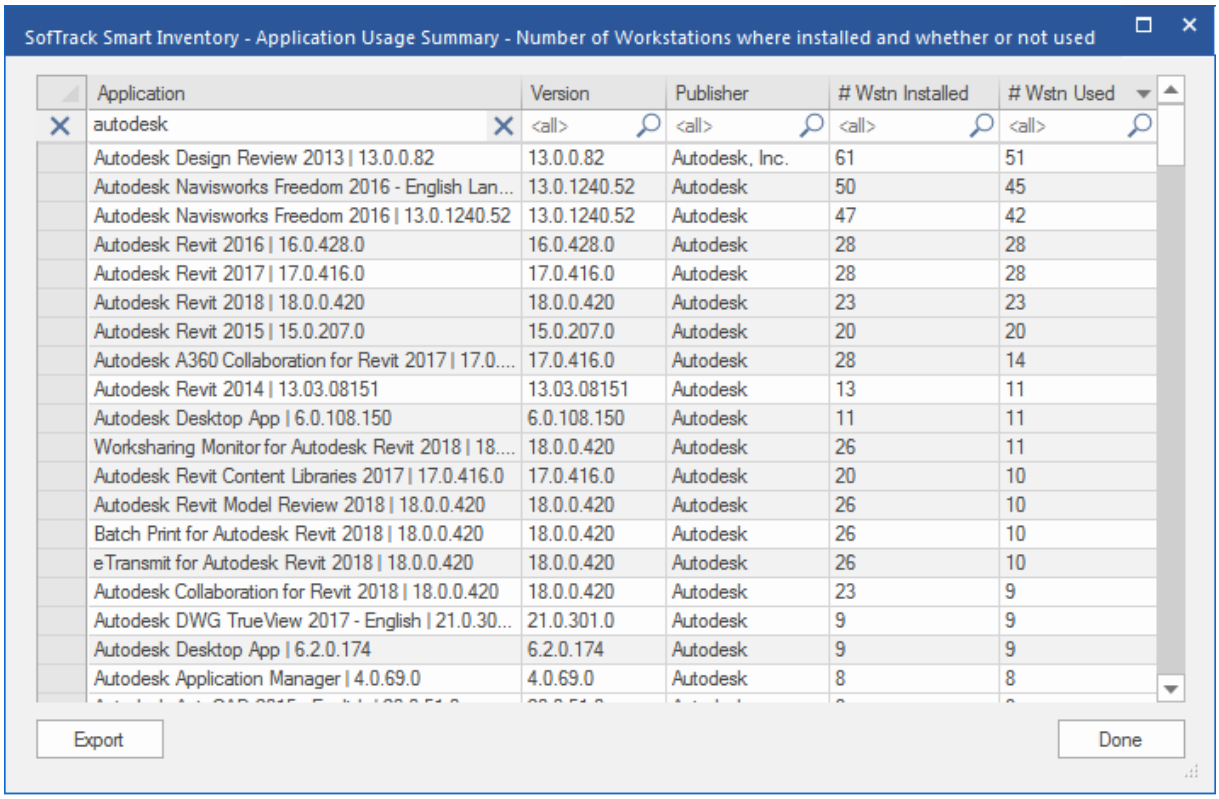


Figure 8-24

NOT USED List

Workstations where Applications are installed but not used.

The following is collected:

- Applications
- Workstations where the indicated Application is installed but has not been used

  Indicates where application has not been used since tracking of application use began.

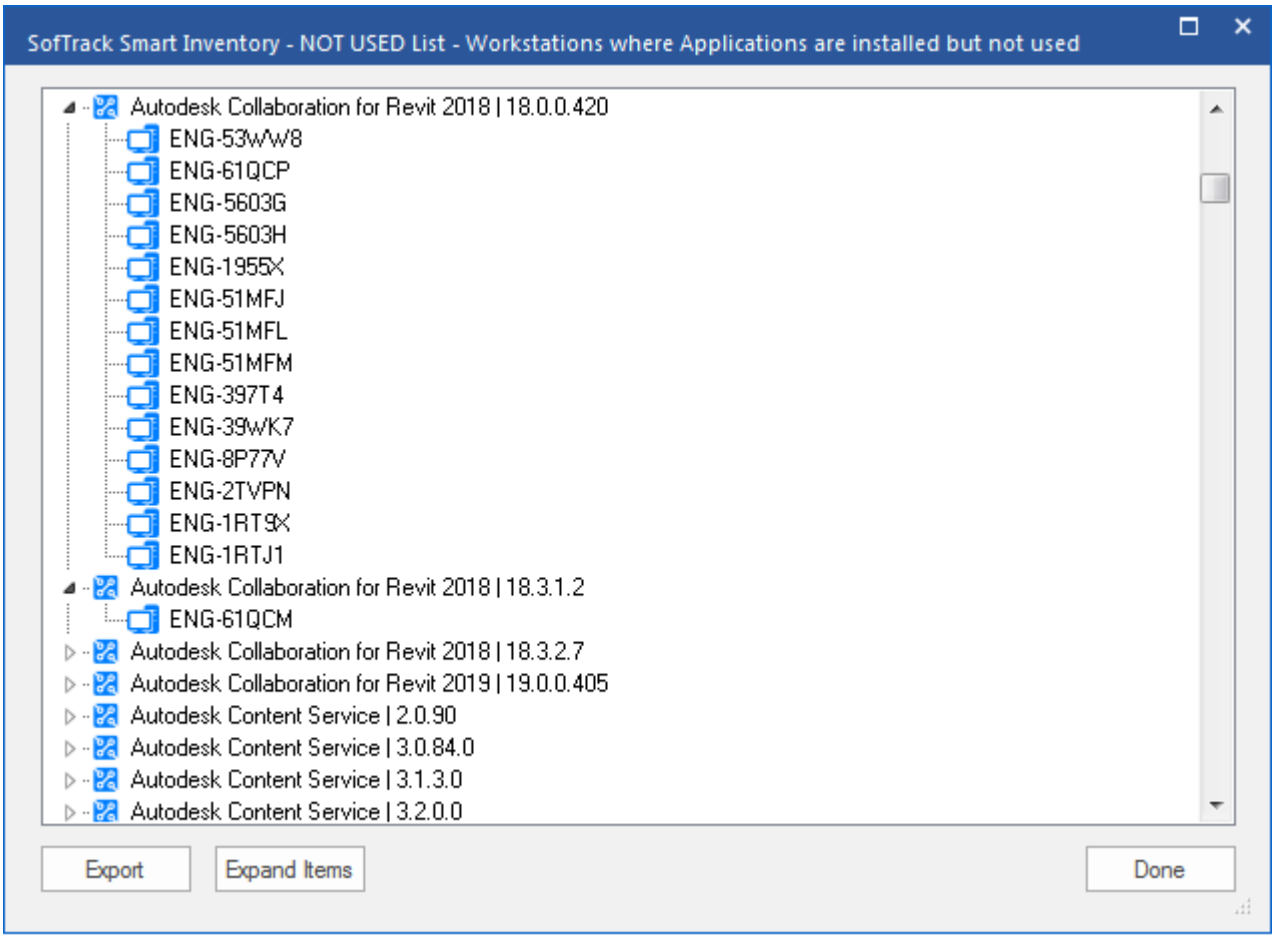

SofTrack Smart Inventory - NOT USED List - Workstations where Applications are installed but not used
Autodesk Collaboration for Revit 2018 | 18.0.0.420
ENG-53WW8
ENG-61QCP
ENG-5603G
ENG-5603H
ENG-1955X
ENG-51MFJ
ENG-51MFL
ENG-51MFM
ENG-397T4
ENG-39WK7
ENG-8P77V
ENG-2TVPN
ENG-1RT9X
ENG-1RTJ1
Autodesk Collaboration for Revit 2018 | 18.3.1.2
ENG-61QCM
Autodesk Collaboration for Revit 2018 | 18.3.2.7
Autodesk Collaboration for Revit 2019 | 19.0.0.405
Autodesk Content Service | 2.0.90
Autodesk Content Service | 3.0.84.0
Autodesk Content Service | 3.1.3.0
Autodesk Content Service | 3.2.0.0
Export
Expand Items
Done

Figure 8-25

Workstation Usage Summary

Reveals per workstation, each installed applications, how many times used, and most recent use. The following is collected

- Workstation
- Application
- Version
- Publisher
- Date Tracking Began
- Number of Times Used since tracking began
- Date of most recent usage

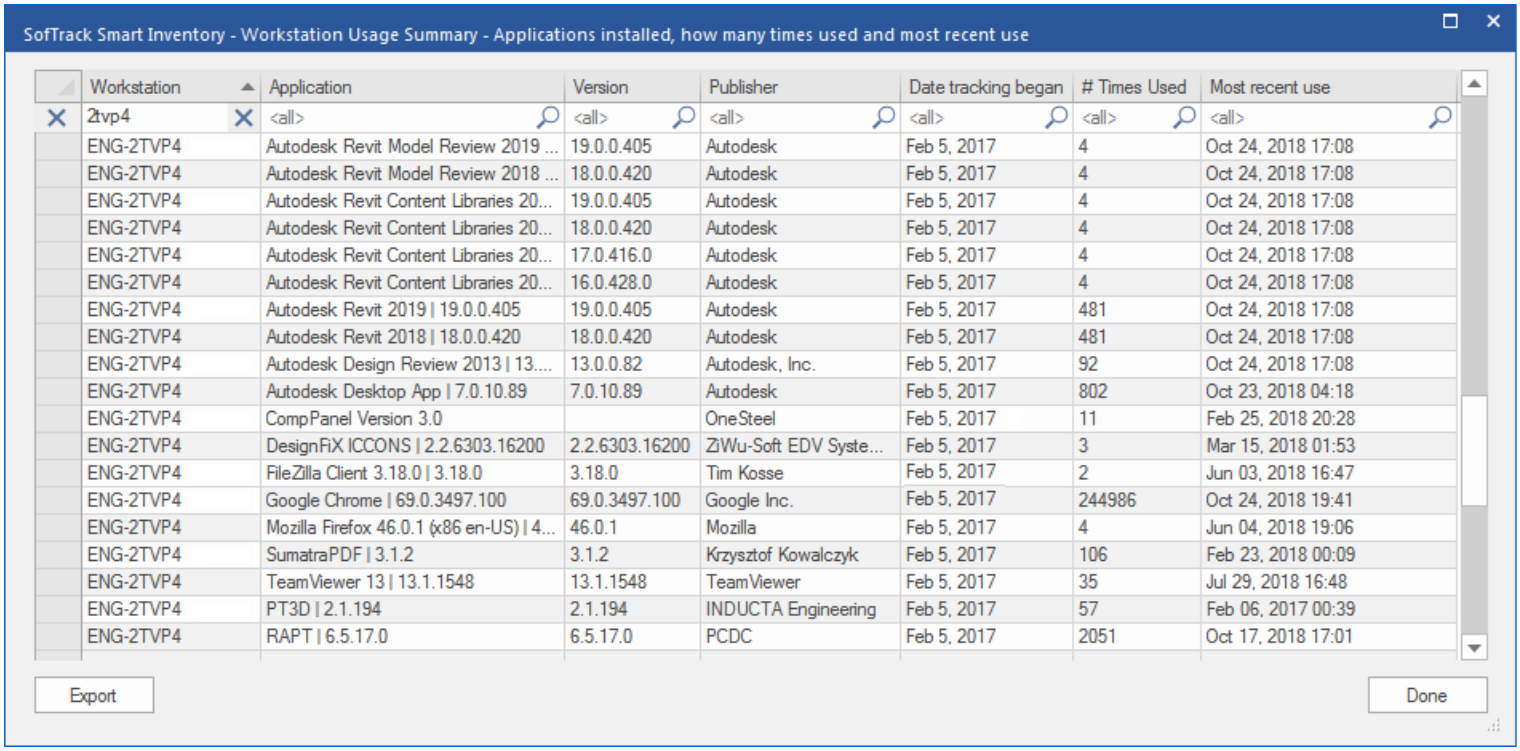


Figure 8-26

Workstation Usage Detail

This report begins by presenting a list of all available workstations and date range selection:

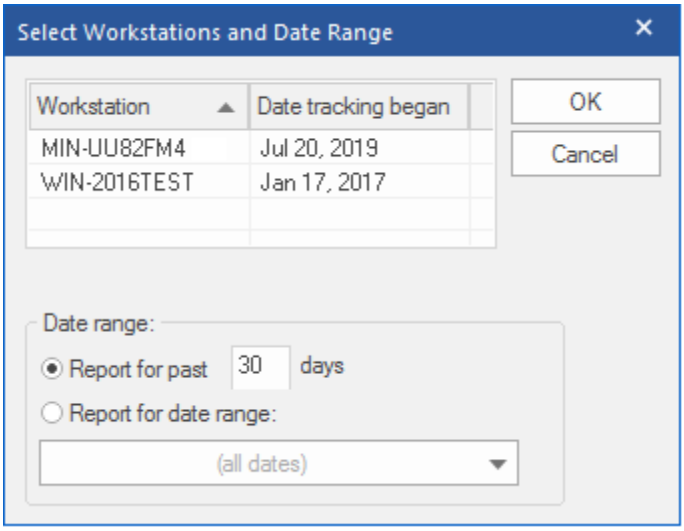
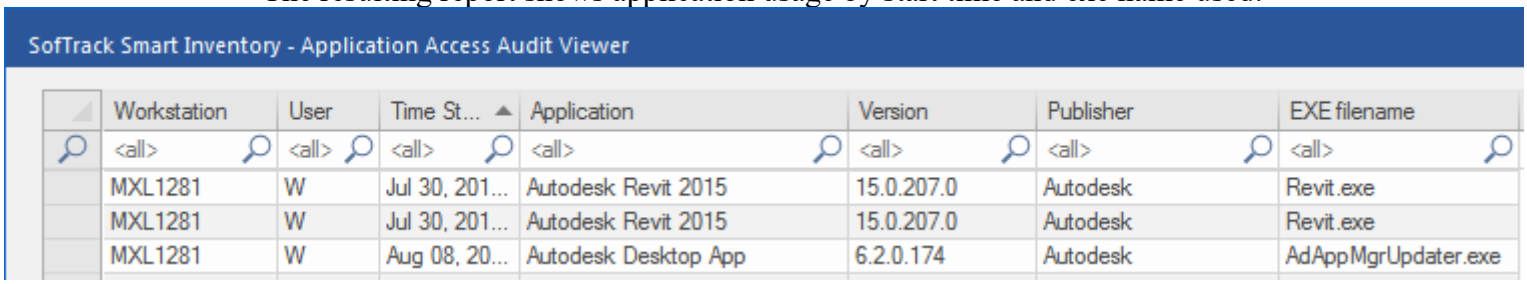
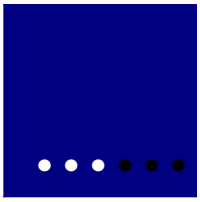


Figure 8-27

The resulting report shows application usage by start time and exe name used:



:



Chapter 9 Audit, Control and Logon Tracking

Audit and Control: Overview

SofTrack's Audit and Control functions require use of the SofTrack Local Workstation Agent (LWA) (see Chapter 3) at each workstation. SofTrack's Audit and Control functions include:

Auditing:

- Workstation Logon and Logoff activity including terminal server sessions
- All Browser Access attempts via any Browser
- All Application Launch attempts
- All File Open attempts
- All File Create/Modification attempts
- All File Copy attempts
- All File Delete attempts
- All Executable Files Created and Installed:

Control:

- Deny File Rename requests for all `EXE`, `DLL` and `COM` files
- Deny File Create requests for all `EXE`, `DLL` and `COM` files
- Deny Executions of files not ending with `EXE` or `COM`
- Deny Executions of files from removable devices such as USB, CDROM
- Deny Executions of files from temporary directories
- Block Copying of Files to removable devices

These options are also detailed on in Chapter 6.

Logon Activity data is stored in two locations, first in a file named `LOGONL.LOG` in the `METER.LOG` path. This is a binary file and its details are reported via the enhanced logon report option. The second location is in the Logon folder that is automatically created under the `METER.LOG` path. Data here is stored in `CSV` (comma-separated values) files named after the workstation providing the logon data. Because these files are stored in `CSV` format, you can directly process these files by other applications, including spreadsheets and databases.

All other Audit Activity data is stored in the **Audit** folder that is automatically created under the `METER.LOG` path. Data is stored in `CSV` (comma-separated values) files named after the workstation providing the audit data. Because these files are stored in `CSV` format, you can directly process these files by other applications, including spreadsheets and

databases.

Audit and Control: How

SofTrack's Audit and Control functions are defined via `SOFTRACK_CONSOLE.EXE`. Implementation of Audit and Control functions requires the use of the SofTrack Local Workstation Agent (see Chapter 3) at each workstation where auditing and control are required.

Control Options are implemented by specifically denying the operations from completing. Denial of File Rename/Create operations for `EXE`, `DLL` and `COM` files is presented to the user as a Windows error. The user will not be aware that SofTrack is specifically blocking their request because Windows is reporting the error. Other than File Copy attempts to removable devices, no record of the enforcement of Control Options is maintained.

Define any desired Audit and Control functions by opening `SOFTRACK_CONSOLE.EXE` found in the "Settings" tab within the *Options* section.

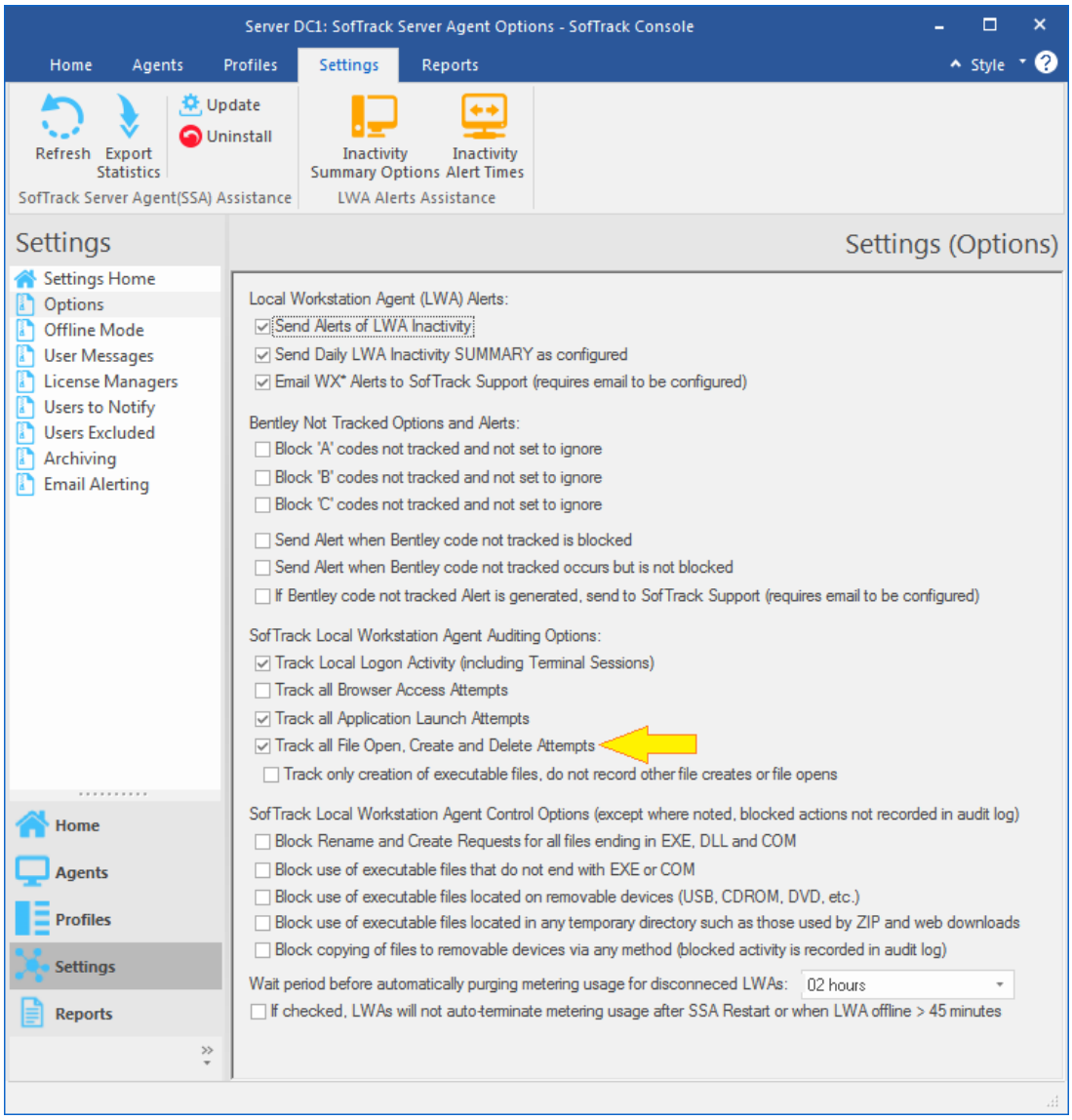
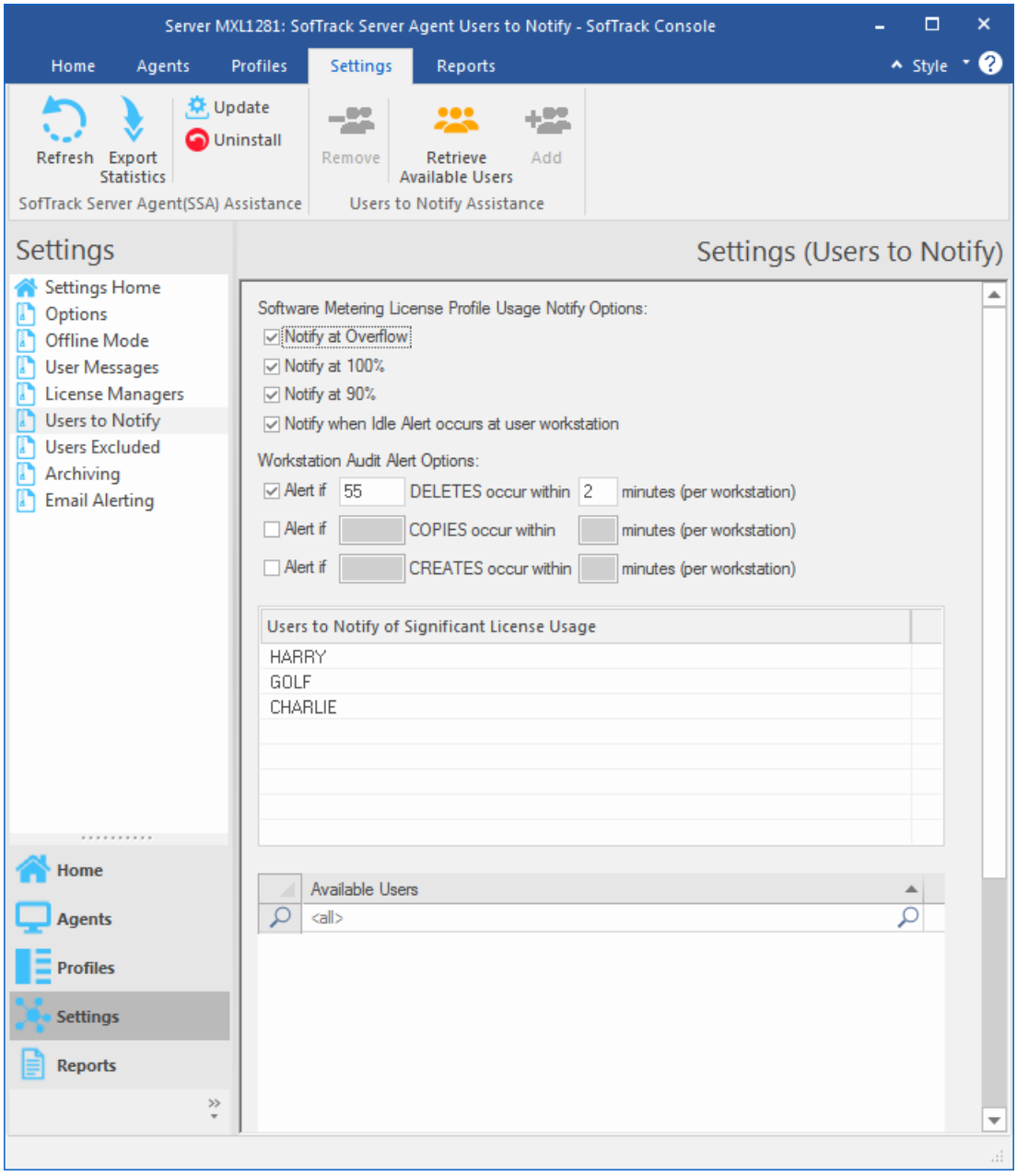


Figure 9-1

NOTE: The **Include all File Open, Create and Delete Attempts** option includes tracking of File Copy operations (highlighted in Figure 9-1).

Audit and Control: Alerts

Alerting is available on a per-workstation basis for Excessive Delete, Copy and Create events. To configure the alerts please select the Users to Notify tab as shown in the following image:



Select the checkbox next to each required alert. And then fill in the threshold number of events to occur and then enter the time period (in minutes). The maximum time period is

60 minutes. After an alert occurs (per workstation) the event counter is reset. If a subsequent event occurs it is based upon additional events that are exclusive of the first event count.

Alerts will be sent to the list of Users to Notify, connected Alert Consoles and via Email.

The License Profile Notify Options shown in the image above are discussed in Chapter 6.

Audit and Control: Reports

Reporting is available for any Audit options selected. Other than blocked file copy attempts to removable devices, no report data is maintained regarding the enforcement activity of Control options.

Audit Report generation does not require the SofTrack Server Agent to be active. The Audit Reports are generated via the "Reports" tab. Logon Activity reports are found in the **Logon + Logoff** section. All other Audit Activity reports are found in the **Workstation Audit** section.

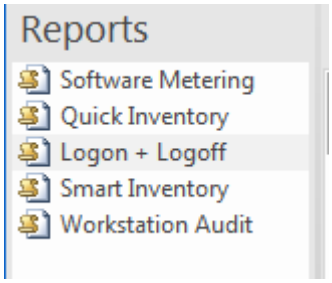


Figure 9-2

Logon+Logoff including Lock and Unlock Activity

Begin open by opening `SOFTRACK_CONSOLE.EXE` selecting the server, click the "Reports" tab and then selecting the **Logon + Logoff** section.

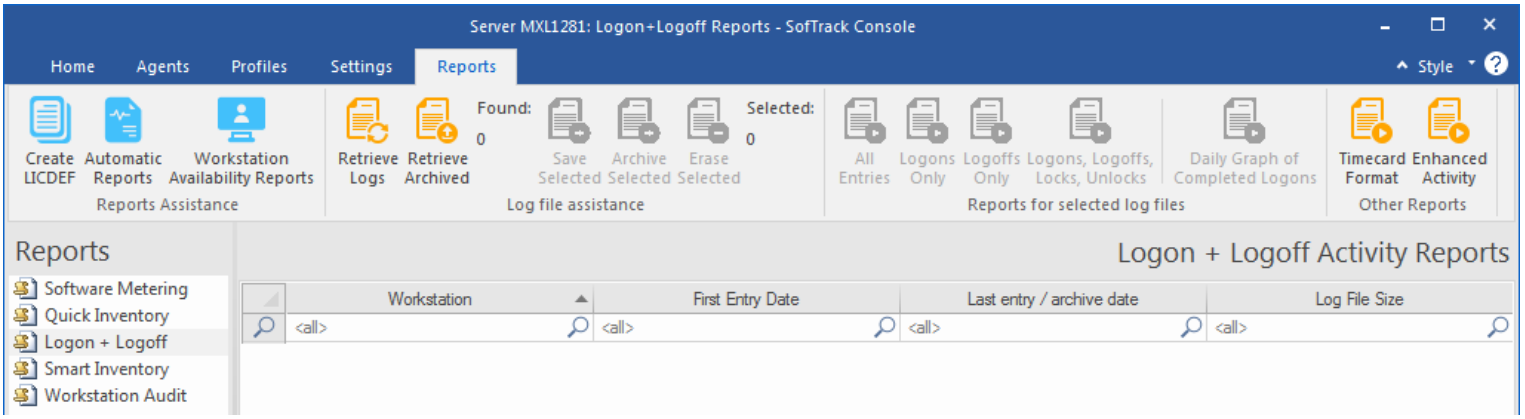


Figure 9-3

Initially the list of available workstation log files is empty. Click the **Retrieve Logs** (or **Retrieve Archived**) button to retrieve the available log files:

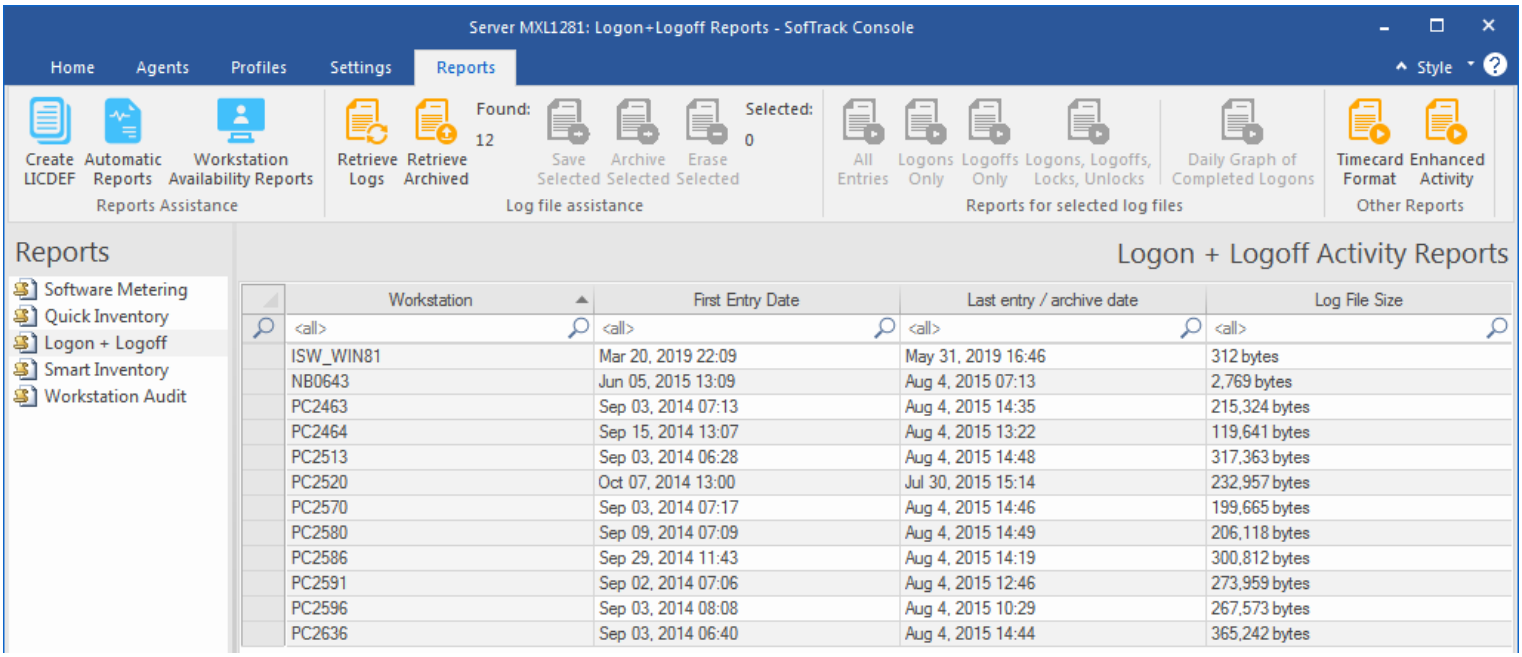


Figure 9-4

To enable reporting options select one or more workstations. Notice there is a filter bar at the top of each column in the list of workstations.

Once one or more workstations are selected click on the **Logons Only** report button.

Logon Tracking Report: View Logons Only

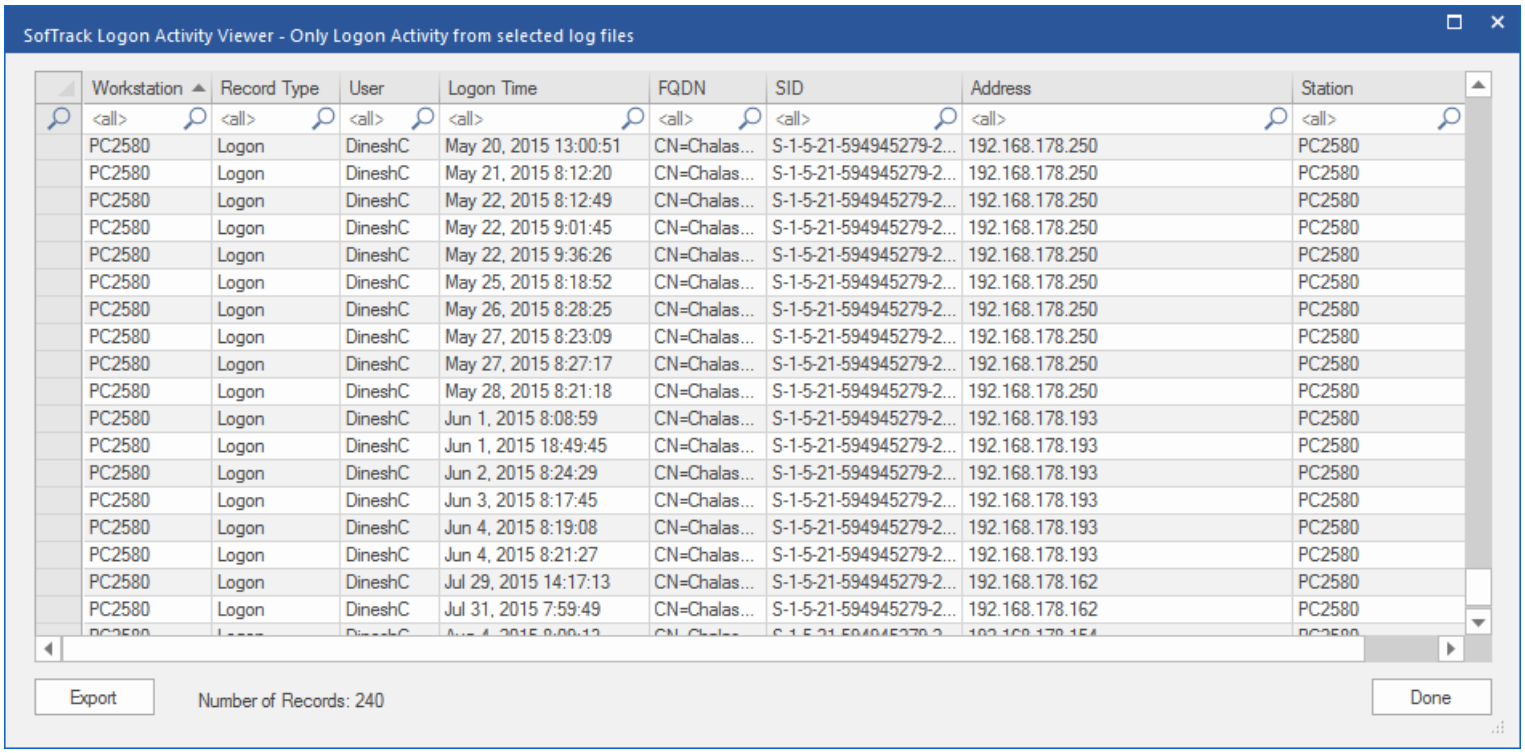


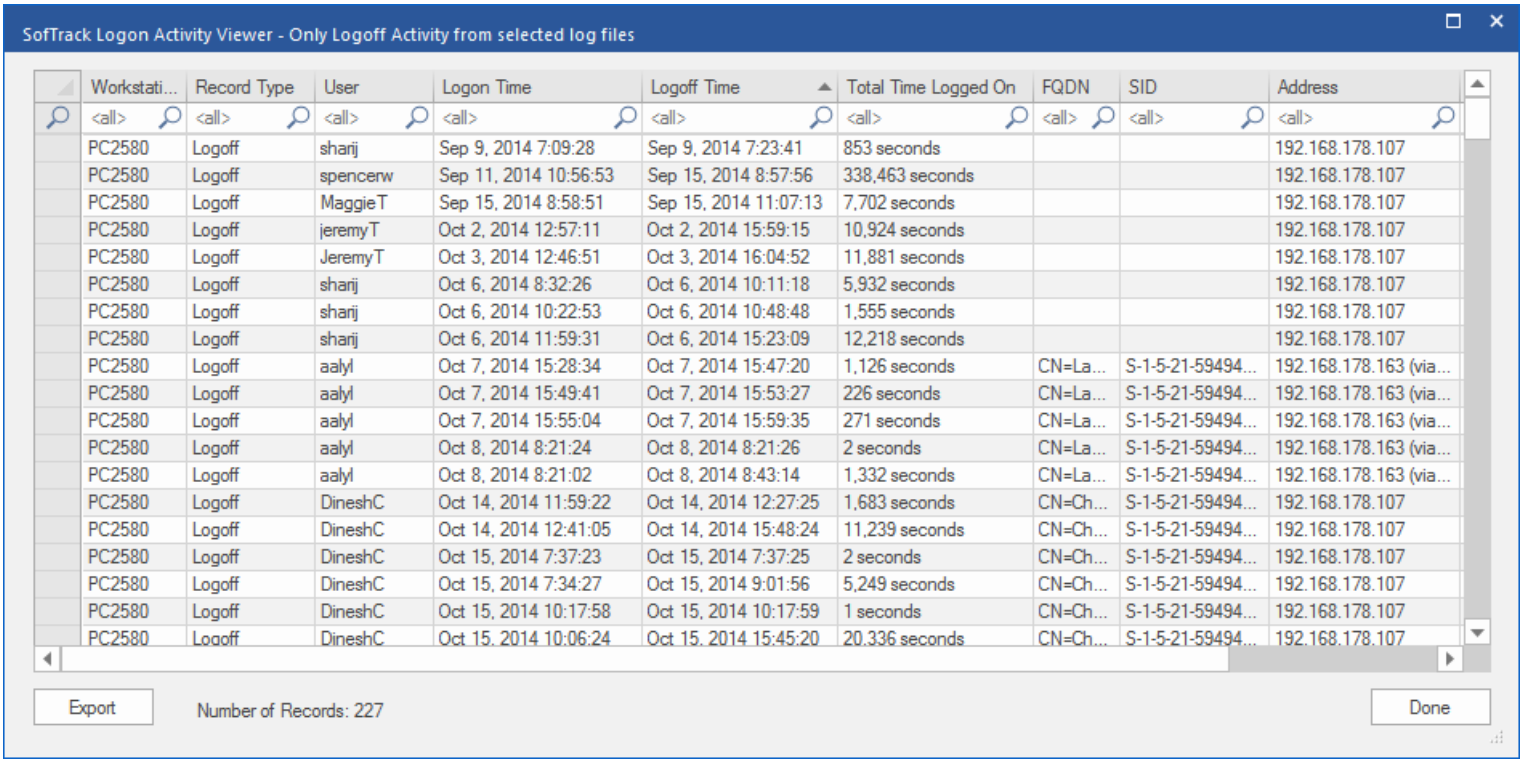
Figure 9-5

The View Logons Only report will reveal only workstation logon activity for the selected workstation(s). The **Export** button allows you to select just those records you need and saves them to a `CSV` file you select.

The **FQDN** column reveals the Active Directory account name for the workstation logon. If an Active Directory account was not used for the logon then this column will be blank. The **SID** column reveals the Windows Security Identifier associated with the logon account used. The **SID** column will always have a value whether or not an Active Directory account was used.

The report also includes a Workstation IP Address column. Please note that if your network utilizes DHCP the Workstation's IP Address can change over time. Also, if the logon was performed via Remote Desktop Session, the IP address shown is that of the source workstation rather than the workstation being reported upon.

Logon Tracking Report: View Logoffs Only



Workstati...	Record Type	User	Logon Time	Logoff Time	Total Time Logged On	FQDN	SID	Address
PC2580	Logoff	sharij	Sep 9, 2014 7:09:28	Sep 9, 2014 7:23:41	853 seconds			192.168.178.107
PC2580	Logoff	spencerw	Sep 11, 2014 10:56:53	Sep 15, 2014 8:57:56	338,463 seconds			192.168.178.107
PC2580	Logoff	MaggieT	Sep 15, 2014 8:58:51	Sep 15, 2014 11:07:13	7,702 seconds			192.168.178.107
PC2580	Logoff	jeremyT	Oct 2, 2014 12:57:11	Oct 2, 2014 15:59:15	10,924 seconds			192.168.178.107
PC2580	Logoff	JeremyT	Oct 3, 2014 12:46:51	Oct 3, 2014 16:04:52	11,881 seconds			192.168.178.107
PC2580	Logoff	sharij	Oct 6, 2014 8:32:26	Oct 6, 2014 10:11:18	5,932 seconds			192.168.178.107
PC2580	Logoff	sharij	Oct 6, 2014 10:22:53	Oct 6, 2014 10:48:48	1,555 seconds			192.168.178.107
PC2580	Logoff	sharij	Oct 6, 2014 11:59:31	Oct 6, 2014 15:23:09	12,218 seconds			192.168.178.107
PC2580	Logoff	aalyl	Oct 7, 2014 15:28:34	Oct 7, 2014 15:47:20	1,126 seconds	CN=La...	S-1-5-21-59494...	192.168.178.163 (via...
PC2580	Logoff	aalyl	Oct 7, 2014 15:49:41	Oct 7, 2014 15:53:27	226 seconds	CN=La...	S-1-5-21-59494...	192.168.178.163 (via...
PC2580	Logoff	aalyl	Oct 7, 2014 15:55:04	Oct 7, 2014 15:59:35	271 seconds	CN=La...	S-1-5-21-59494...	192.168.178.163 (via...
PC2580	Logoff	aalyl	Oct 8, 2014 8:21:24	Oct 8, 2014 8:21:26	2 seconds	CN=La...	S-1-5-21-59494...	192.168.178.163 (via...
PC2580	Logoff	aalyl	Oct 8, 2014 8:21:02	Oct 8, 2014 8:43:14	1,332 seconds	CN=La...	S-1-5-21-59494...	192.168.178.163 (via...
PC2580	Logoff	DineshC	Oct 14, 2014 11:59:22	Oct 14, 2014 12:27:25	1,683 seconds	CN=Ch...	S-1-5-21-59494...	192.168.178.107
PC2580	Logoff	DineshC	Oct 14, 2014 12:41:05	Oct 14, 2014 15:48:24	11,239 seconds	CN=Ch...	S-1-5-21-59494...	192.168.178.107
PC2580	Logoff	DineshC	Oct 15, 2014 7:37:23	Oct 15, 2014 7:37:25	2 seconds	CN=Ch...	S-1-5-21-59494...	192.168.178.107
PC2580	Logoff	DineshC	Oct 15, 2014 7:34:27	Oct 15, 2014 9:01:56	5,249 seconds	CN=Ch...	S-1-5-21-59494...	192.168.178.107
PC2580	Logoff	DineshC	Oct 15, 2014 10:17:58	Oct 15, 2014 10:17:59	1 seconds	CN=Ch...	S-1-5-21-59494...	192.168.178.107
PC2580	Logoff	DineshC	Oct 15, 2014 10:06:24	Oct 15, 2014 15:45:20	20,336 seconds	CN=Ch...	S-1-5-21-59494...	192.168.178.107

Figure 9-6

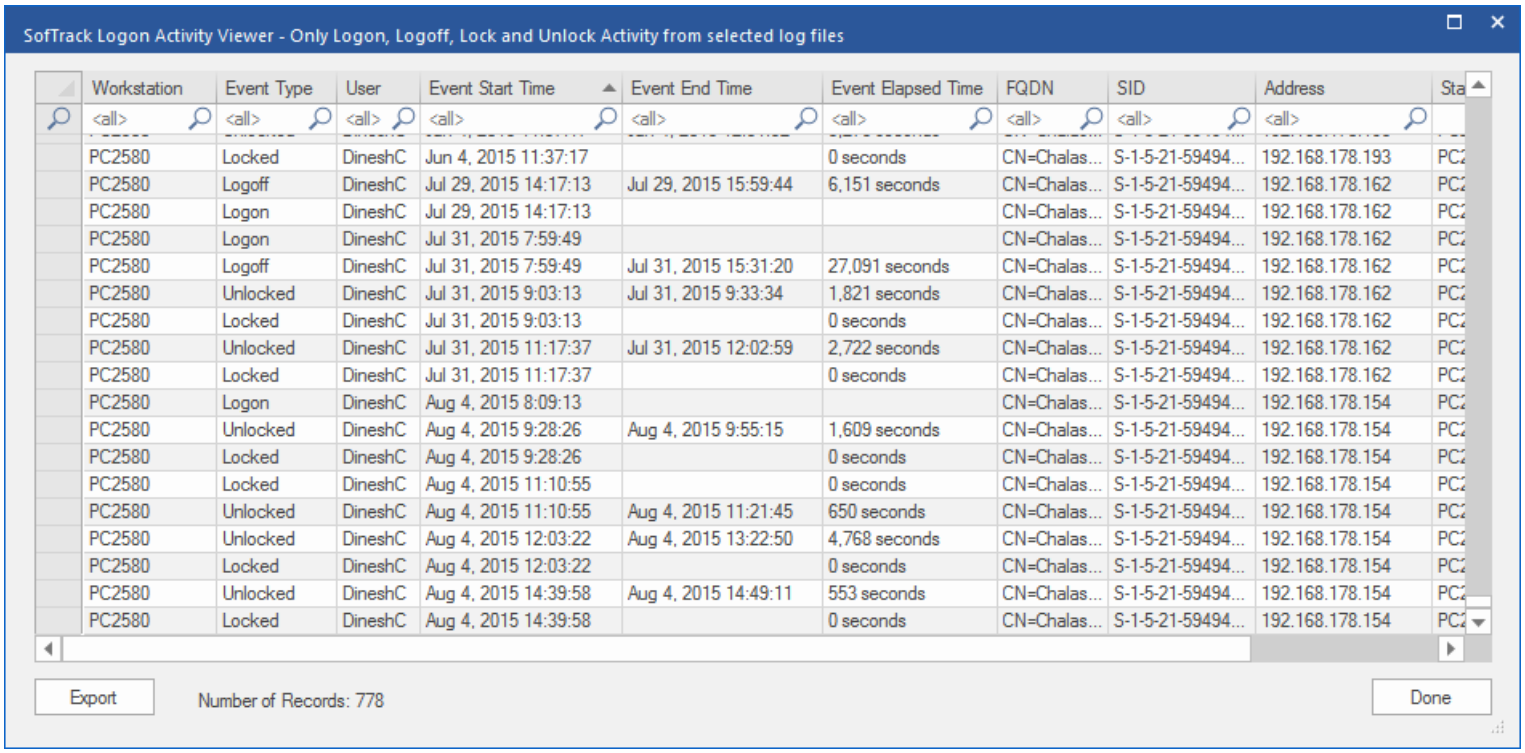
The View Logoffs Only report will reveal only workstation logoff activity for the selected workstation(s). Note it is possible for a Workstation to not record a logoff activity if the workstation crashed or was suddenly turned off. The **Export** button allows you to select just those records you need and saves them to a `CSV` file you select.

The **Total Time Logged On** column reveals the number of seconds the workstation was logged on. The value shown is always in number of seconds.

The **FQDN** column reveals the Active Directory account name for the workstation logon. If an Active Directory account was not used for the logon then this column will be blank. The **SID** column reveals the Windows Security Identifier associated with the logon account used. The **SID** column will always have a value whether or not an Active Directory account was used.

The report also includes a Workstation IP Address column. Please note that if your network utilizes DHCP the Workstation's IP Address can change over time. Also, if the logoff was performed via Remote Desktop Session, the IP address shown is that of the source workstation rather than the workstation being reported upon.

Logon Tracking Report: View Logons, Logoffs including Locks and Unlocks



Workstation	Event Type	User	Event Start Time	Event End Time	Event Elapsed Time	FQDN	SID	Address	Sta
<all>	<all>	<all>	<all>	<all>	<all>	<all>	<all>	<all>	
PC2580	Locked	DineshC	Jun 4, 2015 11:37:17		0 seconds	CN=Chalas...	S-1-5-21-59494...	192.168.178.193	PC
PC2580	Logoff	DineshC	Jul 29, 2015 14:17:13	Jul 29, 2015 15:59:44	6,151 seconds	CN=Chalas...	S-1-5-21-59494...	192.168.178.162	PC
PC2580	Logon	DineshC	Jul 29, 2015 14:17:13			CN=Chalas...	S-1-5-21-59494...	192.168.178.162	PC
PC2580	Logon	DineshC	Jul 31, 2015 7:59:49			CN=Chalas...	S-1-5-21-59494...	192.168.178.162	PC
PC2580	Logoff	DineshC	Jul 31, 2015 7:59:49	Jul 31, 2015 15:31:20	27,091 seconds	CN=Chalas...	S-1-5-21-59494...	192.168.178.162	PC
PC2580	Unlocked	DineshC	Jul 31, 2015 9:03:13	Jul 31, 2015 9:33:34	1,821 seconds	CN=Chalas...	S-1-5-21-59494...	192.168.178.162	PC
PC2580	Locked	DineshC	Jul 31, 2015 9:03:13		0 seconds	CN=Chalas...	S-1-5-21-59494...	192.168.178.162	PC
PC2580	Unlocked	DineshC	Jul 31, 2015 11:17:37	Jul 31, 2015 12:02:59	2,722 seconds	CN=Chalas...	S-1-5-21-59494...	192.168.178.162	PC
PC2580	Locked	DineshC	Jul 31, 2015 11:17:37		0 seconds	CN=Chalas...	S-1-5-21-59494...	192.168.178.162	PC
PC2580	Logon	DineshC	Aug 4, 2015 8:09:13			CN=Chalas...	S-1-5-21-59494...	192.168.178.154	PC
PC2580	Unlocked	DineshC	Aug 4, 2015 9:28:26	Aug 4, 2015 9:55:15	1,609 seconds	CN=Chalas...	S-1-5-21-59494...	192.168.178.154	PC
PC2580	Locked	DineshC	Aug 4, 2015 9:28:26		0 seconds	CN=Chalas...	S-1-5-21-59494...	192.168.178.154	PC
PC2580	Locked	DineshC	Aug 4, 2015 11:10:55		0 seconds	CN=Chalas...	S-1-5-21-59494...	192.168.178.154	PC
PC2580	Unlocked	DineshC	Aug 4, 2015 11:10:55	Aug 4, 2015 11:21:45	650 seconds	CN=Chalas...	S-1-5-21-59494...	192.168.178.154	PC
PC2580	Unlocked	DineshC	Aug 4, 2015 12:03:22	Aug 4, 2015 13:22:50	4,768 seconds	CN=Chalas...	S-1-5-21-59494...	192.168.178.154	PC
PC2580	Locked	DineshC	Aug 4, 2015 12:03:22		0 seconds	CN=Chalas...	S-1-5-21-59494...	192.168.178.154	PC
PC2580	Unlocked	DineshC	Aug 4, 2015 14:39:58	Aug 4, 2015 14:49:11	553 seconds	CN=Chalas...	S-1-5-21-59494...	192.168.178.154	PC
PC2580	Locked	DineshC	Aug 4, 2015 14:39:58		0 seconds	CN=Chalas...	S-1-5-21-59494...	192.168.178.154	PC

Figure 9-7

The View Logons, Logoffs, Locks and Unlocks report will show all workstation logon activity for the selected workstations. Note it is possible for a Workstation to not record a logoff or unlock activity if the workstation crashed or was suddenly turned off. The Export Selected Records button allows you to select just those records you need and saves them to a `CSV` file you select.

Notice the column headers for this report. Instead of Activity Type there is Event Type. Instead of Logon Time there is Event Start Time. These subtle column header differences from the other logon activity reports are used because lock and unlock activity times are not actual logons or logoffs.

The **Event Elapsed Time** column reveals the number of seconds the workstation was logged on or was in the locked state. The value shown is always in number of seconds.

Also shown in Figure 9-7 are the **FQDN**, **SID** and Workstation IP **Address** columns. The **FQDN** column reveals the Active Directory account name for the workstation logon. If an Active Directory account was not used for the logon then this column will be blank. The **SID** column reveals the Windows Security Identifier associated with the logon account used. The **SID** column will always have a value whether or not an Active Directory account was used. The **Address** column will reveal the workstation's IP address at the time of the event and if DHCP is in use it will likely change over time.

Logon Tracking Report: Daily Graph of Completed Logon Activity

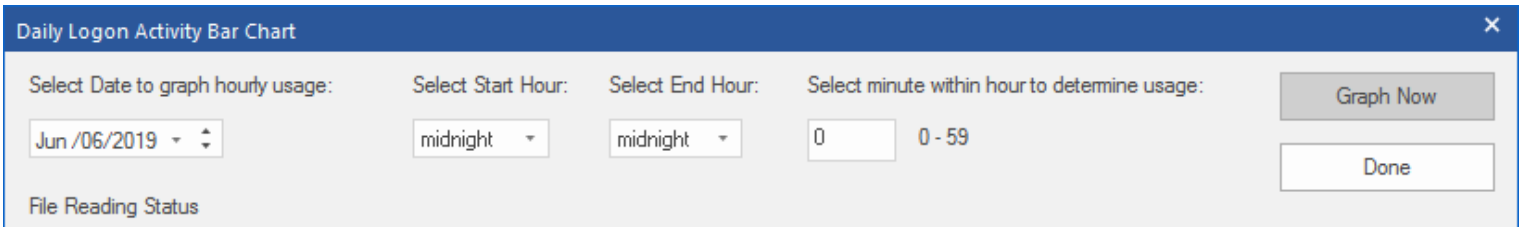


Figure 9-8

The Daily Graph of Completed Logon Activity report will chart all workstation logon activity hour-by-hour for ***all selected workstations*** for a selected date. Note it is possible for a Workstation to not record a logoff or unlock activity if the workstation crashed or was suddenly turned off.

Initially, as shown in Figure 9-8, you will be prompted for the date to graph. Next, select the starting hour and ending hour. Please note if the start and end hour are the same the only one hour will be graphed. To graph an entire day selected Midnight as the start hour and 11pm as the end hour. Finally, select the minute within each hour to determine the usage for that hour. When ready, click the button Graph Now and the graph will be displayed as shown in Figure 9-9.

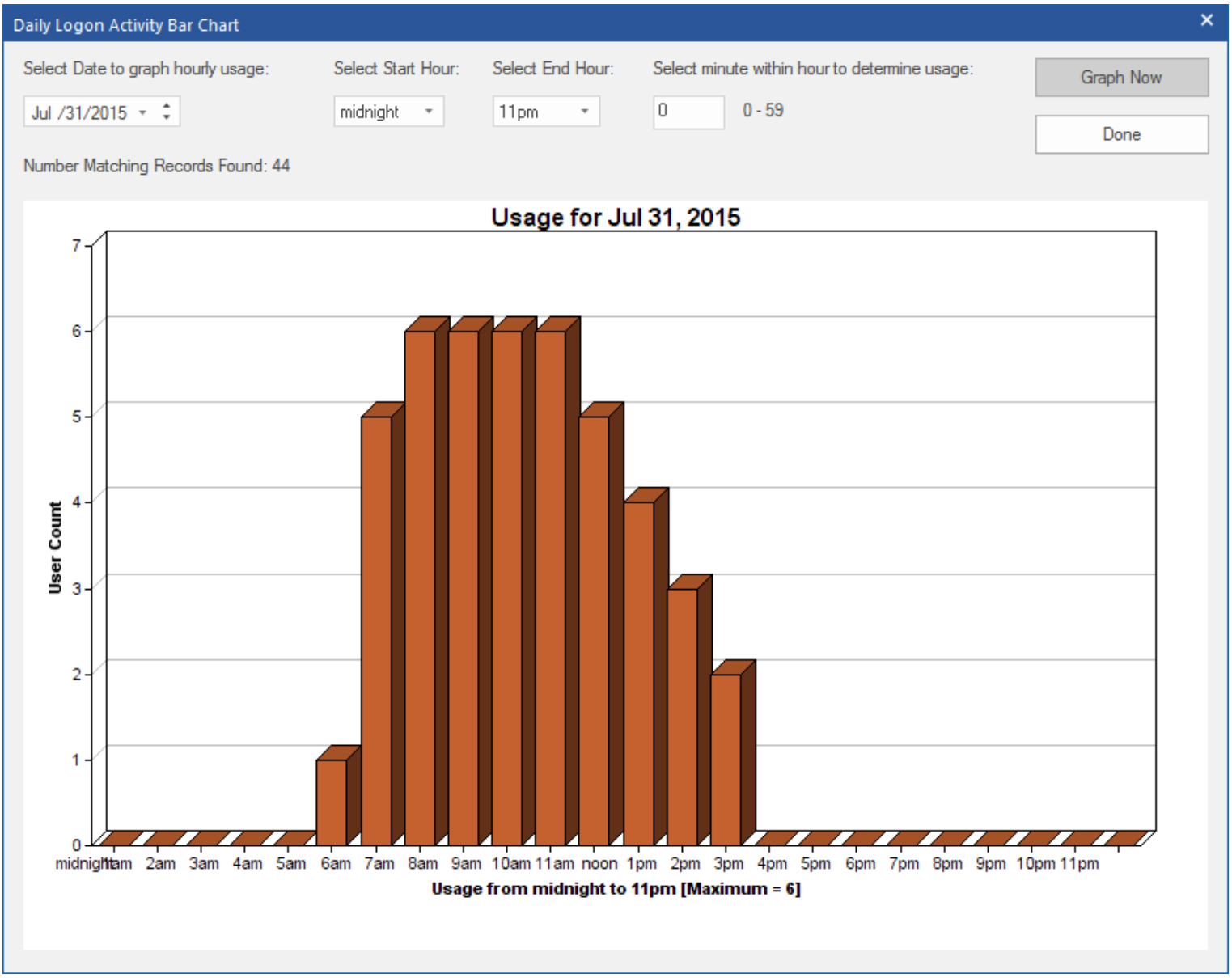
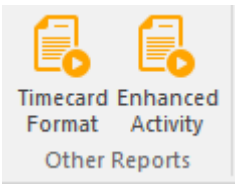


Figure 9-9

Please note that logon activity graphed includes logon activity that occurred at any time. For instance, if a user was logged on for multiple days and you graph a day that includes the period of time logged on, that user will be counted even though the logon and logoff occurred on different days than that being graphed.

Logon Tracking Report: Enhanced Version

As shown in Figure 9-3 there is an **Enhanced Activity** button:



Note, this button is always available, even when no workstations are selected as it uses different files for reporting. Once selected, the Enhanced Activity report generation window is presented.

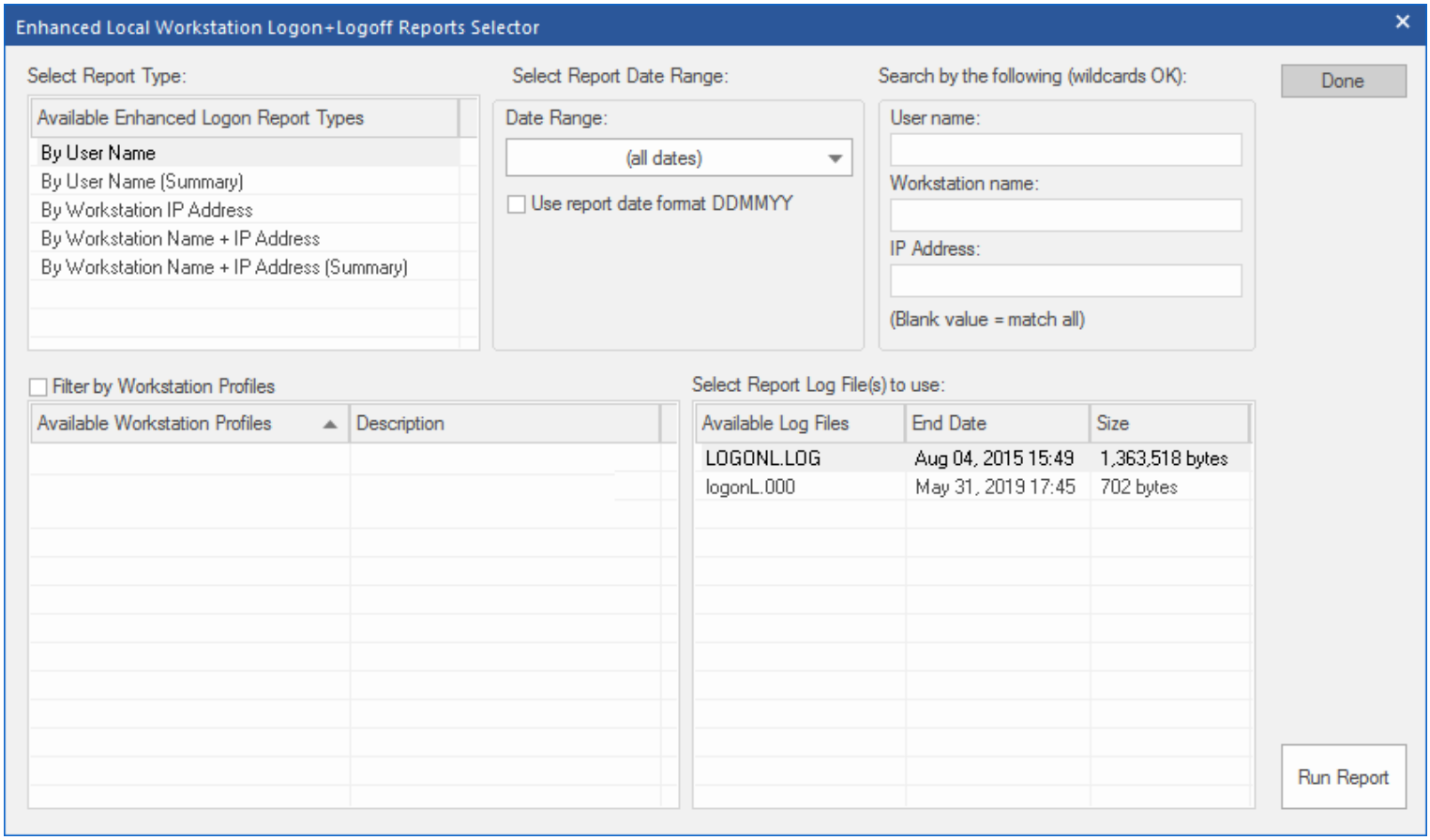


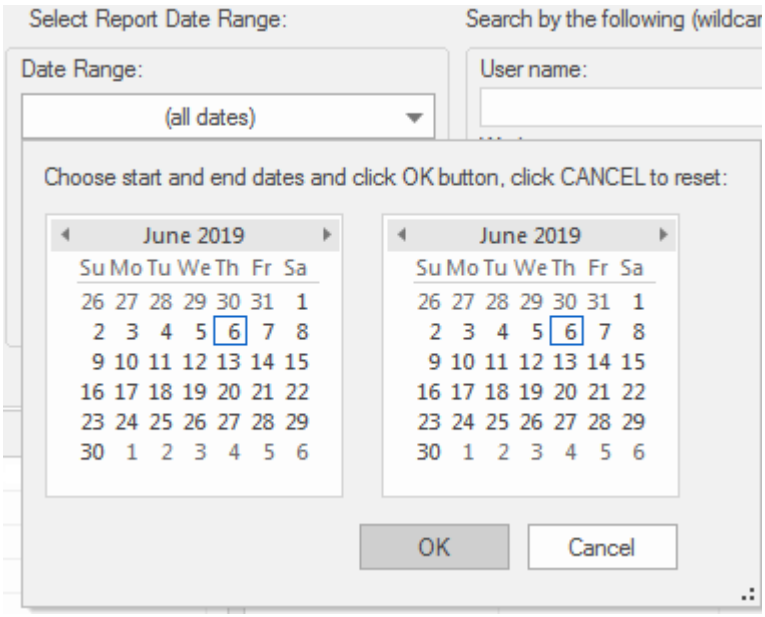
Figure 9-10

The Select Report Log File(s) to use section at middle right (Figure 9-10) reveals all available log files. The `LOGONL.LOG` files are stored in the `METER.LOG` path. These files are in a binary format that is encrypted and stores logon activity data for all workstations. The file is encrypted to ensure the accuracy of the data within.

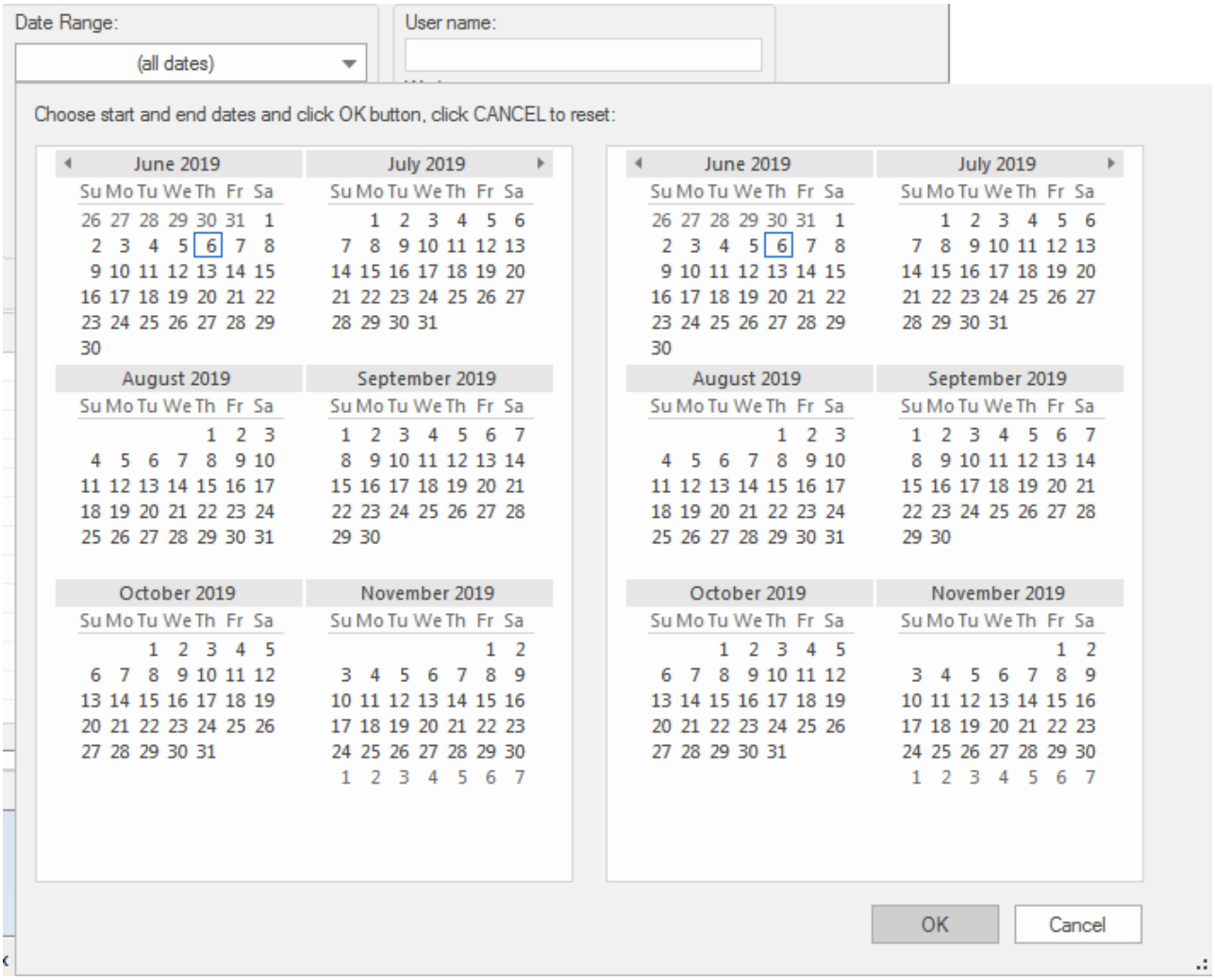
The SofTrack Server Agent will attempt to automatically rotate the `LOGONL.LOG` log file once it reaches 5MB in size. The first rotation will result in `LOGONL.0000`, then `LOGONL.0001` and so on. If the file is not being rotated it can be manually rotated (i.e. in Windows Explorer).

There are several available report types (shown in upper left of Figure 9-10).
Please note Enhanced Logon reporting DOES NOT INCLUDE OFFLINE ACTIVITY.

In the **Select Report Date Range** section, notice the default selection is for (all dates). To set another date range, click the (all dates) button:



If you drag the window (from the 3 dots at the lower right corner) you can expand the date selection:

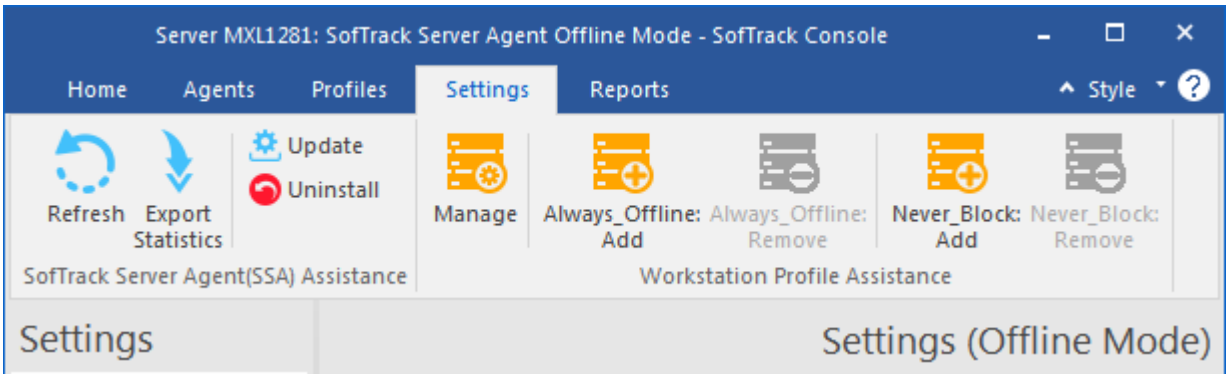


To further refine the resulting reports **the Search by the following (wildcards OK)** section provides search by **User name**, **Workstation name** and **IP Address**. Any can be partially provided including wildcards (i.e. "?" and "*").

At the lower left there is an additional option to **Filter by Workstation Profile(s)**. When checked, all selected Workstation Profiles will be used to scope the resulting report to only include those workstations defined. This allows for reporting by department, classroom, geographic region, office and so on.

Defining Workstation Profiles

To create, edit and manage Workstation Profiles, select the Settings tab, Offline Mode section:



Click the **Manage** button and the following will appear:

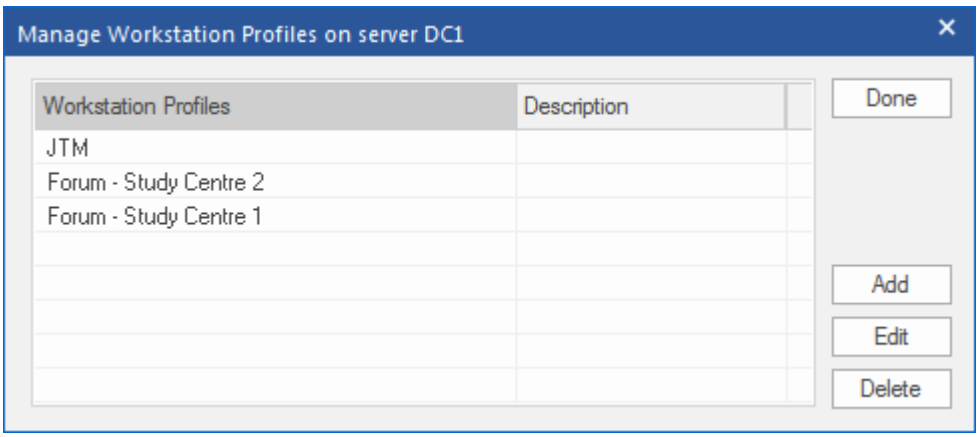


Figure 9-11

The image above is showing existing Workstation Profiles on network.

To create a new Workstation Profile, click the **Add** button:

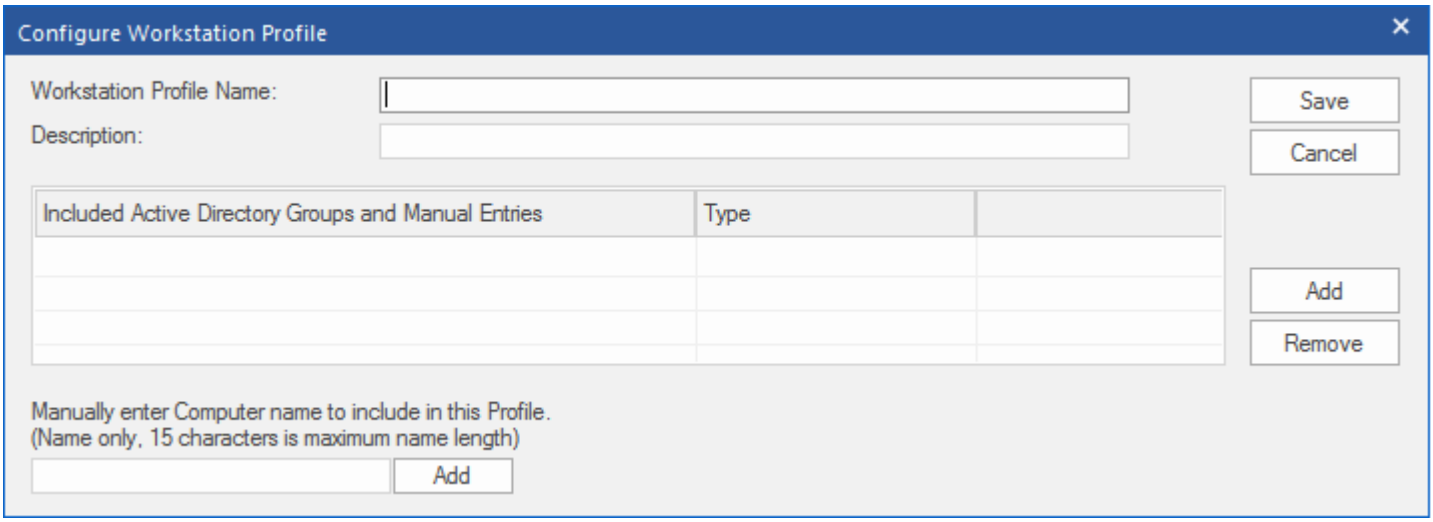
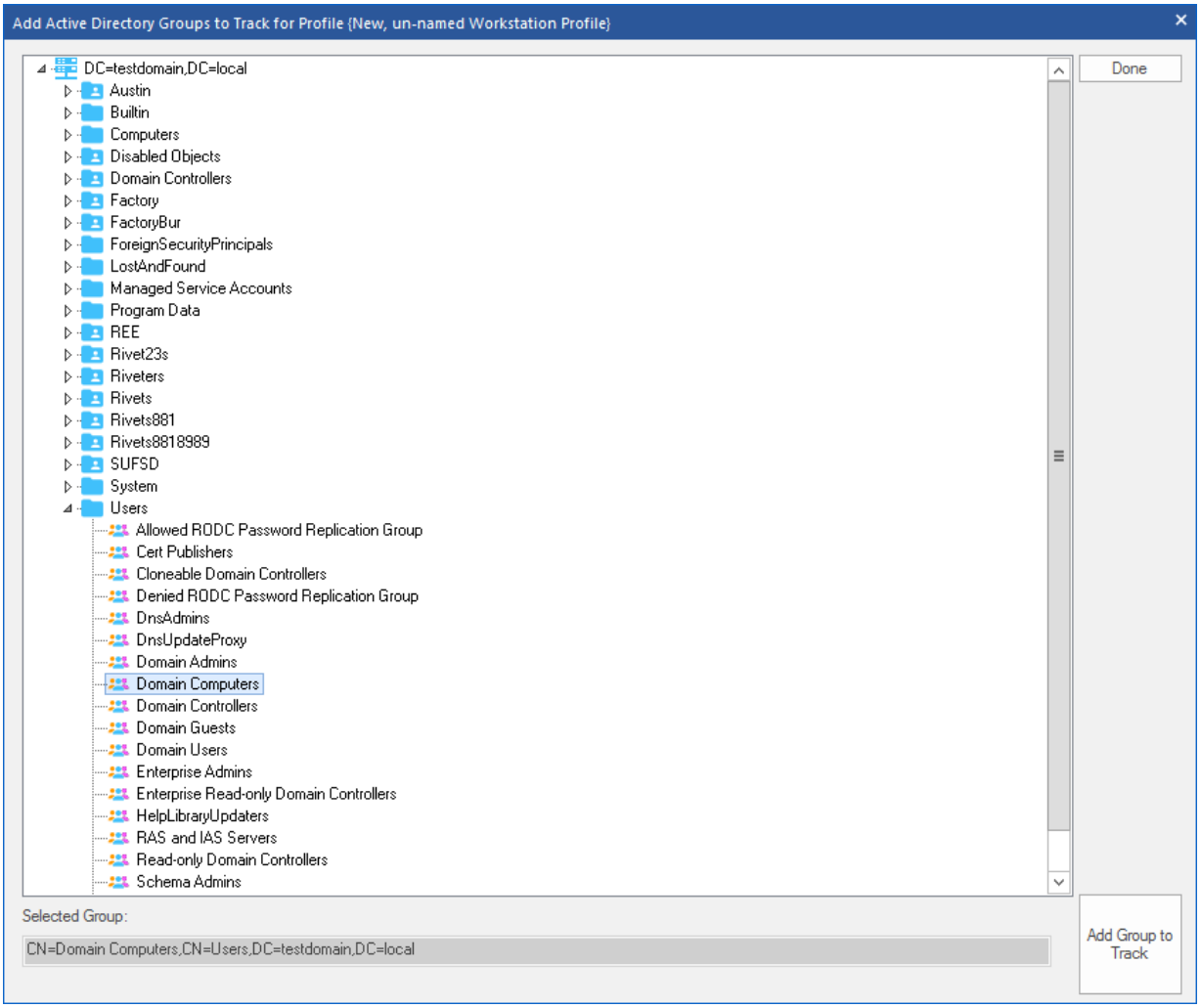


Figure 9-12

Enter the name TEST01 and enter an optional Description. Once saved, the Workstation Profile is stored in the registry at the SofTrack Server host.

If your environment includes Active Directory, click the Add button and the following will appear:



Notice in the image above, you are able to select a single Group and then click **Add Group to Track** button.

If there is no Active Directory present, use the Manual Entry section at lower left:

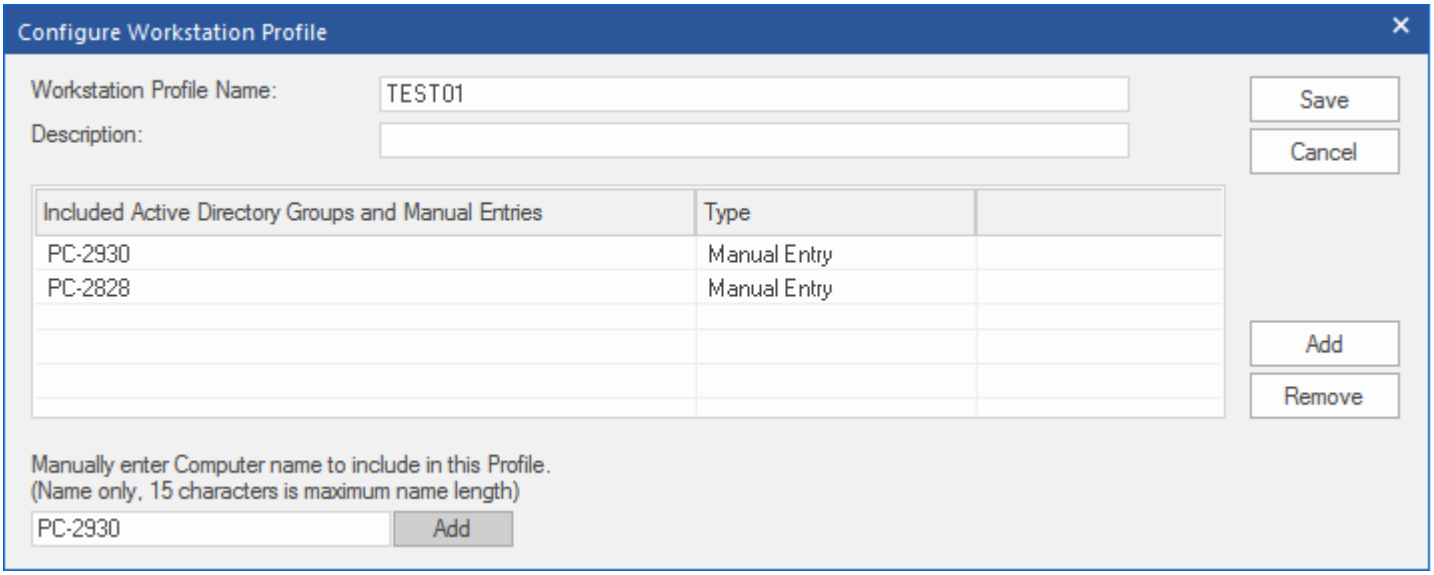


Figure 9-13

Be sure to only enter the Pre-Active Directory name that is 15 characters or less in length. If Active Directory is present a window similar to the following will appear:

For logon reporting purposes, each Group selected via Active Directory and included in the Workstation Profile will have its members that are "computer objects" used to refine the results of Logon Reports.

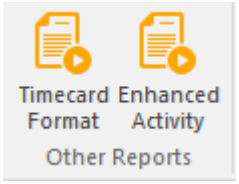
IMPORTANT: Active Directory Groups that have Computer object membership requires separate creation and maintenance of such groups membership via any tool already available to your network including Microsoft's default Active Directory Users and Computers (ADUC) management console.

Any computers manually entered will be in addition to Computer objects that are members of the included Active Directory groups.

The **Description** field is for your notation. The value shown will appear in listings of Workstation Profiles and elsewhere such as in Workstation Availability Reports on its detail page.

Logon Tracking Report: Timecard User Reports

As shown in Figure 9-3 there is a **Timecard Format** option in the *Logon + Logoff* section



Once selected, the report generation window is presented.

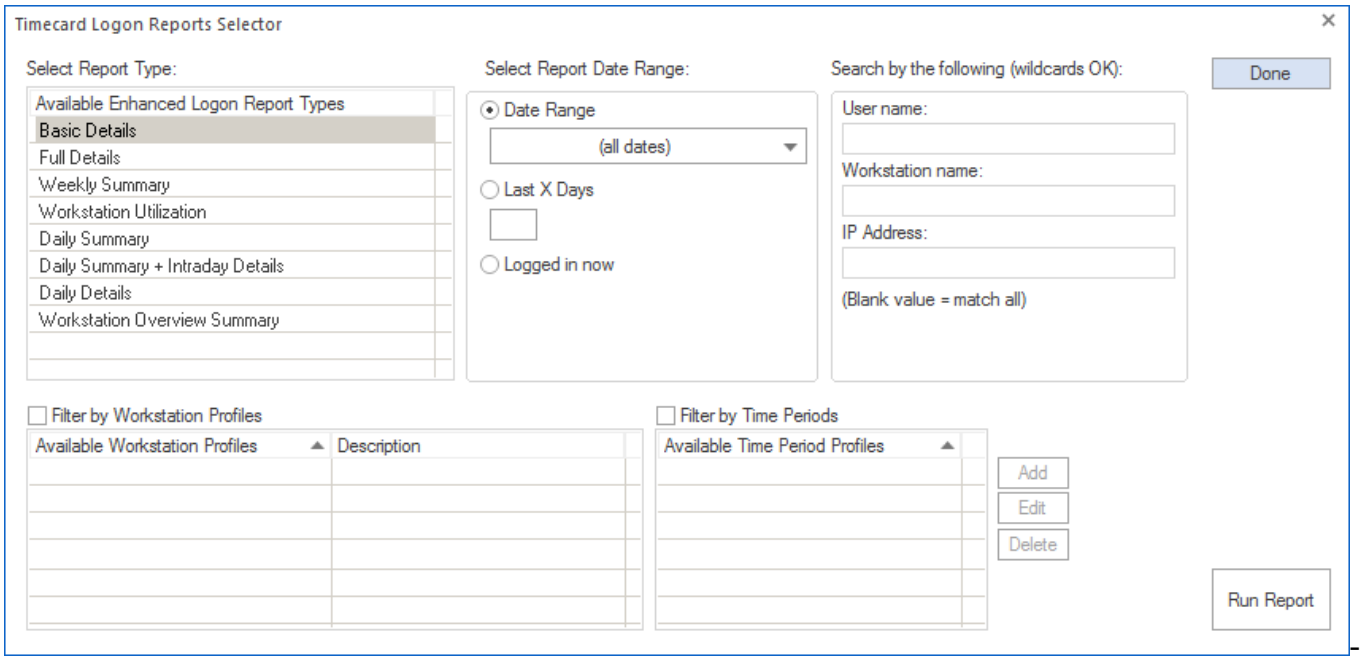


Figure 9-15

There are several available report types (shown in upper left of Figure 9-15).

In the **Select Report Date Range** section, notice the default selection is for All Dates. Except for the **Logged in now** date range option, the report generated will *only include* those logon sessions that have been **completed** (i.e. the user has logged off).

To further refine the resulting reports **the Search by the following (wildcards OK)** section provides search by **User name**, **Workstation name** and **IP Address**. Any can be partially provided including wildcards (i.e. "?" and "*").

At the lower left there is an additional option to **Filter by Workstation Profiles**. When checked, all selected Workstation Profiles will be used to scope the resulting report to only include those workstations defined. This allows for reporting by department, classroom, geographic region, office and so on. For additional details on configuring Workstation Profiles, please refer to the Defining Workstation Profiles section.

At the lower right there is another option to **Filter by Time Periods**. When checked, the first selected Time Period will be used to further refine the report results. Specifically this option allows you to report only those logons periods that occurred during specific times of day during the week. For instance, if you only want to know who was logged on at 3am, or who was logged in anytime during Saturday you can discover that with this filter.

To start, click the **Add** button and the following window appears:

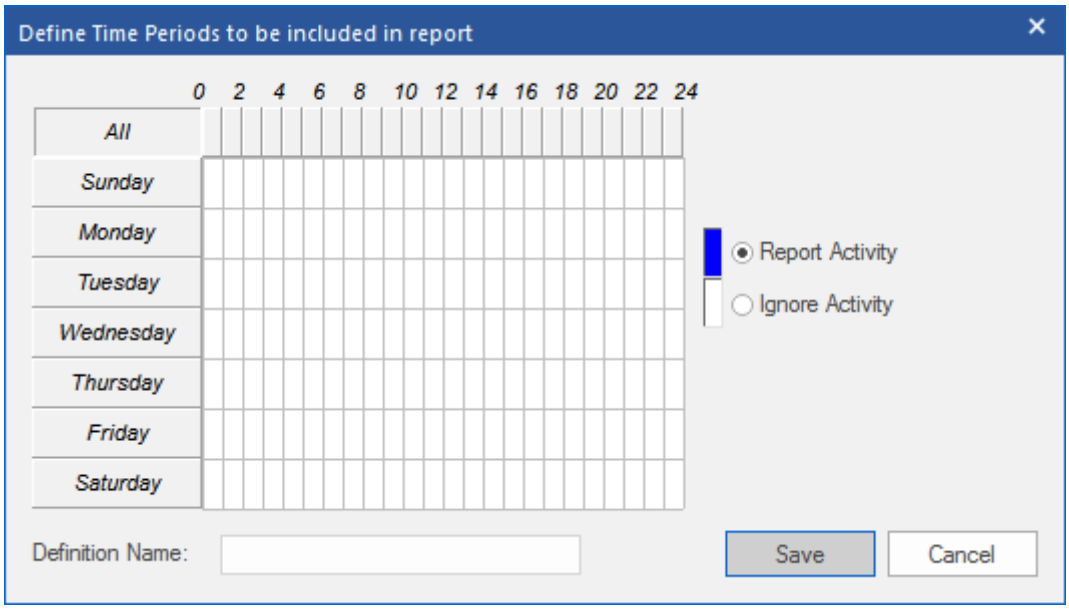


Figure 9-16

Using your mouse, click on the individual hours to report. If you click on the Day or week or Hour of day labels the entire row will be selected. When ready, enter a *Definition Name* in the edit field and click **Save**.

Each Time Period is saved to your local workstation's registry and not that of the SofTrack Server Agent. This is different that Workstation Profiles which are stored in the registry of the SofTrack Server Agent. This means, if you run a Timecard report from a different workstation, the Time Periods you defined will not be present.

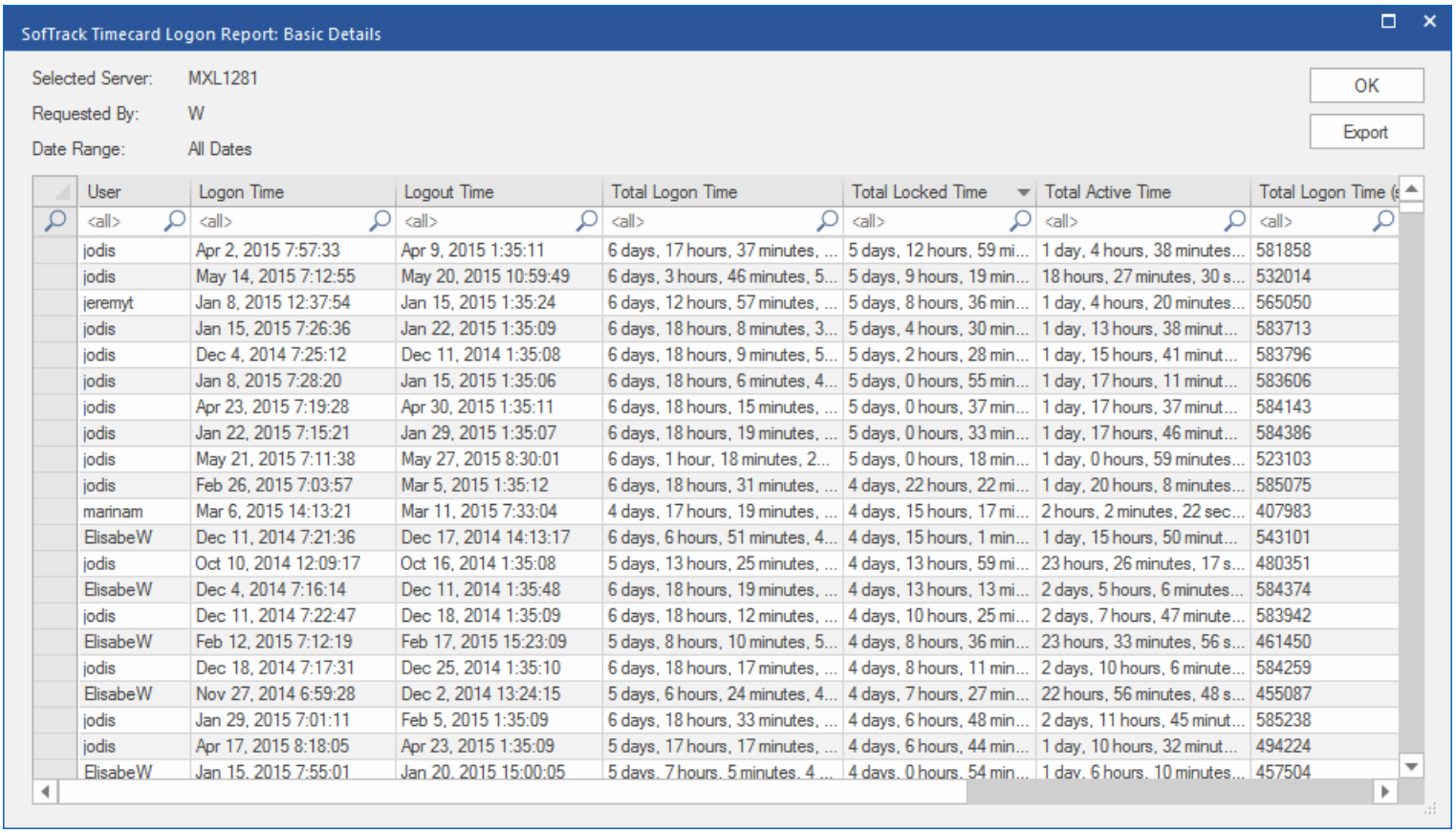
Specifically, the Time Periods are stored in the following registry key on your local workstation:

HKEY_CURRENT_USER\Software\Integrity Software, Inc.\SOFTRACK\TIMEGRIDS

You can create as many Time Periods as needed, but only one at a time can be selected as a filter for logon reports.

Logon Tracking Report: Sample Timecard User Reports

As shown in Figure 9-15 there are several available Timecard reports. The following figures are screenshots of sample reports:



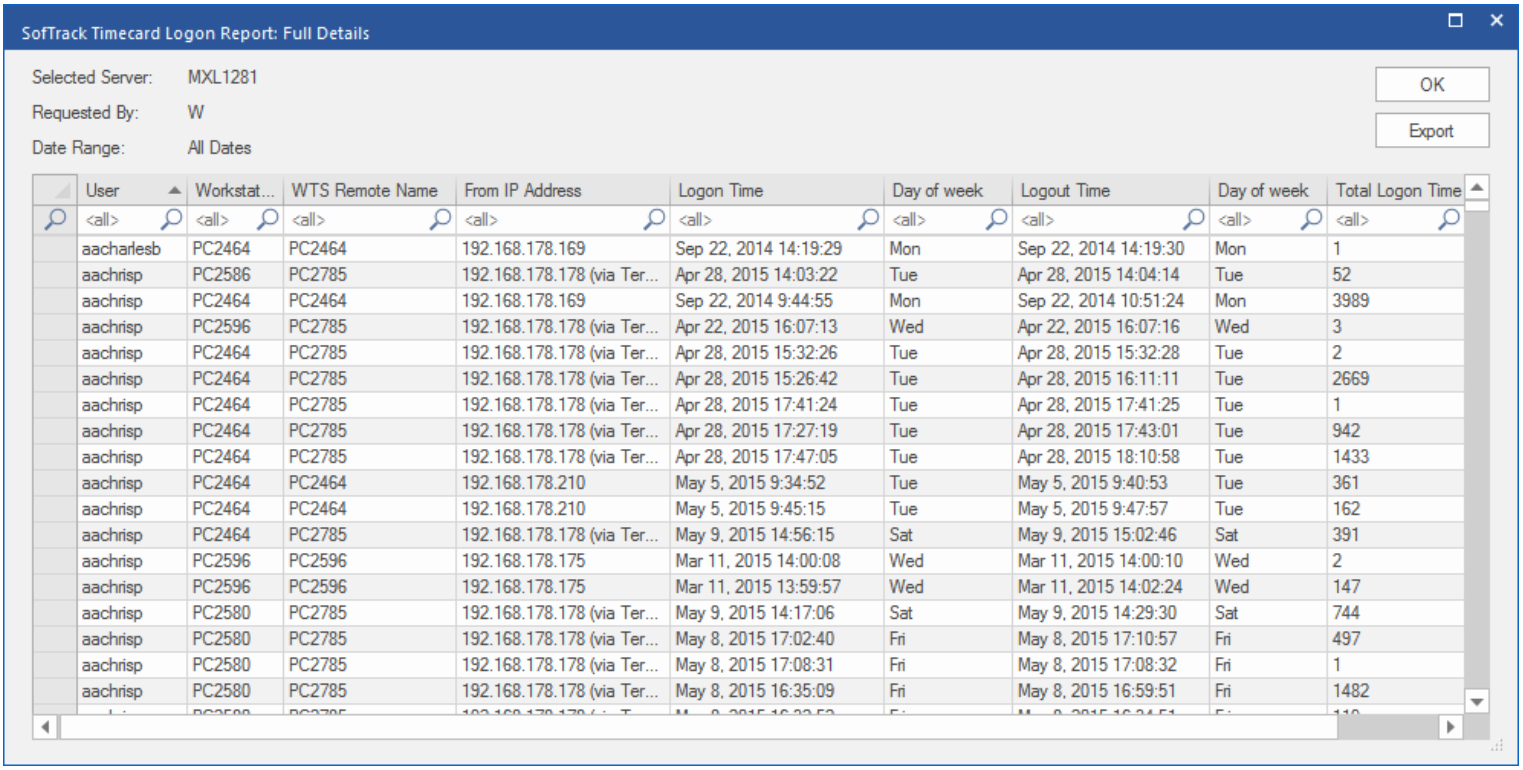
SofTrack Timecard Logon Report: Basic Details

Selected Server: MXL1281
Requested By: W
Date Range: All Dates

OK
Export

User	Logon Time	Logout Time	Total Logon Time	Total Locked Time	Total Active Time	Total Logon Time (s
jodis	Apr 2, 2015 7:57:33	Apr 9, 2015 1:35:11	6 days, 17 hours, 37 minutes, ...	5 days, 12 hours, 59 mi...	1 day, 4 hours, 38 minutes...	581858
jodis	May 14, 2015 7:12:55	May 20, 2015 10:59:49	6 days, 3 hours, 46 minutes, 5...	5 days, 9 hours, 19 min...	18 hours, 27 minutes, 30 s...	532014
jeremyt	Jan 8, 2015 12:37:54	Jan 15, 2015 1:35:24	6 days, 12 hours, 57 minutes, ...	5 days, 8 hours, 36 min...	1 day, 4 hours, 20 minutes...	565050
jodis	Jan 15, 2015 7:26:36	Jan 22, 2015 1:35:09	6 days, 18 hours, 8 minutes, 3...	5 days, 4 hours, 30 min...	1 day, 13 hours, 38 minut...	583713
jodis	Dec 4, 2014 7:25:12	Dec 11, 2014 1:35:08	6 days, 18 hours, 9 minutes, 5...	5 days, 2 hours, 28 min...	1 day, 15 hours, 41 minut...	583796
jodis	Jan 8, 2015 7:28:20	Jan 15, 2015 1:35:06	6 days, 18 hours, 6 minutes, 4...	5 days, 0 hours, 55 min...	1 day, 17 hours, 11 minut...	583606
jodis	Apr 23, 2015 7:19:28	Apr 30, 2015 1:35:11	6 days, 18 hours, 15 minutes, ...	5 days, 0 hours, 37 min...	1 day, 17 hours, 37 minut...	584143
jodis	Jan 22, 2015 7:15:21	Jan 29, 2015 1:35:07	6 days, 18 hours, 19 minutes, ...	5 days, 0 hours, 33 min...	1 day, 17 hours, 46 minut...	584386
jodis	May 21, 2015 7:11:38	May 27, 2015 8:30:01	6 days, 1 hour, 18 minutes, 2...	5 days, 0 hours, 18 min...	1 day, 0 hours, 59 minutes...	523103
jodis	Feb 26, 2015 7:03:57	Mar 5, 2015 1:35:12	6 days, 18 hours, 31 minutes, ...	4 days, 22 hours, 22 mi...	1 day, 20 hours, 8 minutes...	585075
marinam	Mar 6, 2015 14:13:21	Mar 11, 2015 7:33:04	4 days, 17 hours, 19 minutes, ...	4 days, 15 hours, 17 mi...	2 hours, 2 minutes, 22 sec...	407983
ElisabeW	Dec 11, 2014 7:21:36	Dec 17, 2014 14:13:17	6 days, 6 hours, 51 minutes, 4...	4 days, 15 hours, 1 min...	1 day, 15 hours, 50 minut...	543101
jodis	Oct 10, 2014 12:09:17	Oct 16, 2014 1:35:08	5 days, 13 hours, 25 minutes, ...	4 days, 13 hours, 59 mi...	23 hours, 26 minutes, 17 s...	480351
ElisabeW	Dec 4, 2014 7:16:14	Dec 11, 2014 1:35:48	6 days, 18 hours, 19 minutes, ...	4 days, 13 hours, 13 mi...	2 days, 5 hours, 6 minutes...	584374
jodis	Dec 11, 2014 7:22:47	Dec 18, 2014 1:35:09	6 days, 18 hours, 12 minutes, ...	4 days, 10 hours, 25 mi...	2 days, 7 hours, 47 minute...	583942
ElisabeW	Feb 12, 2015 7:12:19	Feb 17, 2015 15:23:09	5 days, 8 hours, 10 minutes, 5...	4 days, 8 hours, 36 min...	23 hours, 33 minutes, 56 s...	461450
jodis	Dec 18, 2014 7:17:31	Dec 25, 2014 1:35:10	6 days, 18 hours, 17 minutes, ...	4 days, 8 hours, 11 min...	2 days, 10 hours, 6 minute...	584259
ElisabeW	Nov 27, 2014 6:59:28	Dec 2, 2014 13:24:15	5 days, 6 hours, 24 minutes, 4...	4 days, 7 hours, 27 min...	22 hours, 56 minutes, 48 s...	455087
jodis	Jan 29, 2015 7:01:11	Feb 5, 2015 1:35:09	6 days, 18 hours, 33 minutes, ...	4 days, 6 hours, 48 min...	2 days, 11 hours, 45 minut...	585238
jodis	Apr 17, 2015 8:18:05	Apr 23, 2015 1:35:09	5 days, 17 hours, 17 minutes, ...	4 days, 6 hours, 44 min...	1 day, 10 hours, 32 minut...	494224
ElisabeW	Jan 15, 2015 7:55:01	Jan 20, 2015 15:00:05	5 days, 7 hours, 5 minutes, 4 ...	4 days, 0 hours, 54 min...	1 day, 6 hours, 10 minutes...	457504

Timecard Logon Report: Basic Details – does not include workstation name, focus is on user.



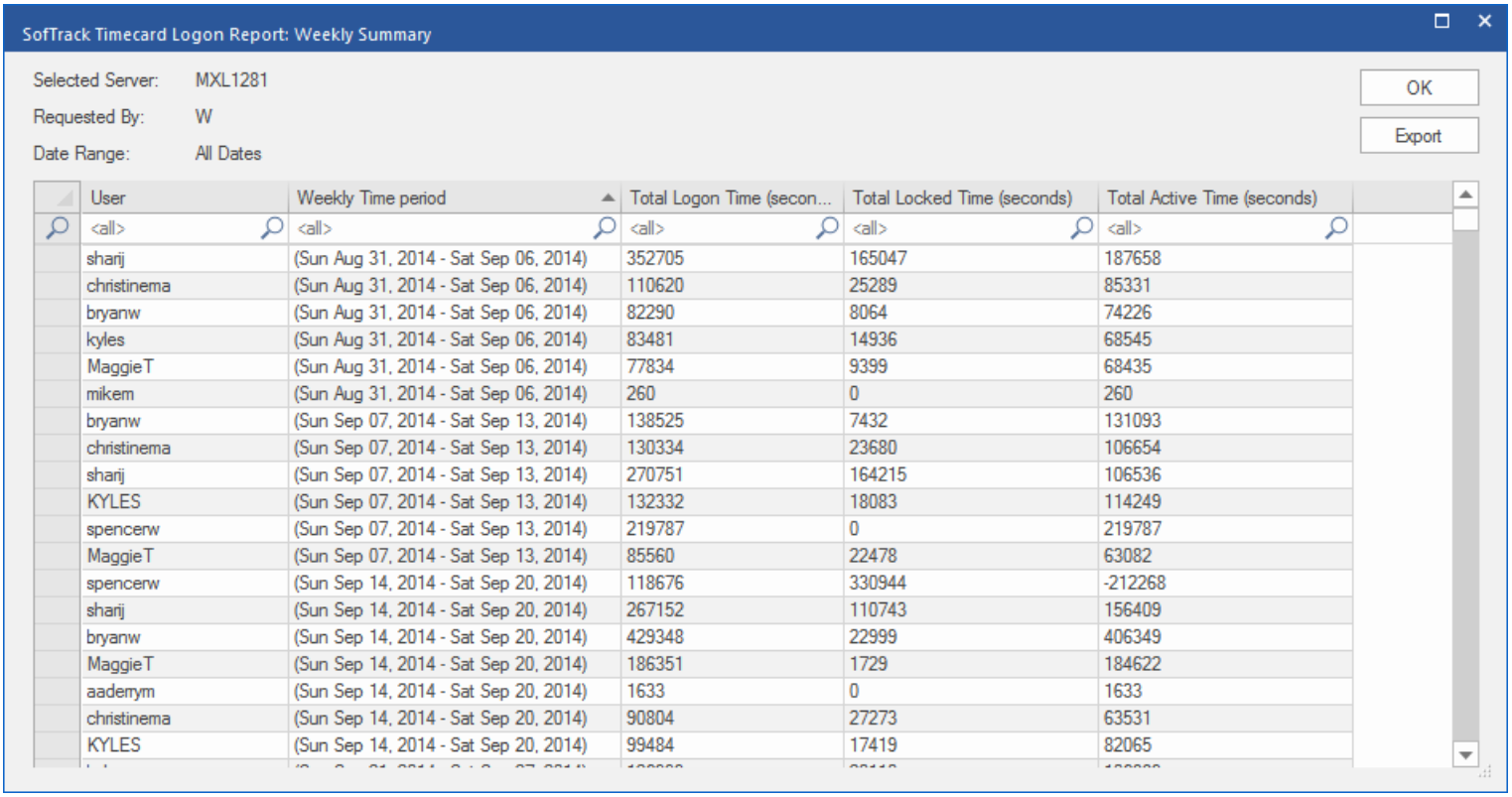
SofTrack Timecard Logon Report: Full Details

Selected Server: MXL1281
Requested By: W
Date Range: All Dates

OK
Export

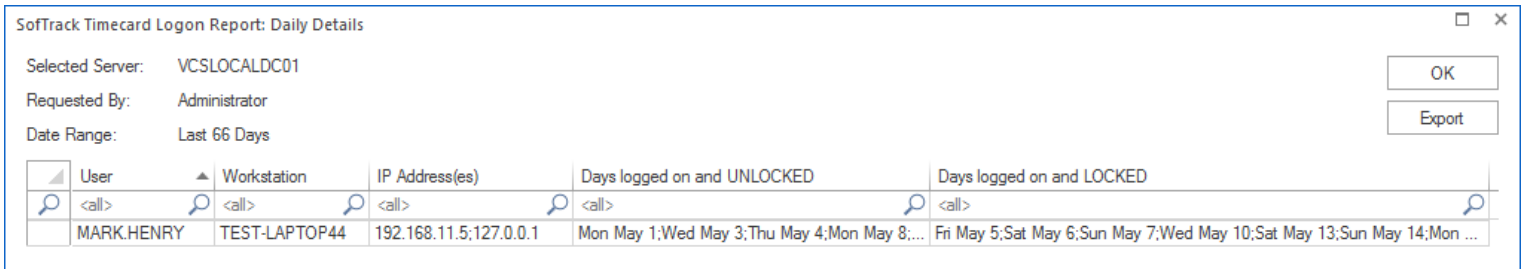
User	Workstat...	WTS Remote Name	From IP Address	Logon Time	Day of week	Logout Time	Day of week	Total Logon Time
aacharlesb	PC2464	PC2464	192.168.178.169	Sep 22, 2014 14:19:29	Mon	Sep 22, 2014 14:19:30	Mon	1
aachrisp	PC2586	PC2785	192.168.178.178 (via Ter...	Apr 28, 2015 14:03:22	Tue	Apr 28, 2015 14:04:14	Tue	52
aachrisp	PC2464	PC2464	192.168.178.169	Sep 22, 2014 9:44:55	Mon	Sep 22, 2014 10:51:24	Mon	3989
aachrisp	PC2596	PC2785	192.168.178.178 (via Ter...	Apr 22, 2015 16:07:13	Wed	Apr 22, 2015 16:07:16	Wed	3
aachrisp	PC2464	PC2785	192.168.178.178 (via Ter...	Apr 28, 2015 15:32:26	Tue	Apr 28, 2015 15:32:28	Tue	2
aachrisp	PC2464	PC2785	192.168.178.178 (via Ter...	Apr 28, 2015 15:26:42	Tue	Apr 28, 2015 16:11:11	Tue	2669
aachrisp	PC2464	PC2785	192.168.178.178 (via Ter...	Apr 28, 2015 17:41:24	Tue	Apr 28, 2015 17:41:25	Tue	1
aachrisp	PC2464	PC2785	192.168.178.178 (via Ter...	Apr 28, 2015 17:27:19	Tue	Apr 28, 2015 17:43:01	Tue	942
aachrisp	PC2464	PC2785	192.168.178.178 (via Ter...	Apr 28, 2015 17:47:05	Tue	Apr 28, 2015 18:10:58	Tue	1433
aachrisp	PC2464	PC2464	192.168.178.210	May 5, 2015 9:34:52	Tue	May 5, 2015 9:40:53	Tue	361
aachrisp	PC2464	PC2464	192.168.178.210	May 5, 2015 9:45:15	Tue	May 5, 2015 9:47:57	Tue	162
aachrisp	PC2464	PC2785	192.168.178.178 (via Ter...	May 9, 2015 14:56:15	Sat	May 9, 2015 15:02:46	Sat	391
aachrisp	PC2596	PC2596	192.168.178.175	Mar 11, 2015 14:00:08	Wed	Mar 11, 2015 14:00:10	Wed	2
aachrisp	PC2596	PC2596	192.168.178.175	Mar 11, 2015 13:59:57	Wed	Mar 11, 2015 14:02:24	Wed	147
aachrisp	PC2580	PC2785	192.168.178.178 (via Ter...	May 9, 2015 14:17:06	Sat	May 9, 2015 14:29:30	Sat	744
aachrisp	PC2580	PC2785	192.168.178.178 (via Ter...	May 8, 2015 17:02:40	Fri	May 8, 2015 17:10:57	Fri	497
aachrisp	PC2580	PC2785	192.168.178.178 (via Ter...	May 8, 2015 17:08:31	Fri	May 8, 2015 17:08:32	Fri	1
aachrisp	PC2580	PC2785	192.168.178.178 (via Ter...	May 8, 2015 16:35:09	Fri	May 8, 2015 16:59:51	Fri	1482

Timecard Logon Report: Full Details – columns do not include user SID and LDAP name



User	Weekly Time period	Total Logon Time (secon...	Total Locked Time (seconds)	Total Active Time (seconds)
<all>	<all>	<all>	<all>	<all>
sharij	(Sun Aug 31, 2014 - Sat Sep 06, 2014)	352705	165047	187658
christinema	(Sun Aug 31, 2014 - Sat Sep 06, 2014)	110620	25289	85331
bryanw	(Sun Aug 31, 2014 - Sat Sep 06, 2014)	82290	8064	74226
kyles	(Sun Aug 31, 2014 - Sat Sep 06, 2014)	83481	14936	68545
MaggieT	(Sun Aug 31, 2014 - Sat Sep 06, 2014)	77834	9399	68435
mikem	(Sun Aug 31, 2014 - Sat Sep 06, 2014)	260	0	260
bryanw	(Sun Sep 07, 2014 - Sat Sep 13, 2014)	138525	7432	131093
christinema	(Sun Sep 07, 2014 - Sat Sep 13, 2014)	130334	23680	106654
sharij	(Sun Sep 07, 2014 - Sat Sep 13, 2014)	270751	164215	106536
KYLES	(Sun Sep 07, 2014 - Sat Sep 13, 2014)	132332	18083	114249
spencerw	(Sun Sep 07, 2014 - Sat Sep 13, 2014)	219787	0	219787
MaggieT	(Sun Sep 07, 2014 - Sat Sep 13, 2014)	85560	22478	63082
spencerw	(Sun Sep 14, 2014 - Sat Sep 20, 2014)	118676	330944	-212268
sharij	(Sun Sep 14, 2014 - Sat Sep 20, 2014)	267152	110743	156409
bryanw	(Sun Sep 14, 2014 - Sat Sep 20, 2014)	429348	22999	406349
MaggieT	(Sun Sep 14, 2014 - Sat Sep 20, 2014)	186351	1729	184622
aaderrym	(Sun Sep 14, 2014 - Sat Sep 20, 2014)	1633	0	1633
christinema	(Sun Sep 14, 2014 - Sat Sep 20, 2014)	90804	27273	63531
KYLES	(Sun Sep 14, 2014 - Sat Sep 20, 2014)	99484	17419	82065

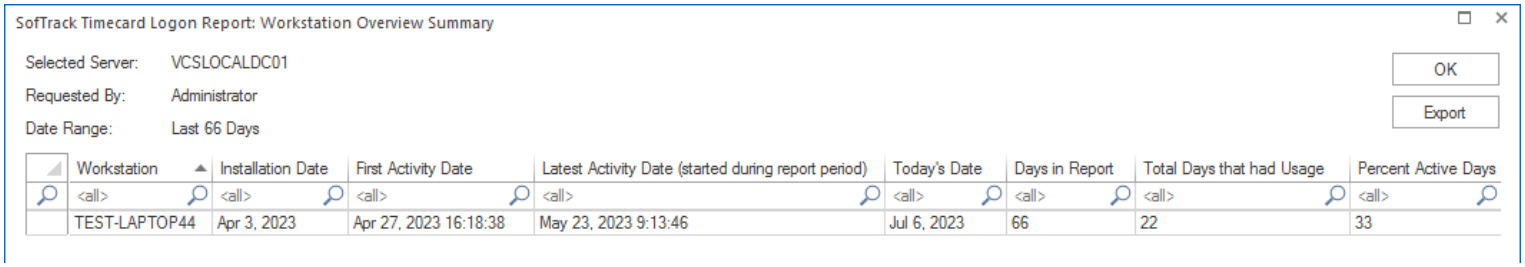
Timecard Logon Report: Weekly Summary



User	Workstation	IP Address(es)	Days logged on and UNLOCKED	Days logged on and LOCKED
<all>	<all>	<all>	<all>	<all>
MARK.HENRY	TEST-LAPTOP44	192.168.11.5;127.0.0.1	Mon May 1;Wed May 3;Thu May 4;Mon May 8;...	Fri May 5;Sat May 6;Sun May 7;Wed May 10;Sat May 13;Sun May 14;Mon ...

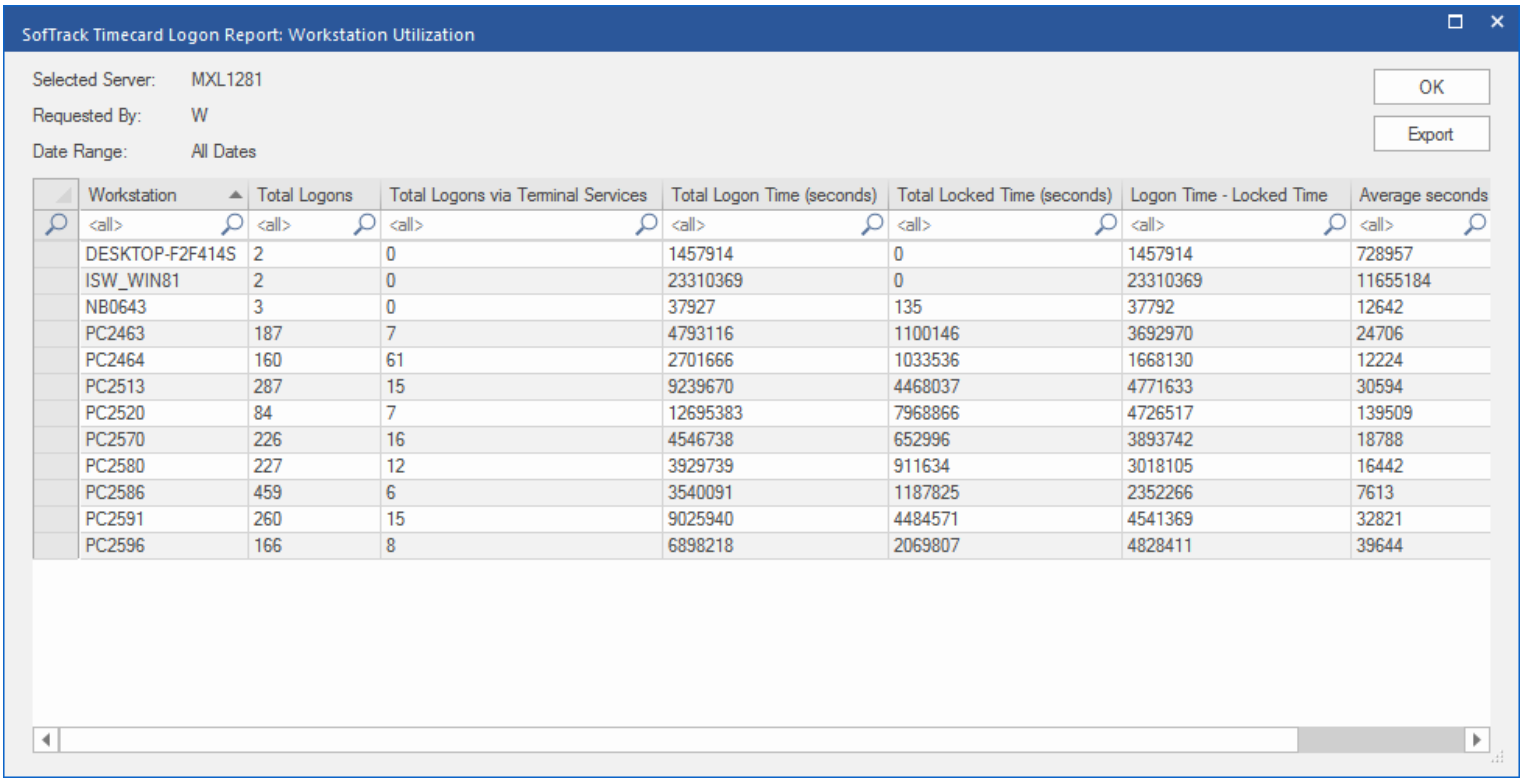
Timecard Logon Report: Daily Details

Days logged on and UNLOCKED column indicates days when the named user was logged on and the workstation was not locked the entire day.
Days logged on and LOCKED column indicates days when the named user was logged on and the workstastion was locked the entire day.



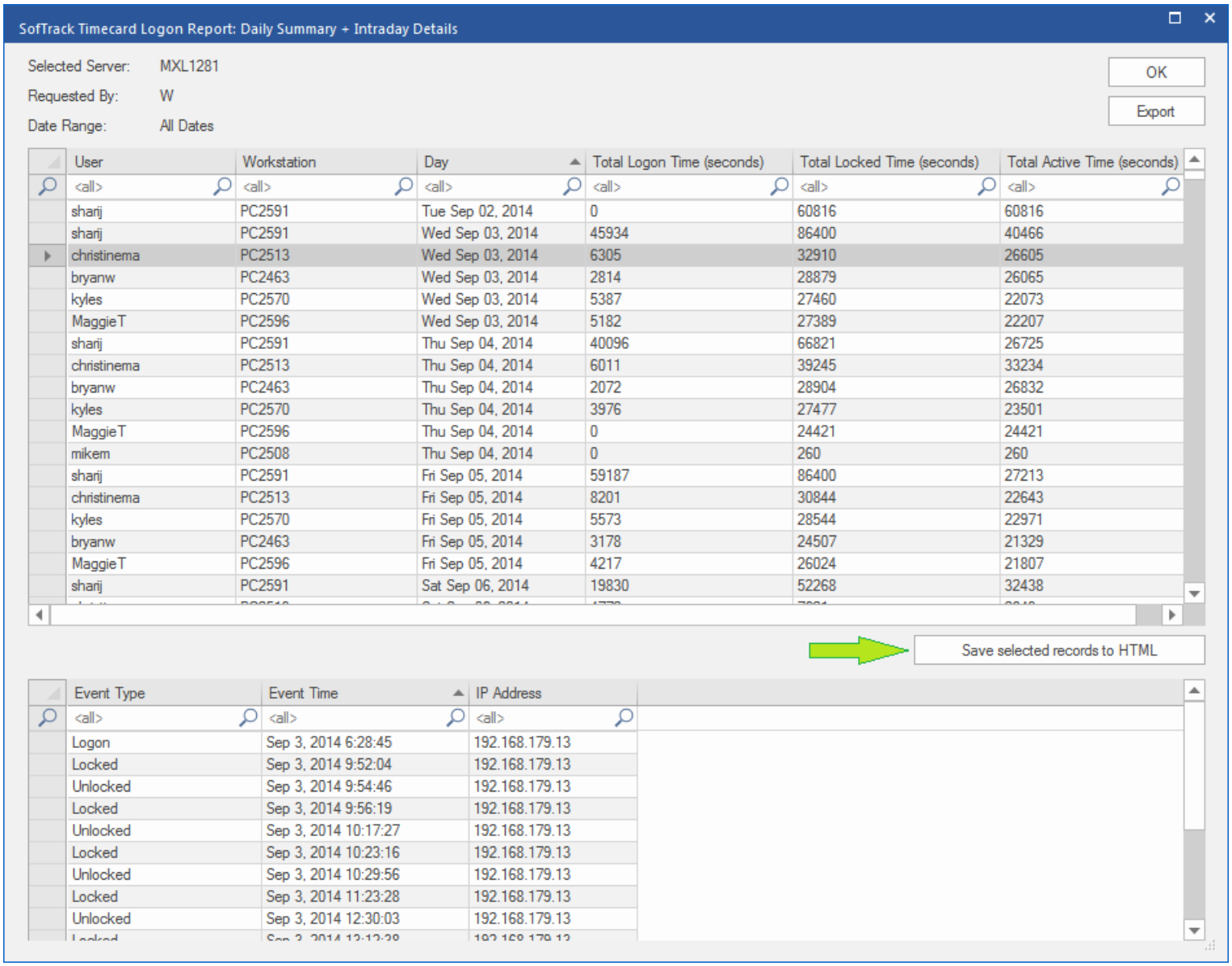
Workstation	Installation Date	First Activity Date	Latest Activity Date (started during report period)	Today's Date	Days in Report	Total Days that had Usage	Percent Active Days
<all>	<all>	<all>	<all>	<all>	<all>	<all>	<all>
TEST-LAPTOP44	Apr 3, 2023	Apr 27, 2023 16:18:38	May 23, 2023 9:13:46	Jul 6, 2023	66	22	33

Timecard Logon Report: Workstation Overview Summary



Workstation	Total Logons	Total Logons via Terminal Services	Total Logon Time (seconds)	Total Locked Time (seconds)	Logon Time - Locked Time	Average seconds
<all>	<all>	<all>	<all>	<all>	<all>	<all>
DESKTOP-F2F414S	2	0	1457914	0	1457914	728957
ISW_WIN81	2	0	23310369	0	23310369	11655184
NB0643	3	0	37927	135	37792	12642
PC2463	187	7	4793116	1100146	3692970	24706
PC2464	160	61	2701666	1033536	1668130	12224
PC2513	287	15	9239670	4468037	4771633	30594
PC2520	84	7	12695383	7968866	4726517	139509
PC2570	226	16	4546738	652996	3893742	18788
PC2580	227	12	3929739	911634	3018105	16442
PC2586	459	6	3540091	1187825	2352266	7613
PC2591	260	15	9025940	4484571	4541369	32821
PC2596	166	8	6898218	2069807	4828411	39644

Timecard Logon Report: Workstation Utilization Summary



User	Workstation	Day	Total Logon Time (seconds)	Total Locked Time (seconds)	Total Active Time (seconds)
sharij	PC2591	Tue Sep 02, 2014	0	60816	60816
sharij	PC2591	Wed Sep 03, 2014	45934	86400	40466
christinema	PC2513	Wed Sep 03, 2014	6305	32910	26605
bryanw	PC2463	Wed Sep 03, 2014	2814	28879	26065
kyles	PC2570	Wed Sep 03, 2014	5387	27460	22073
MaggieT	PC2596	Wed Sep 03, 2014	5182	27389	22207
sharij	PC2591	Thu Sep 04, 2014	40096	66821	26725
christinema	PC2513	Thu Sep 04, 2014	6011	39245	33234
bryanw	PC2463	Thu Sep 04, 2014	2072	28904	26832
kyles	PC2570	Thu Sep 04, 2014	3976	27477	23501
MaggieT	PC2596	Thu Sep 04, 2014	0	24421	24421
mikem	PC2508	Thu Sep 04, 2014	0	260	260
sharij	PC2591	Fri Sep 05, 2014	59187	86400	27213
christinema	PC2513	Fri Sep 05, 2014	8201	30844	22643
kyles	PC2570	Fri Sep 05, 2014	5573	28544	22971
bryanw	PC2463	Fri Sep 05, 2014	3178	24507	21329
MaggieT	PC2596	Fri Sep 05, 2014	4217	26024	21807
sharij	PC2591	Sat Sep 06, 2014	19830	52268	32438

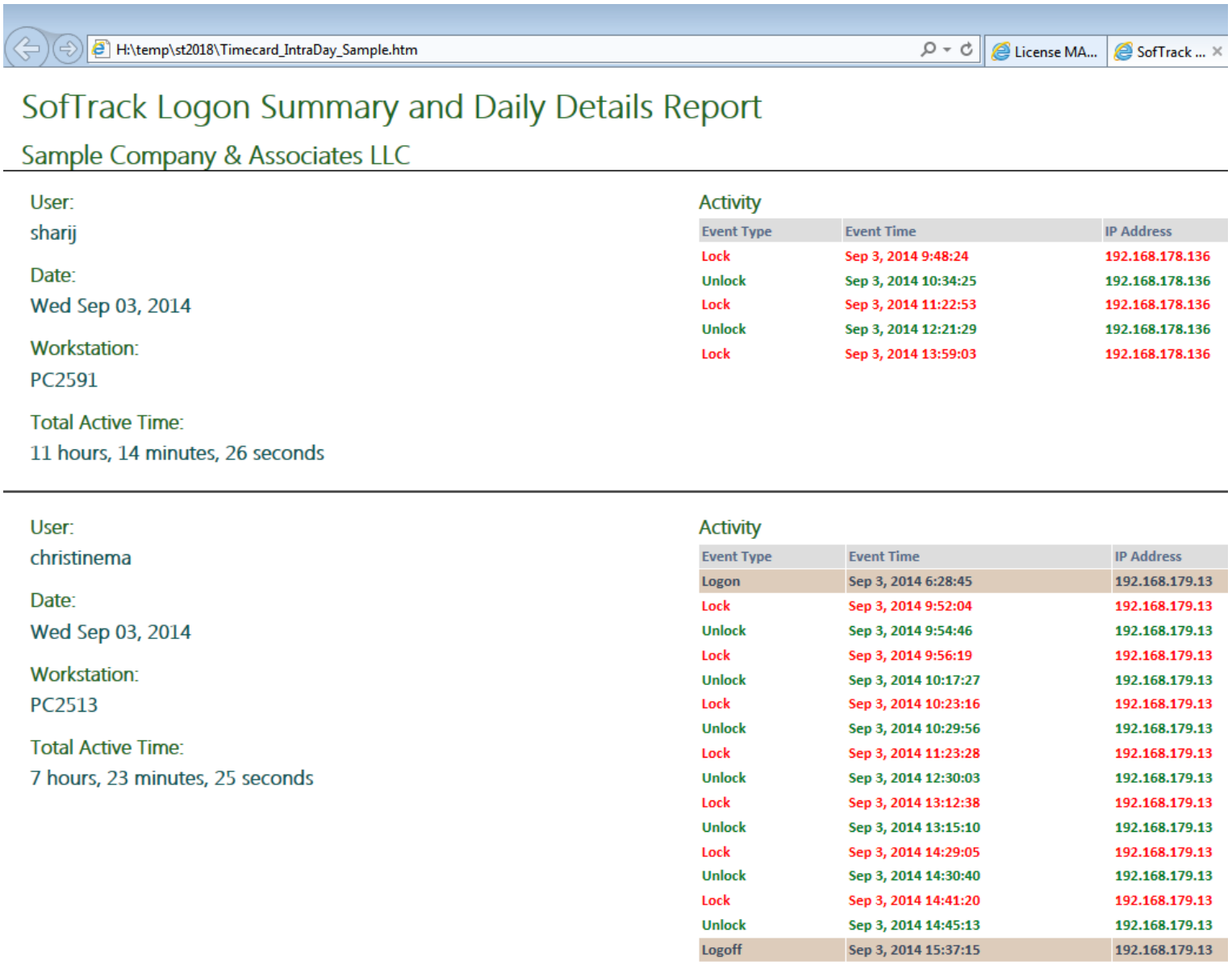
Event Type	Event Time	IP Address
Logon	Sep 3, 2014 6:28:45	192.168.179.13
Locked	Sep 3, 2014 9:52:04	192.168.179.13
Unlocked	Sep 3, 2014 9:54:46	192.168.179.13
Locked	Sep 3, 2014 9:56:19	192.168.179.13
Unlocked	Sep 3, 2014 10:17:27	192.168.179.13
Locked	Sep 3, 2014 10:23:16	192.168.179.13
Unlocked	Sep 3, 2014 10:29:56	192.168.179.13
Locked	Sep 3, 2014 11:23:28	192.168.179.13
Unlocked	Sep 3, 2014 12:30:03	192.168.179.13

Timecard Logon Report: Daily Summary + Intraday Details

The report above provides two distinct abilities not found in the other Timecard Logon Reports:

- Ability to view logon,lock, unlock and logoff activity during a single day for a single user
- Ability to save SELECTED records to HTML (green arrow in image above)

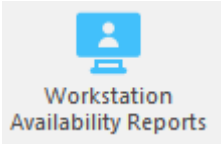
Sample HTML output:



Timecard Logon Report: Daily Summary + Intraday Details HTML output for selected Users

Logon Tracking Report: Workstation Availability Reports

As shown in Figure 9-3 at the top left is the **Workstation Availability Reports** button:



Workstation Available Reports are designed to be an automatically generated report. A report can be run on demand directly from the SofTrack Console.

The Workstation Availability Reports were created in response to many educational institutions requirement of knowing where workstations are being used and not used. This assists students in knowing where there are currently available workstations for use. The output format includes CSV and HTML. The HTML files produced use basic HTML coding to ensure that all devices, including phones, tablets, and other can successfully view the output.

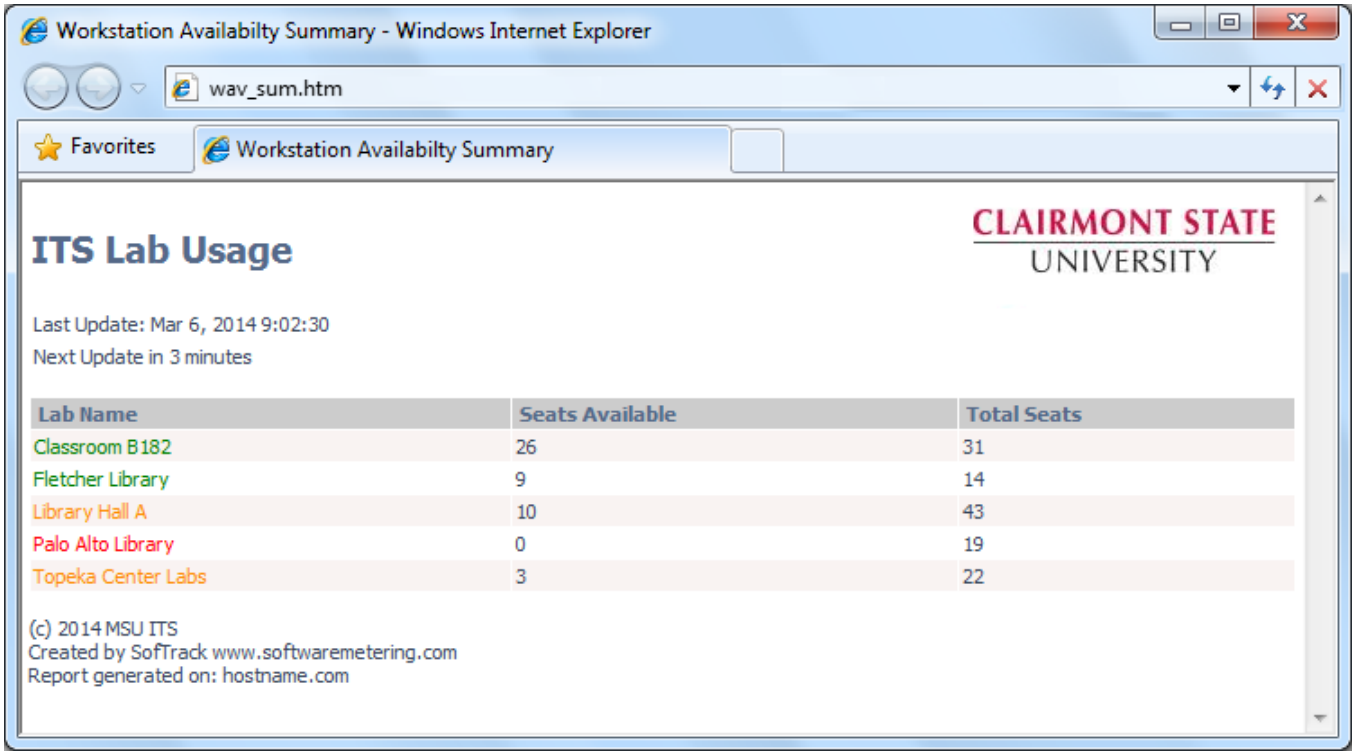


Figure 9-17

Notice the customizations in the Summary report show in Figure 9-17. The page title, logo (or no logo), page update, and footer details can all be easily customized to suit your needs.

Further notice that the "Lab Name" column header can be customized as well. The detail rows under the "Lab Name" column are set to specific colors. Red indicates no availability. Orange indicates less than 50% availability (but not zero) and Green indicates more than 50% availability.

The "Lab Name" All Computers is a special inclusion that provides a summary of all workstations reporting logon statistics (not shown in Figure 9-17). Other Lab Names as "Fletcher Library" are created by you via Workstation Profiles. Workstation Profiles allow you to easily configure groupings of workstations.

These statistics are provided in real-time by the combination of the SofTrack Local Workstation Agent at each workstation and the SofTrack Server Agent.

Each "Lab Name" can also be configured to be hotlinked to a detail page that reveals the machine-by-machine details as shown in Figure 9-18.

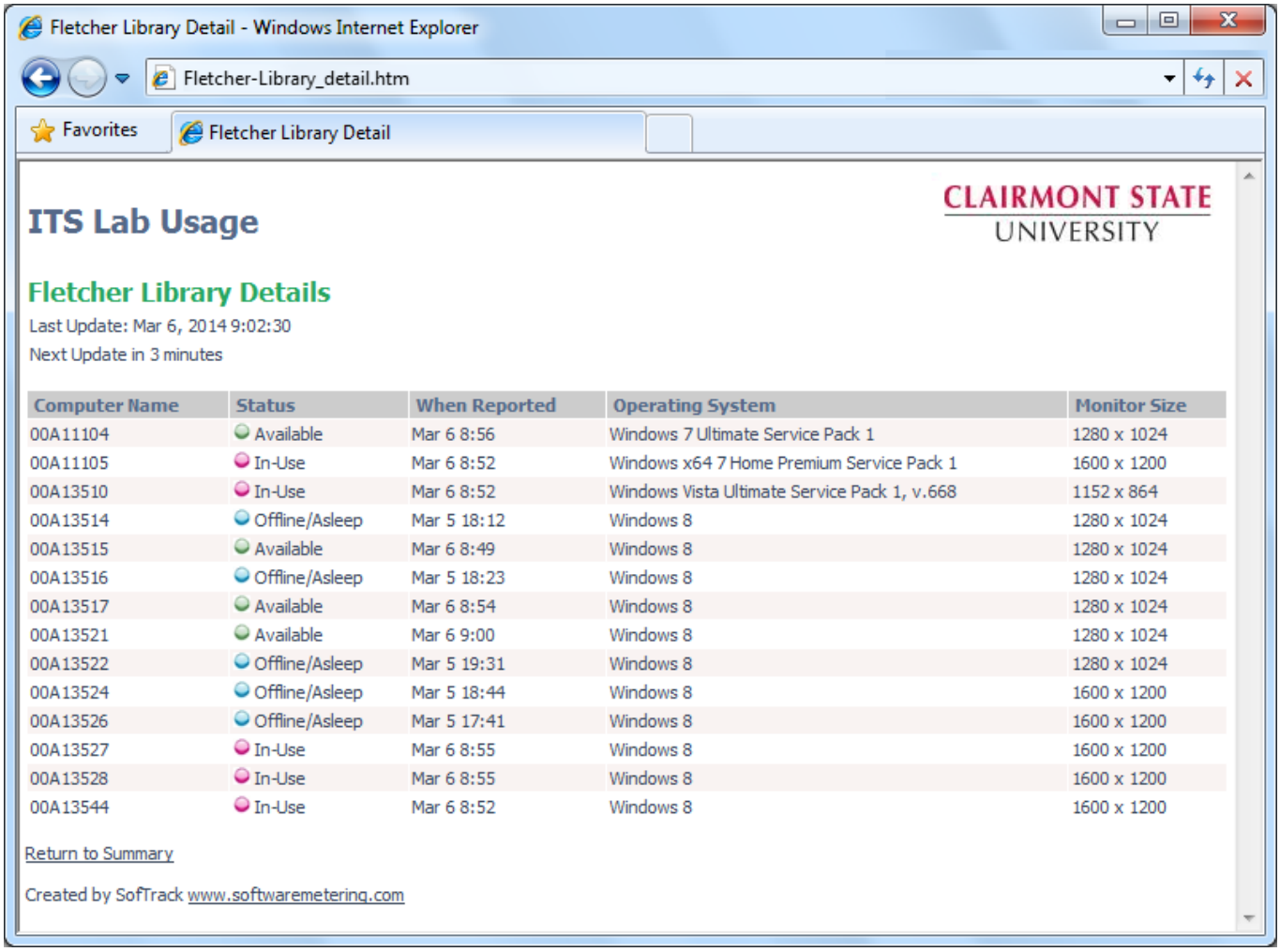


Figure 9-18

Reporting groups are defined by Workstation Profiles. The profiles can include manually entered workstations as well as those included by Active Directory Group membership. This enables you to quickly and easily create and maintain your own views of your workstation environments.

Each Status graphic dot is a simple JPG file that is automatically created by SofTrack, you do not need to supply them. The optional logo graphic at top right is defined by you.

To begin, select the Workstation Availability Reports option as show in Figure 9-3, the report configuration window is presented.

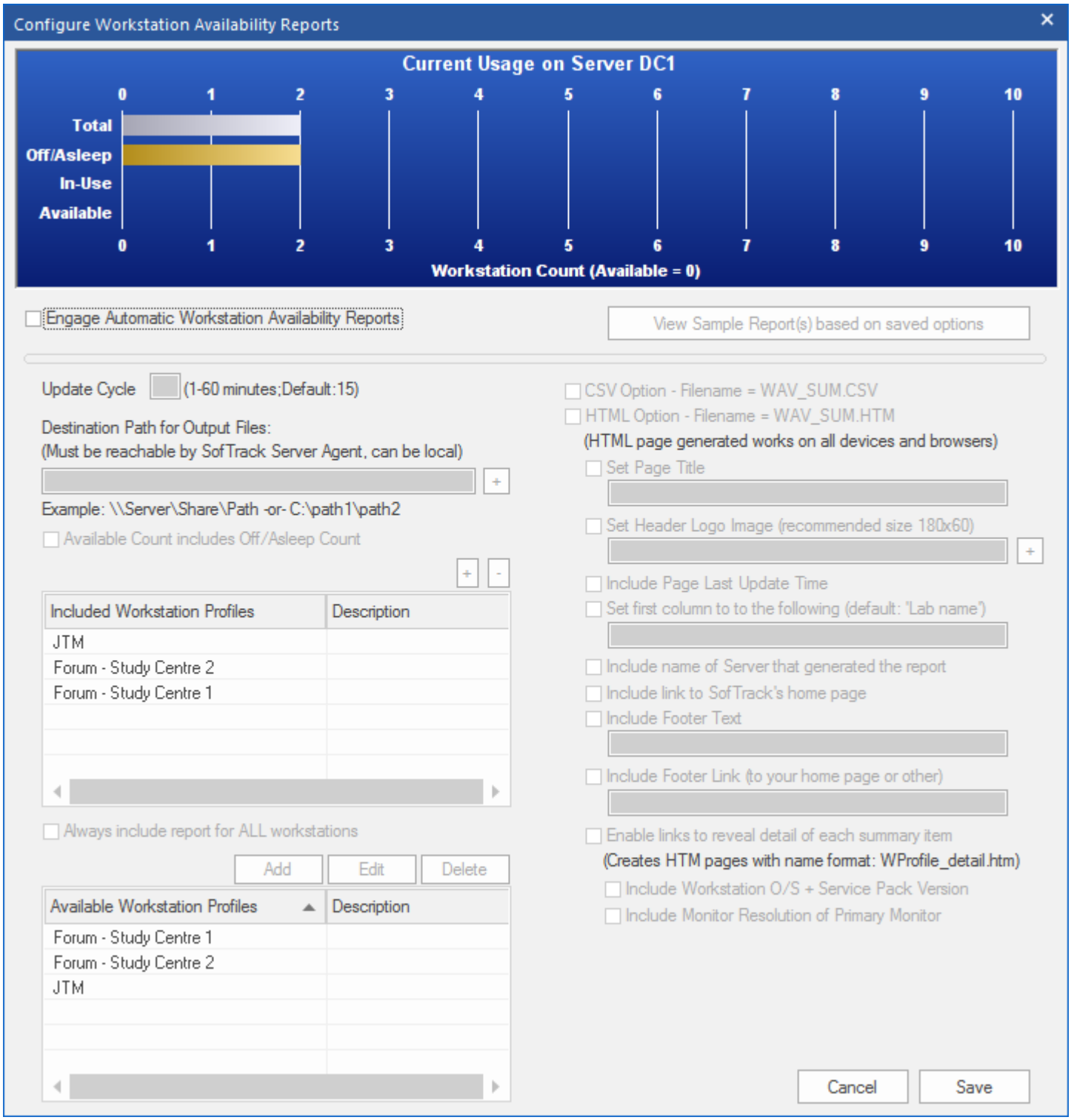


Figure 9-19

The bar chart at top of Figure 9-19 shows the current status at the selected SofTrack Server Agent. The bars shown are for up to 10 workstations, however, the chart will auto-scale based on your environment.

The Total bar in **gray** indicates how many workstations are found in the "LOGON" folder. The Off/Asleep bar in **gold/yellow** indicates how many workstations have not reported in

more than 30 minutes, it is likely these machines are either powered off, in power sleep mode or have an older SofTrack LWA installed. The In-Use bar in **red** indicates how many workstations are actively being used. Finally, the Available bar in **green** indicates how many workstations are currently turned on and running (may be in screensaver mode) where no one is currently logged on.

Logon Tracking Report: Configuring Workstation Availability Reports

For this section, please refer to Figure 9-19. At top left, just under the bar chart, there is a checkbox labeled **Engage Automatic Workstation Availability Reports**. When checked, the SofTrack Server Agent (minimum version 6.90a) will read the configuration defined below and perform as indicated.

Update Cycle is pre-populated with 15 and can be defined from 1minute through 60 minutes. The update cycle is how often the SofTrack Server Agent will perform the configured report.

Destination Path for Output Files is initially blank. If left blank the path used will be the same as defined for the METER.LOG. If you define a value for this field it must specify a path that the SofTrack Server Agent can reach while running as service (i.e. using the LOCAL SYSTEM account). You may specify a path local to the server that hosts the SofTrack Server Agent such as c:\wavfiles. Depending on selected options, the files that will be stored in the designated (or default) path include the WAV_SUM.HTM, WAV_SUM.CSV, wa-avail.jpg, wa-inuse.jpg, wa-nores.jpg and detail html files (which are named based on that of included Workstation Profiles).

Available Count includes Off/Asleep Count checkbox indicates how to handle counting of workstations that have not recently reported (i.e. past 30 minutes) for purposes of the Summary report which includes only two columns, Seats Available and Total Seats. If checked, any workstation that has not recently reported its logon status will be included in the tally of "Seats Available" for purposes of the Summary report (refer to Figure 9-17). If unchecked, any such workstation will be included in the "Total Seats" column but will not be included in the "Seats Available" column.

Workstation Profiles Included list has two buttons at its upper right edge. The first is a **+** and the second a **-**. The plus (+) button, when clicked, will include the first selected Workstation Profile from the list below labeled "Available Workstation Profiles". The minus (-) button, when clicked, will remove the first selected Workstation Profile from the list of Workstation Profiles Included. Each Workstation Profile included will have its own summary included. The Workstation Profile name will be used as the row name in the summary report (Figure 9-17). And its name will also be used as the HTM filename (with spaces converted to dashes) for the detail summary (if selected).

Always include report for ALL workstations, if no Workstation Profiles are included then the only report generated will be for All Workstations. The All Workstations report is the default but is not automatically generated when one or more Workstation Profiles are included. The All Workstations report includes all workstations that have ever reported Logon status. Therefore, if there are workstations that have not ever reported Logon status

then they will not be included in this report. If you always want to the report for All workstations then click this checkbox.

Available Workstation Profiles list is where you can define and edit Workstation Profiles. For additional details, please refer to the Defining Workstation Profiles section.

CSV Option – Filename = WAV_SUM.CSV checkbox indicates you want a CSV file created that contains the summary report output. Sample output:

```
"ALL","5","2","1","2",
"123ABCN (a b c test)","1","1","0","0",
```

The first field is either the word ALL indicating all workstations or the name of the included Workstation Profile with its description in parenthesis. The next four fields are:

- Total Workstations Count
- In-Use Workstations Count
- Available Workstations Count
- Off or Asleep (Power Sleep) Workstations Count

HTM Option – Filename = WAV_SUM.HTM checkbox indicates you want an HTM summary file created (see Figure 9-17). There are several refinements that can be made for the HTM Option, each are presented below.

Set Page Title checkbox and field, if selected and field defined, will be used for the resulting HTM summary file. Default value is "Workstation Availability Summary".

Set Header Logo Image File (recommended size 180x60) checkbox and field, if selected and field defined, will, when the **Save** button is clicked copy the indicated file to the METER.LOG path of the selected server with the filename of **WAV_LOGO.???** where ??? is the filename extension such as JPG, PNG, BMP, GIF and so on. Be sure that your image file only has a 3 character file extension. If it has a larger one such as JPEG, please rename to JPG or save to a different image format. To the immediate right of the edit field is a button with a **+** sign, click it to bring up a folder explorer to assist in locating the desired image file.

This logo file will appear in the summary and optional detail reports as shown in Figure 9-17 and Figure 9-18. The recommended size of 180x60 is suggested to enable the window to be easily adjusted for smaller format devices. A larger or smaller image size may be used. Further, once the **Save** button is clicked, and you later edit the configuration, whatever filename you entered will be shown as WAV_LOGO.??? and the original filename it was copied from is not retained.

Include Page Last Update time checkbox, if selected, will include just above the summary or detail data rows the time the page was created and how long until the next update will occur.

Set first column text to the following (default: "Lab name") checkbox and field, if selected and field defined, will use the indicated value for the first column shown in the summary report.

Include name of Server that generated the report checkbox, if selected, will include a line in the footer of the summary and detail reports indicating the name of the SofTrack Server Agent hostname.

Include link to SofTrack's home page checkbox, if selected, will include a clickable link in the footer of the summary and detail reports that will navigate to the home page of SofTrack at www.softwaremetering.com

Include Footer Text checkbox and field, if selected and field defined, will include the text at the footer of the report. If the Include Footer Link is also included, it will automatically be combined with the footer text to make a clickable link.

Include Footer Link (to home page or other) checkbox and field, if selected and field defined, will include a clickable link to the indicated page. If no Footer Text defined, then the link will be shown with text equal to the link address. If Footer Text is defined then the clickable link created will use the Footer Text as the name of the link and will not show the Footer Link value on the page generated.

Enable links to reveal detail of each summary item checkbox, if selected, will, for each summary row in the Summary Report (Figure 9-17) create a separate HTM page and add a hotlink to it from the Summary Report. The separate HTM page, the detail page, will have a filename equal to the Workstation Profile name with any spaces converted to dashes and a suffix of "_detail". The detail report for the default ALL workstations(computers) has a filename of All-Computers_detail.htm.

The detail report will reveal each workstation included and its status and when it last reported its logon status (including {never}). Optionally you may include two other columns, the Workstation Operating System and Workstation Primary Monitor Resolution. These columns are further defined below.

The page includes a "Return to Summary" link at the bottom of the page.

Include Workstation O/S + Service Pack Version checkbox, if selected and if the **Enable links to reveal detail of each summary item** is selected, will include in the detail report a column revealing the workstation's operating system and service pack version. This data is obtained from that workstation's Quick Inventory record, if there is one present. Otherwise the field value will be blank.

Include Monitor Resolution of Primary Monitor checkbox, if selected and if the **Enable links to reveal detail of each summary item** is selected, will include in the detail report a column revealing the resolution of the indicating workstation's primary monitor. This data is obtained from that workstation's Quick Inventory record, if there is one present. Otherwise the field value will be blank.

Logon Tracking Report: Viewing Sample Workstation Availability Reports

In Figure 9-19, at top left under the bar chart is a button **View Sample Report(s) based on saved options**. This button, when clicked, will, via the SofTrack Console (and not via the SofTrack Server Agent) create the indicate Workstation Availability Reports and automatically present each. The CSV Option report will be shown in NOTEPAD.EXE and the HTM Option will be shown in the default web browser of the local machine.

Use of this button does not require the "Engage Automatic Workstation Availability Reports" checkbox to be clicked.

Please note, if your SofTrack Server Agent is currently engaged and is currently producing Workstation Availability Reports, this option will update those same files, so the report you view maybe generated by you or by the SofTrack Server Agent, depending on where the SofTrack Server Agent "is" in its update cycle.

Lastly, the Sample Report generated will, if defined, include a "Page Updated" and "Next Update" values but the resulting sample report will not be automatically updated since this is a sample of what the actual report will look like.

Browser, File Open, Create, Delete and Application Launches

Begin open by opening `SOFTRACK_CONSOLE.EXE` selecting the server, click the "Reports" tab and then selecting the "Workstation Audit" category.

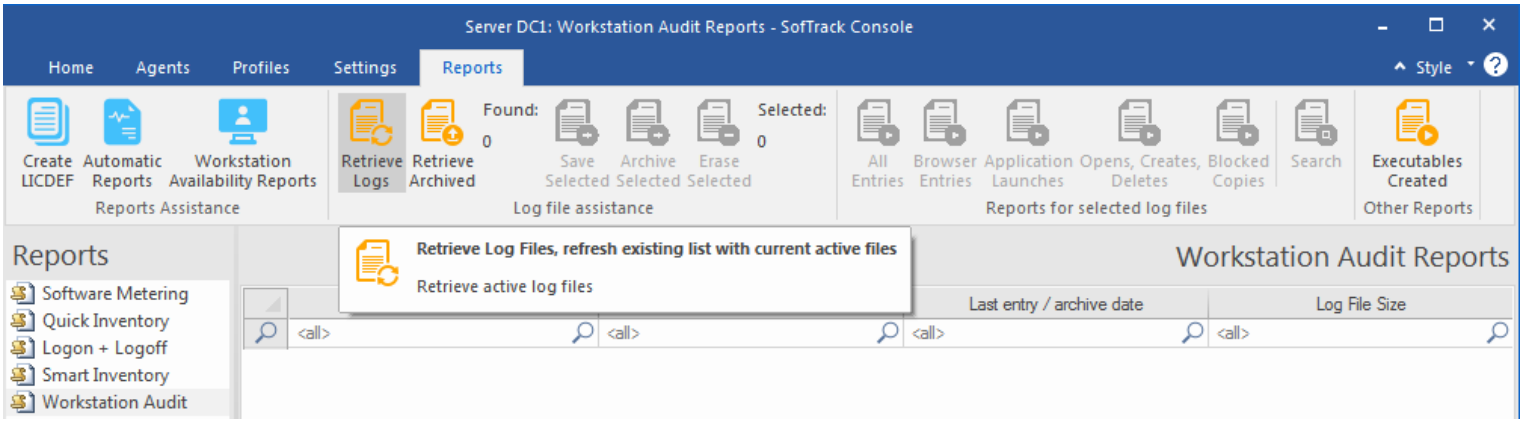


Figure 9-20

To begin, click the **Retrieve Logs** button (highlighted) and/or the **Retrieve Archived** (Logs) button:

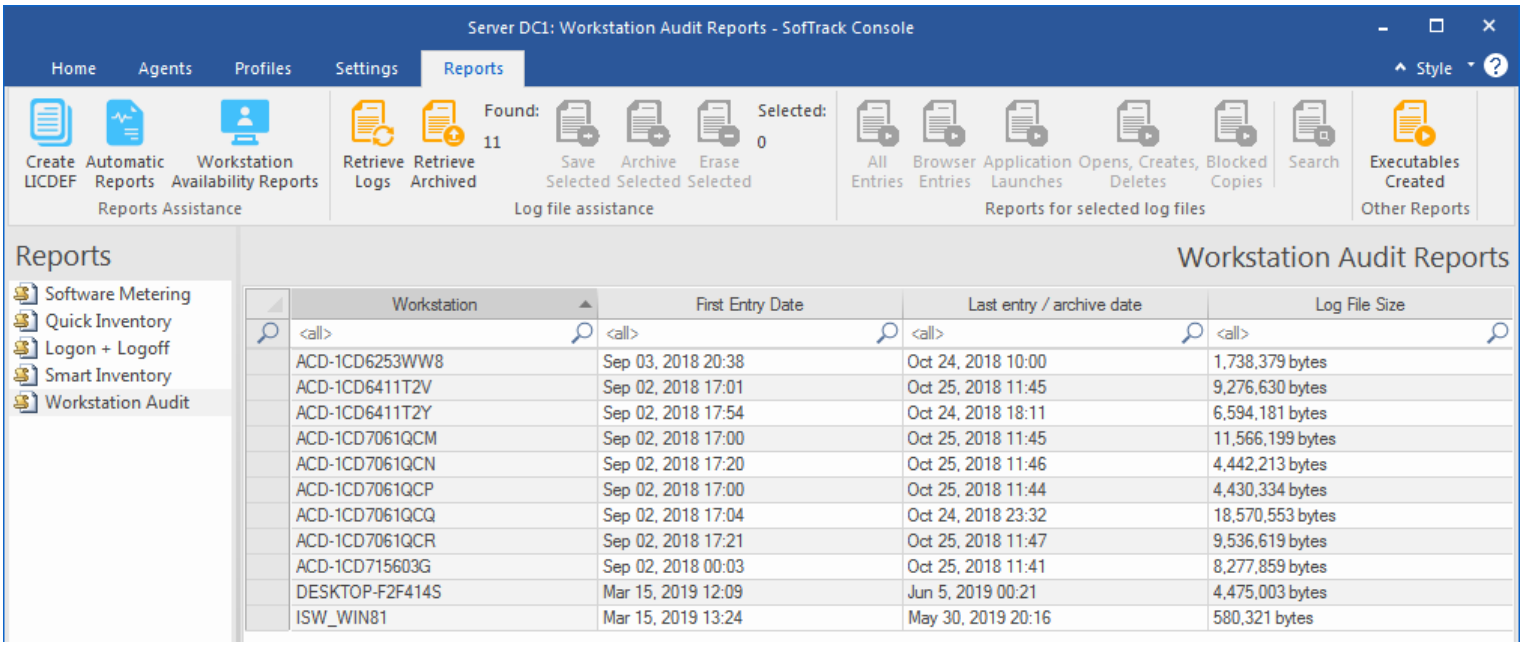


Figure 9-21

The list includes all current workstation audit log files. Each audit log is stored in a filename matching the workstation name the **Audit** subfolder within in the `METER.LOG` path. The files are in `CSV` format.

The **first entry date** column indicates the date of the first record and the **last entry date** column indicates the date of the audit file's last record.

If using Workstation Audit Archiving then notice the **Retrieve Archived** button as shown in Figure 9-21. When clicked, this button will include in the list presented all archived Workstation Audit log files.

Each Workstation Audit report includes:

- Time event occurred
- Workstation
- User (will also indicate process name when available and indicates if file copy)
- TCP/IP address
- Item access (file, folder or web page)

Searching Audit Records

When selected, the **Search** button (Figure 9-21) will present the following window:

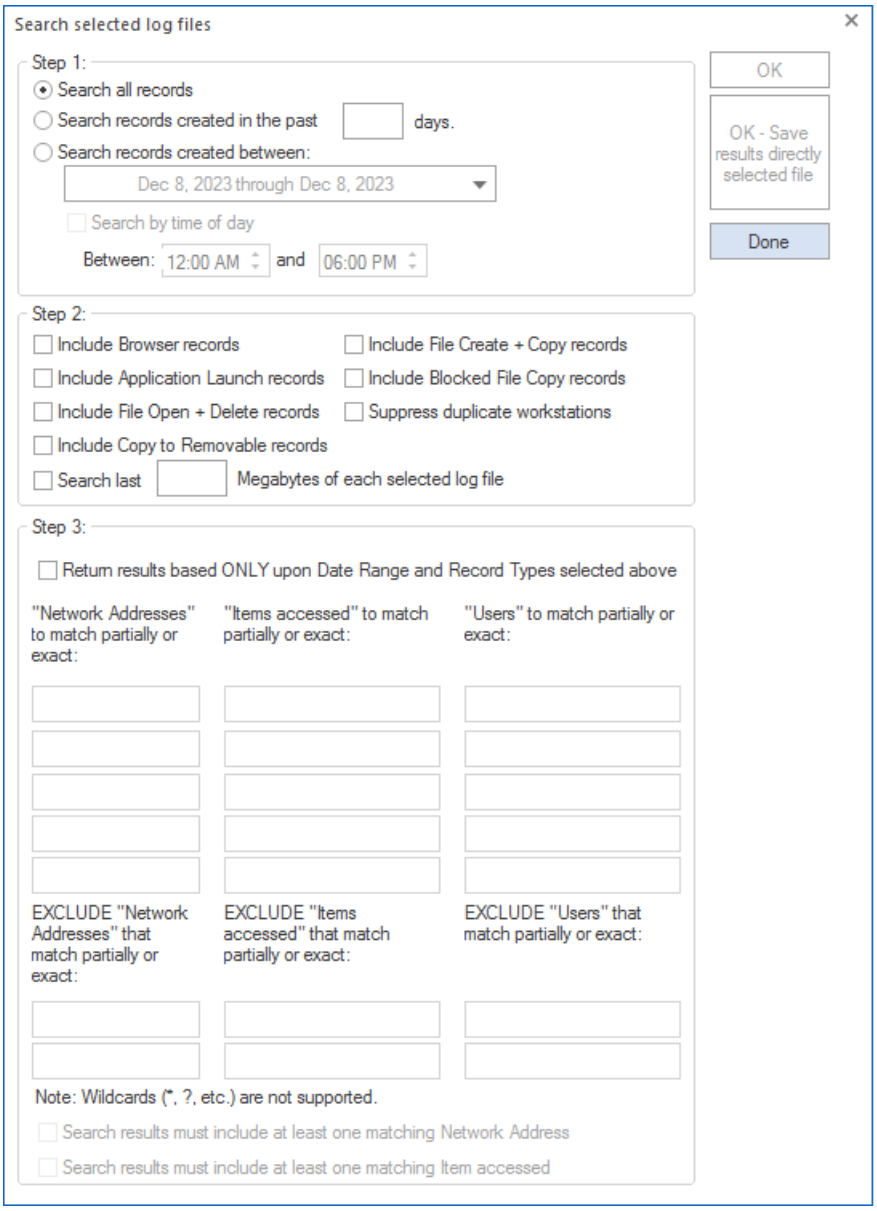


Figure 9-24

The window shown in Figure 9-24 is separated into three steps:

Step 1: Select what records to search, either all or by selected time period.

Step 2: Select the specific event types to include.

Note: Suppress duplicate workstations checkbox

This checkbox only affects results that are sent to the screen not to directly to file. What this option does is eliminate duplicate "item accessed" entries for each workstation. This option will reduce the results found to be only unique "items accessed" per workstaion. This option does nothing when results are sent directly to file. Therefore, when results are sent directly to file, duplicate entries are not suppressed.

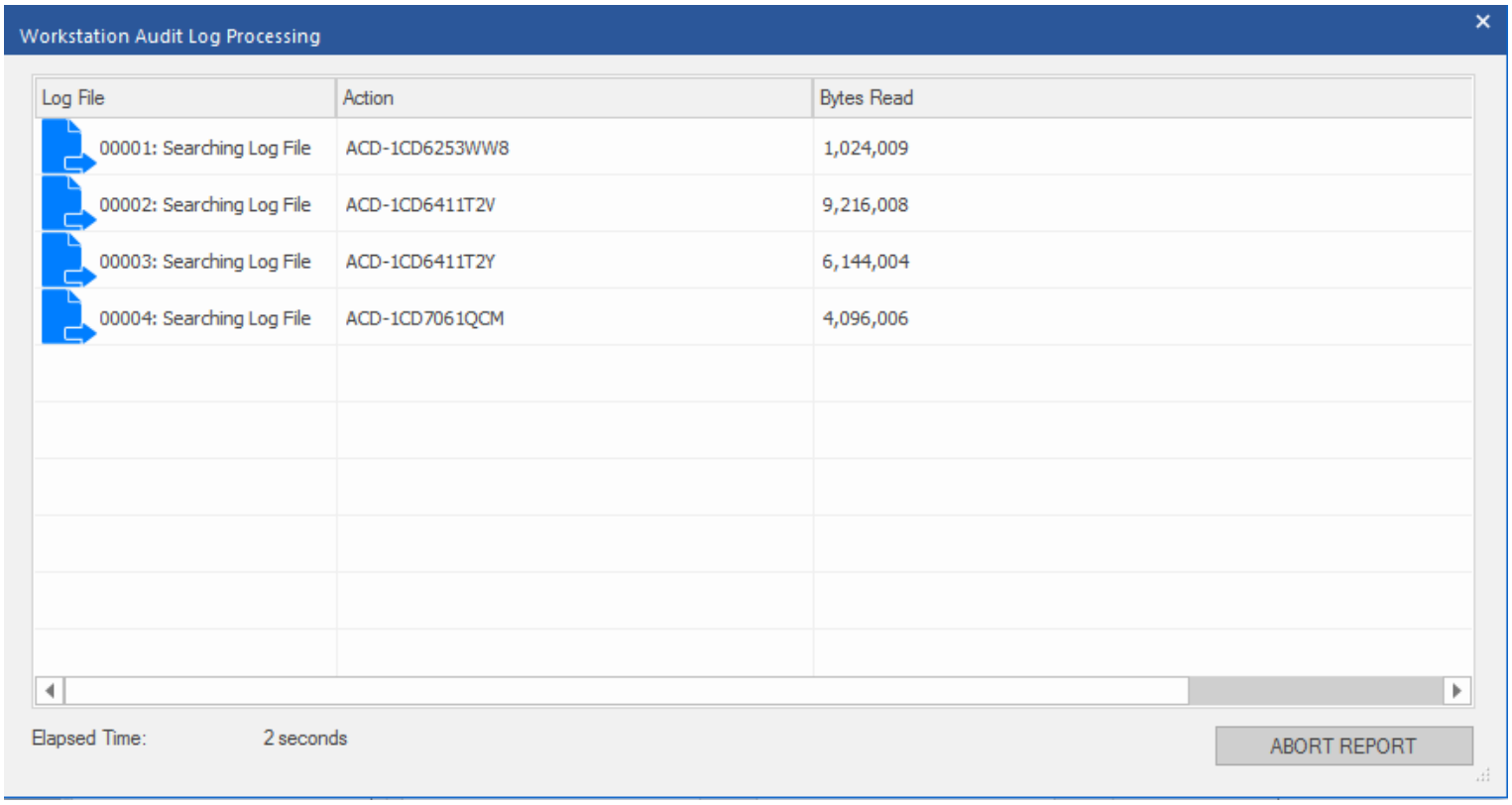
Step 3: Select to either return results based on Steps 1 and 2, or to further refine the search as indicated. If values are provided in the EXCLUDE section, the results will be based upon a "logical AND" with the values to INCLUDE section. If no values are provided in the INCLUDE section, then all records will be included and the results only filtered by the EXCLUDE values provided. Likewise, if no values to EXCLUDE are provided then only that values to INCLUDE will be used to filter the results.

There are two OK buttons. The button labeled **OK** will run the report and show the results to a new window.

The second, labeled **OK – Save results directly to selected file** enables quicker searching and reporting for large datasets (over 100MB of selected files to search). The results are saved in `CSV` format.

NOTE: The **OK** buttons will not become enabled until you have selected an item from each Step selection.

During the Search a progress window will appear. Notice it includes elapsed time and can be aborted:



Executables Created

Begin open by opening SOFTRACK_CONSOLE.EXE selecting the server, click the "Reports" tab and then selecting the "Workstation Audit" category.

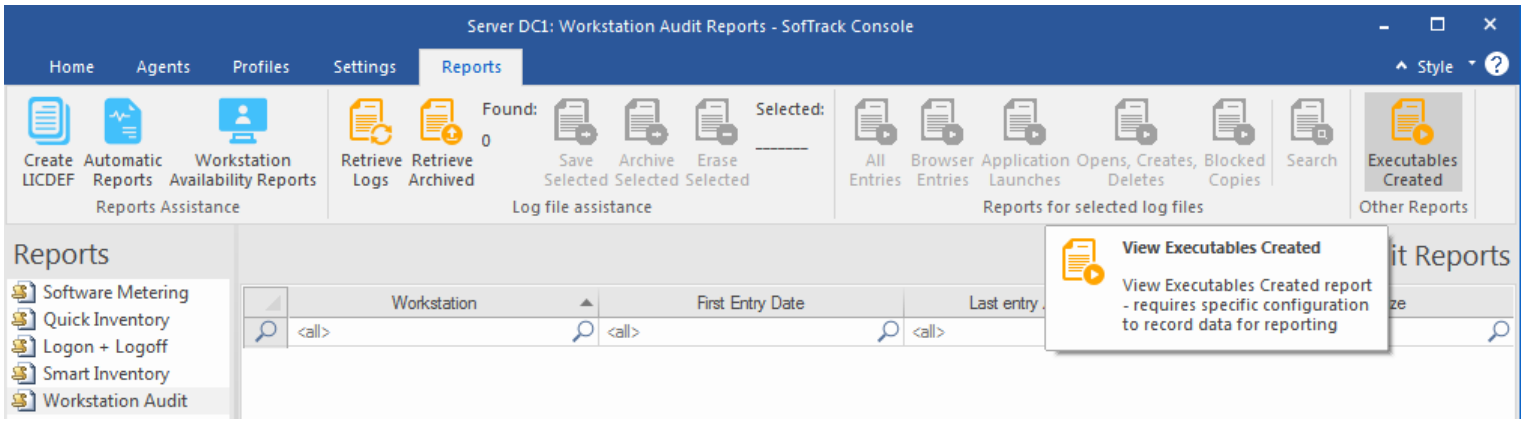


Figure 9-25

This report relies upon data stored in the CSV file, ALERTEXE.

The ALERTEXE file is directly stored in the folder specified for METER.LOG. It is updated by the SofTrack Server Agent in response to notification by the SofTrack Local Workstation Agent that a EXE, DLL or COM file has been created or opened with modification privileges.

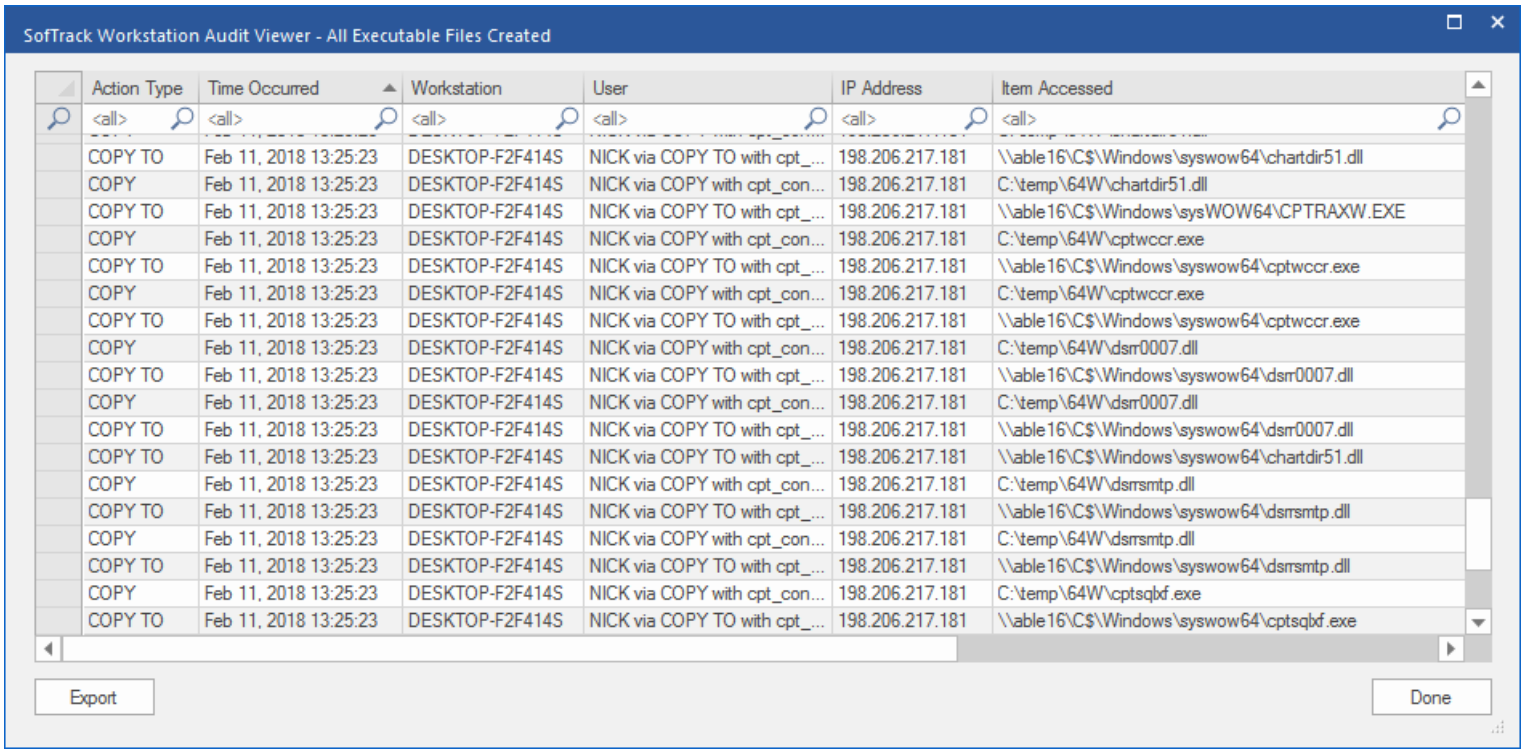


Figure 9-26

Chapter 10 SofTrack Managed Assets

This section previously contained SofTrack Managed Assets.

Please refer to the SofTrack Managed Assets Administrator Guide on this link:

https://www.softwaremetering.com/outgoing/sma_admin_guide.pdf

Chapter 11 Controlling Bentley® licenses

IMPORTANT: SofTrack offers unique features to 100% accurately monitor and control your Bentley® licenses for any Bentley® product by Calendar 10-minute concurrent usage and Calendar Hour concurrent usage and Calendar Day concurrent usage.

Resetting Daily License Usage

The ability to automatically terminate **any** selected application usage daily at 11:59pm (local workstation time) with a 5-minute warning to the user is available beginning with version 7.27b (February 2022) of the SofTrack workstation agent.

This ability enables absolute control of how long Bentley® applications are allowed to remain in-use, effectively resetting usage each day.

This feature is independent of idle timeout and optional termination options. Click here to review implementation and usage details.

This feature can be combined with the Calendar Day profile type to enable a single workstation to freely utilize a Bentley® license through a single day and have any active usage automatically terminated at 11:59pm.

Separate tracking / controlling of Practitioner Licenses

Starting with version 7.28d (September 2022) of the SofTrack workstation agent, when a Bentley® license is engaged with the Practitioner Usage Type, it will be included in the Command Line. Tracking is enabled by appending the following to each Command Line to match:

```
*#Usage=Practitioner*
```

This enables separate tracking of Bentley® licenses utilizing a Practitioner License.

To fully utilize, create two license profiles with identical filename(s) and command line(s) to track.

For the profile tracking Practitioner licenses, additionally append the above on each

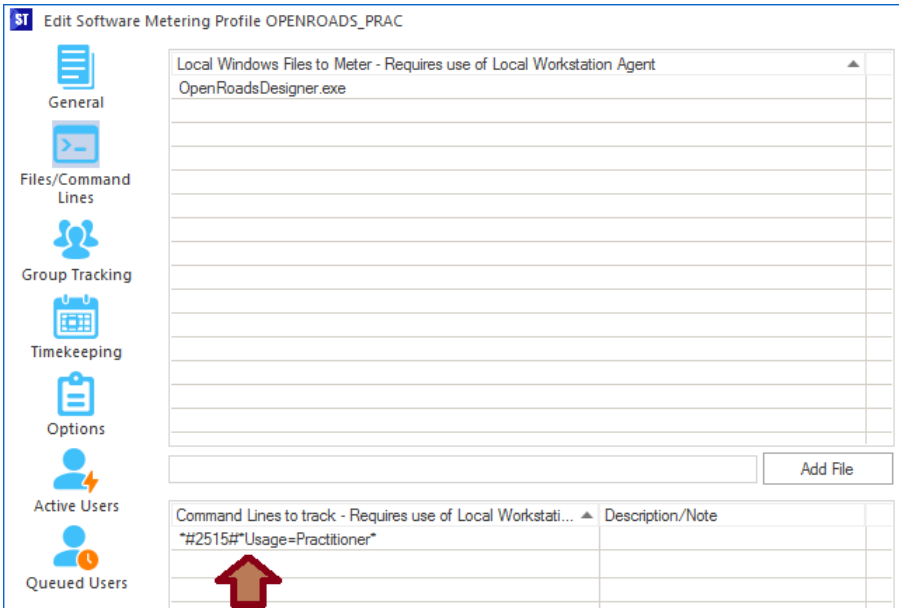
command line.

For the non-Practitioner license profile, append the following to each Command Line to ensure it will not match usage of Practitioner licensing:

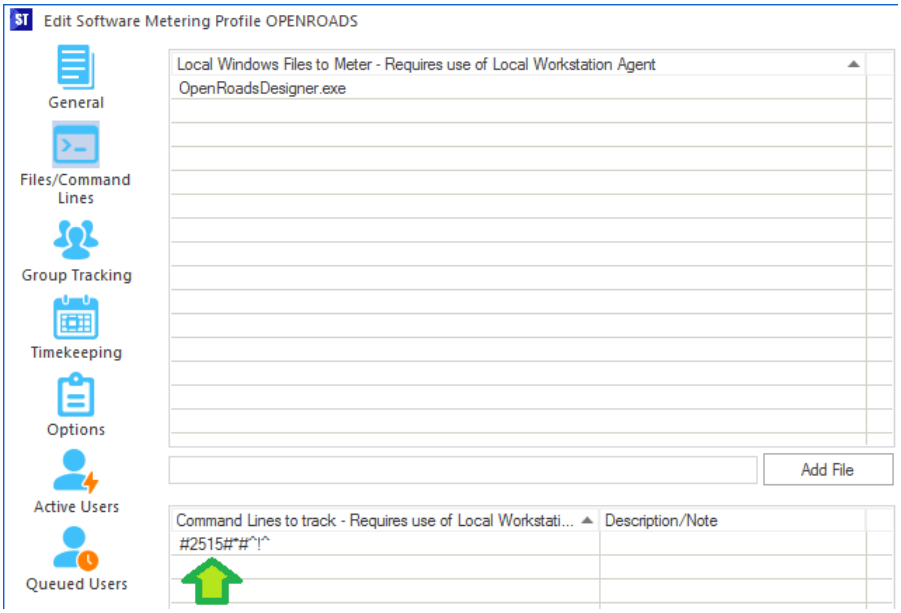
*#^!^

The following images demonstrate:

Practitioner command line:



Non-Practitioner command line:



Remote Workstation Connection Tracking for Bentley® Usage

When a SofTrack License Profile is configured for any "Calendar" configuration (Calendar 10-minute, calendar Hour, Calendar Day), any access via Remote PC connection will be uniquely tracked to ensure correct usage control.

Specifically, when the SofTrack Local Workstation Agent (LWA) is installed on the same workstation (or terminal server/Citrix host) where Bentley® software is installed and that Bentley® software is accessed via remote session from a workstation/PC, when the usage has exited, SofTrack will hold the license for any user using the name of that remote workstation. SofTrack will track such a combination as the pairing of the workstation where the LWA is installed and the name of the remote workstation that connected and utilized Bentley® software.

This method of control is required because Bentley®'s licensing identifies the name of the remote workstation as having used the Bentley® software, despite the software not being installed on the remote workstation.

Each such combination (i.e. workstation with the LWA and the workstation that remoted into it) is shown in the SofTrack Control Agent's tab, in the Remote Workstations by Agent sub-section.

Standard Definitions might not be enough

Typically, with SofTrack you only need to define the executable filename to control. Based on that filename, SofTrack will then manage its concurrent usage throughout your environment. And, in cases where multiple versions of the same executable exist (even on different workstations) you might even use a partial path to further define the filename to track. This "standard" type of definition works well for many applications. And, it might be suitable for your installation(s) of Bentley® applications.

However, Bentley® applications provide their own internal licensing so it is very important for SofTrack to properly track not only the filename being used by also the exact Bentley® license being activated.

For instance, Bentley® MDL (Microstation Development Language) applications are typically launched from within other applications such as Microstation®, PowerCivil® and others. These MDL applications typically use an additional Bentley® license, but not always.

As another example, Autocad (by AutoDesk) can also engage and activate Bentley licenses.

To best serve the needs of accurately controlling Calendar Hour and Calendar Day use of your Bentley® applications, SofTrack tracks the actual license being activated by each Bentley® application use.

Determining Bentley Application + Product ID Code + Version + Feature String

SofTrack includes the unique ability to specifically monitor Bentley application usage based upon the Product ID Code, Version and, when provided, Feature String used to license each specific usage.

This ability guarantees you will correctly monitor Bentley Licenses as each are used throughout your network.

For instance, Bentley InRoads has the following Product IDs, each corresponding to a different license:

```
1043 Bentley InRoads
1044 Bentley InRoads Bridge
1047 Bentley InRoads Site
1048 Bentley InRoads Site Suite
1049 Bentley InRoads Storm & Sanitary
1050 Bentley InRoads Suite
1051 Bentley InRoads Survey
```

You will find that many Bentley products included multiple license groups such as the ones listed above. The actual numbers are assigned by Bentley to each type of application and license. Please refer to the next chapter that provides the Product ID used for licensing for most Bentley® applications.

However, what you may not know is exactly which Bentley Product IDs + Version + Feature String are in use by your Bentley application installations.

SofTrack provides these data and once you know the codes you can use them in defining your SofTrack License Profiles that will be used to 100% accurately control and report usage of your Bentley licenses.

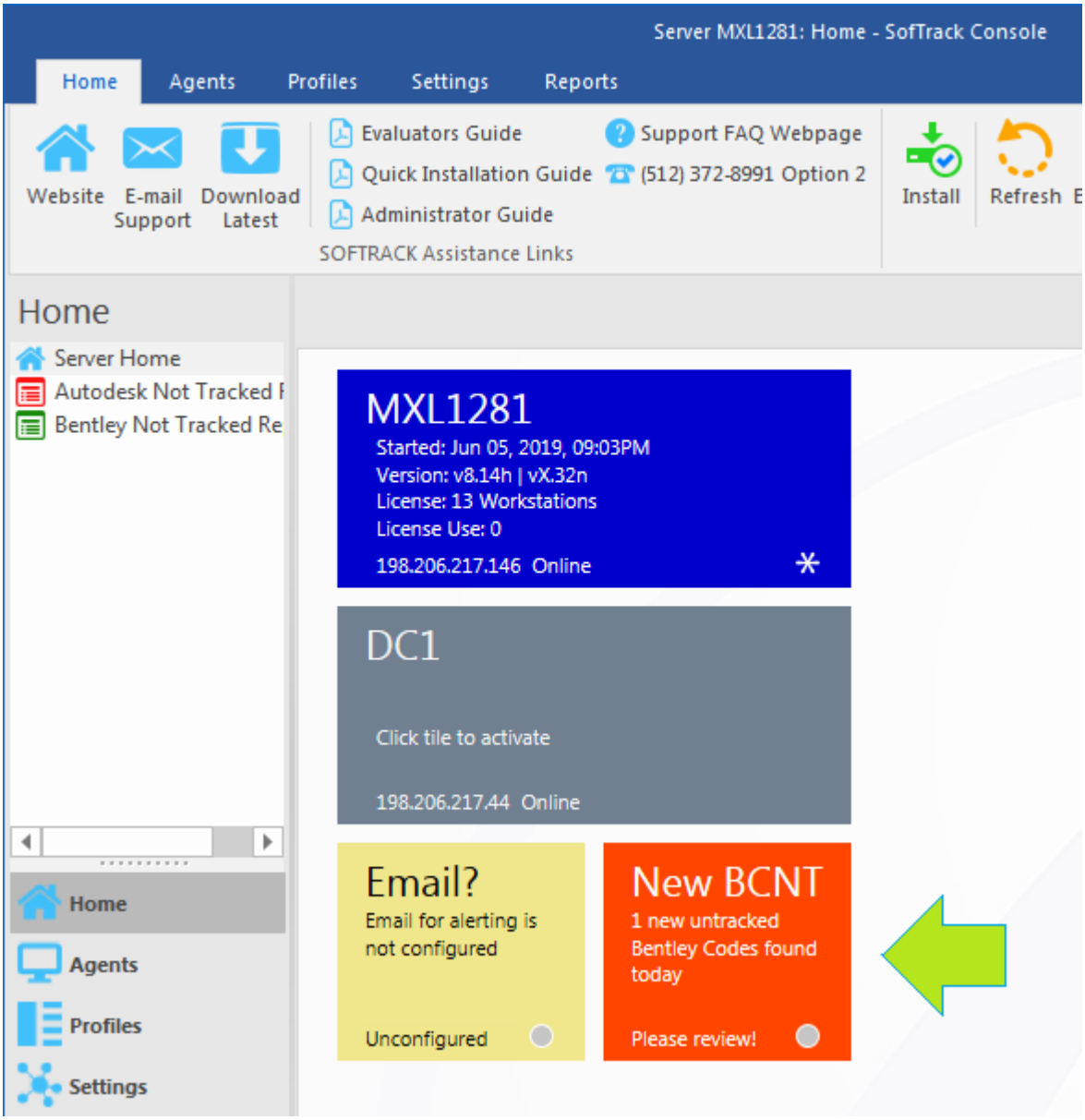
SofTrack provides two methods to obtain Bentley codes being used on your user workstations. Both methods presume you have previously installed the SofTrack Server Agent, SofTrack Token and SofTrack Local Workstation Agent and they are in a functional state. If you have not, please do this first.

Bentley Not Tracked Codes – Automatic Report

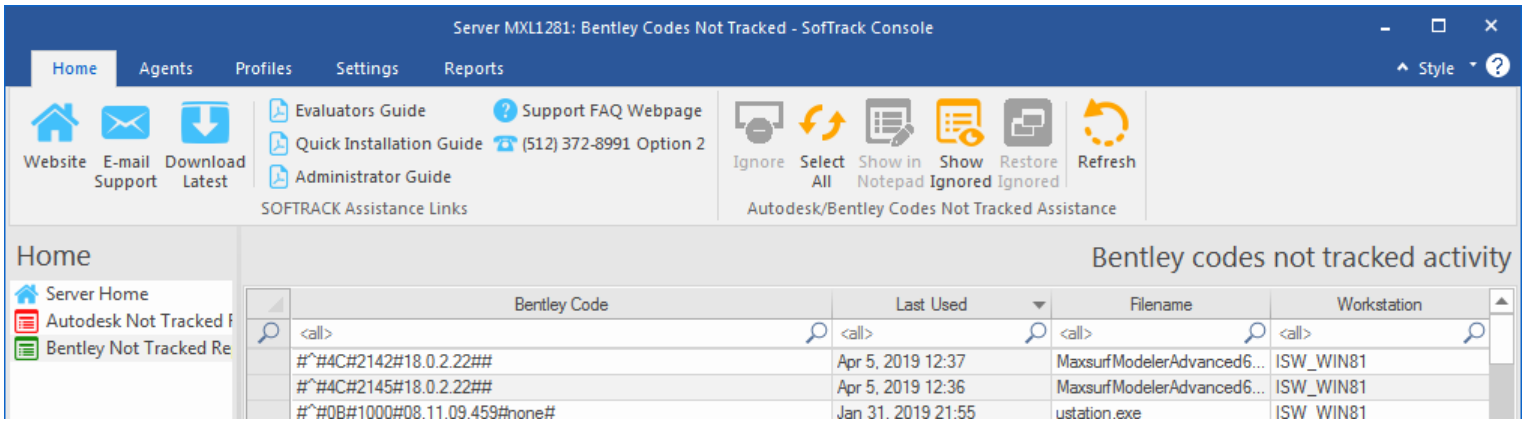
When a Bentley application license is activated on a workstation where the SofTrack Local Workstation Agent is active and in communication with the SofTrack Server Agent (SSA), the SSA will first determine if that Bentley license is currently defined for tracking by a SofTrack License Profile.

If the Bentley license being activated is not currently defined for tracking by a SofTrack License Profile the SSA will record the Bentley Code, filename, and workstation. This record will be made automatically, there is no configuration required.

When the SofTrack Console is opened and connected to the SSA host server and there are ***new*** Bentley codes found that are not currently tracked by a SofTrack License Profile the console user will receive the alert on the Home page:



This alert tile is automatic and will alert the user that there are new Bentley codes that have occurred in the past day to review OR if Bentley codes have occurred in the past 5 days (alert text will change to indicate in the "past week"). If there are unhandled Bentley codes (i.e. not set to be ignored) that occurred more than 5 days ago or if only ***ignored codes*** exist this alert will not occur. Click on the Alert Tile and the following screen will appear:



The actual entries shown will be unique to your environment. The example image above is provided to illustrate various types of codes you may encounter. The following is a discussion of these codes and functions shown in the image above.

The **Bentley Code** column is the *SofTrack formed* version of the Bentley code being activated. A full discussion is found in the following section titled SofTrack's Definition for Bentley Codes Discussion.

The **Last Used** column is the most recent time the indicated code was detected being used on the named workstation. This report does not include a history of previous activations. This report also does not include the user, only the workstation. To receive a full history including user and all Bentley license activation activity please refer to the next section, Bentley Codes via auditing of Application Launch Activity.

The **Filename** column indicates the filename of the process that requested the **Bentley Code** being activated. As shown in the image above it is very possible and even expected that the same process (Filename) can activate different Bentley Codes. For instance, review the entries for RamContainer.exe, it shows activating Bentley license code 1484 (RAM FRAME ANALYSIS) and 1488 (RAMBEAM). It is also possible for these same Bentley product id (codes) to be activated by Microstation (ustation.exe is its filename). For instance, in the image above, ustation.exe is shown activating a Bentley license code 1495 (speedikon Architectural). This same code (1495) is also shown as being activated by SpeedikonStart8.exe. And, not shown, SpeedikonStart8.exe can also activate other codes such as 1493, 1494 and 1496.

The **Workstation** column indicates the computer where the Bentley Code shown was activated. The user name is not shown as Bentley licenses are tracked (by Bentley Systems) on *a per workstation basis*, the actual user can vary and if it does it has no impact on Bentley's licensing.

Together, the **Bentley Code**, **Filename**, and **Workstation** form a unique entry in the report.

Not all codes require tracking by a SofTrack License Profile, some are simply precursors to an actual Bentley license being activated. As discussed in the following section SofTrack's Definition for Bentley Codes Discussion the **`0C`** and **`4C`** codes are typically precursors and

only in a few instances are they the code to track in a SofTrack License Profile. Question is, how do you know if you need to track the **0C** or **4C** codes?

Consider the following image:

Here you see #0C# code and a #0B# code for the same Bentley product code (1654). When you see this combination you select the #0B# code and ignore the #0C# code. The following section SofTrack's Definition for Bentley Codes Discussion includes more details.

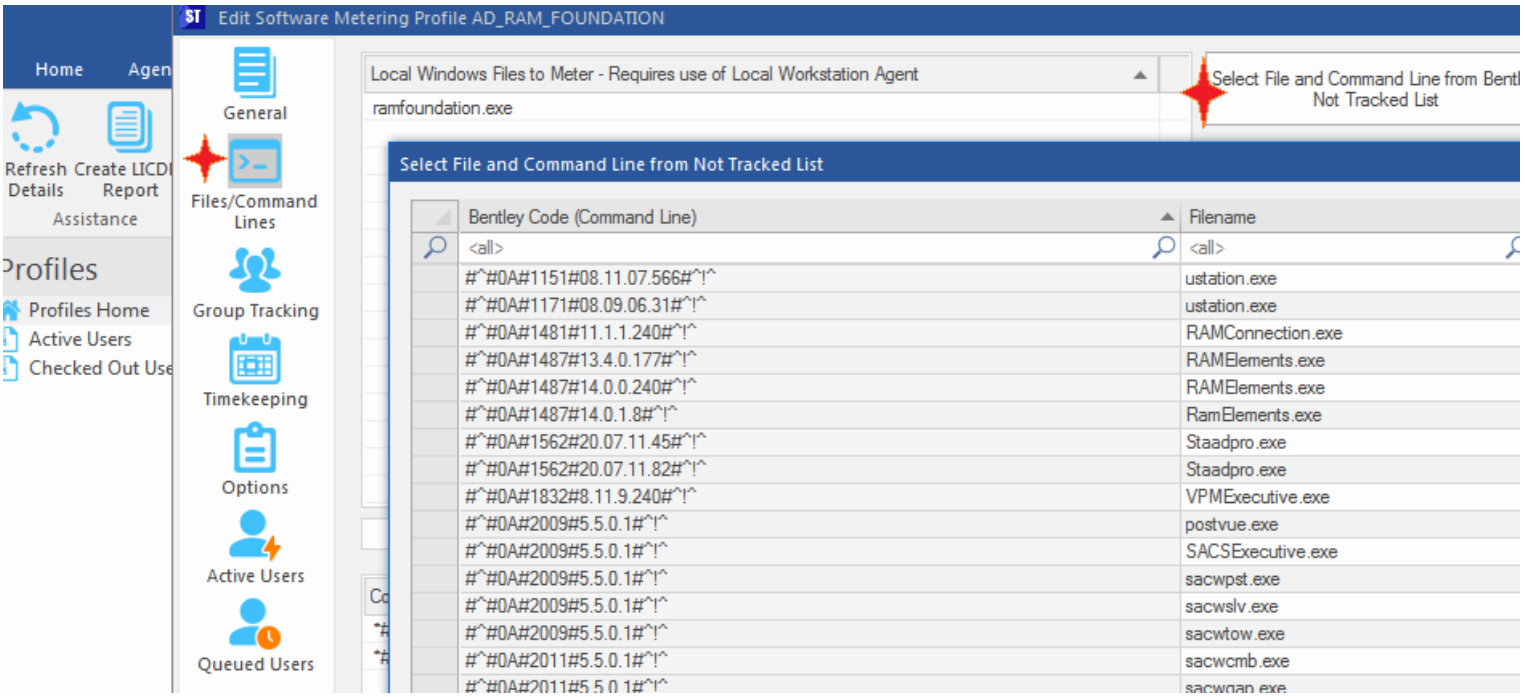
For codes you need to use in the creation or modification of one or more SofTrack License Profiles, select each and click the button **Show in Notepad** (for purposes of easing process of cut+paste into License Profiles). This button will create a text file and automatically open it in NOTEPAD.EXE (a default Windows application for viewing and editing text files). From this Notepad window you can cut and paste the details you require to define your SofTrack License Profile(s).

Please note that the Bentley Codes shown ***are truncated*** at the 6th # sign. In all cases there is additional text in the actual Command Line value, at a mimimum it would end with the text:

^!^

Therefore, any Bentley Code you enter into your SofTrack License Profiles based on this report must end with an *. Alternatively, you can open that workstation's Audit Log and review the actual *full* Bentley Code (Launch Command Line) presented for further input on how to enter the code. For instance, if you are using Bentley Site Codes, they will not always be shown in this report and you will only find the *entire* Launch Command Line value in the workstation Audit Log.

Optionally you can view the Bentley Not Tracked Codes directly in the License Profile configuration:



Ignoring Bentley Codes

For those codes you do not need to review further, select each and click the **Ignore Code(s)** button. These codes from the selected workstations will not appear again in the list. If you ever want to track use of ignored codes, click the **Show Ignored Codes** button and the click the **Restore Tracking for Code** button.

If any codes remain in the list that are not ignored the automatic popup will occur again because it is alerting the user that there are Bentley codes found that are not ignored. Once the Bentley codes are processed it is expected that each will be "ignored" and thus only will actual new Bentley codes occur will the user be alerted.

Automatic alerting of Bentley Codes not tracked is available. Please click here for details.

Automatic blocking and alerting of Bentley codes not tracked

SofTrack tracks Bentley License usage by a combination of application name plus Bentley code(s) as each is engaged.

However, because it is possible for users to download and use Bentley applications you do not have in your Bentley Licensed Portfolio, you could receive an invoice from Bentley for each such application.

SofTrack provides the ability to BLOCK usage of any Bentley codes you have not defined to be monitored and controlled by SofTrack. Please click here for details.

Bentley Codes via auditing of Application Launch activity

The following steps presume you have previously installed the SofTrack Server Agent, SofTrack Token and SofTrack Local Workstation Agent and they are in a functional state. If you have not, please do this first. Once done, the following steps will outline the procedure to determine the Bentley Product ID and Version for each Bentley application used in your environment. This method records the history of Bentley license activation per workstation and user.

1. To begin, open `SOFTRACK_CONSOLE.EXE`.
2. Select the "Settings" Tab and then the "Options" tab as shown in Figure 11-1:

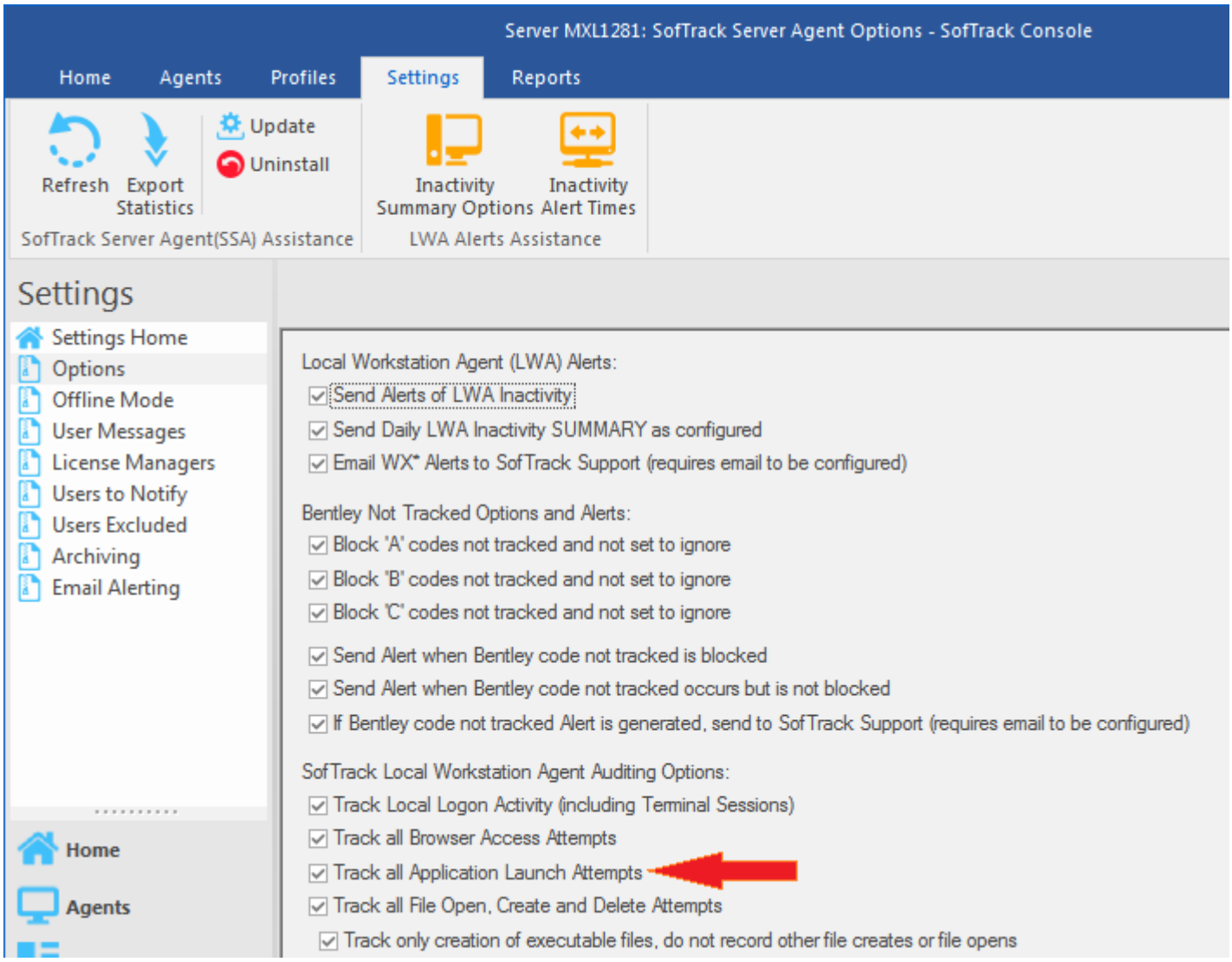


Figure 11-1

3. Select "Include all Application Launch Attempts.." checkbox as shown above. If it was previously checked, leave it checked.
4. Go to a workstation where Bentley application(s) to review are installed, again, this presumes the SofTrack Local Workstation Agent (LWA) has

previously been installed and is functioning.

5 Launch a Bentley Application.

6 Open (or continue using) the SofTrack Console, click the "Reports" tab, click the "Workstation Audit" section and click **Retrieve Logs** (indicated with a star below) and select your workstation then click on the **Application Launches** button:

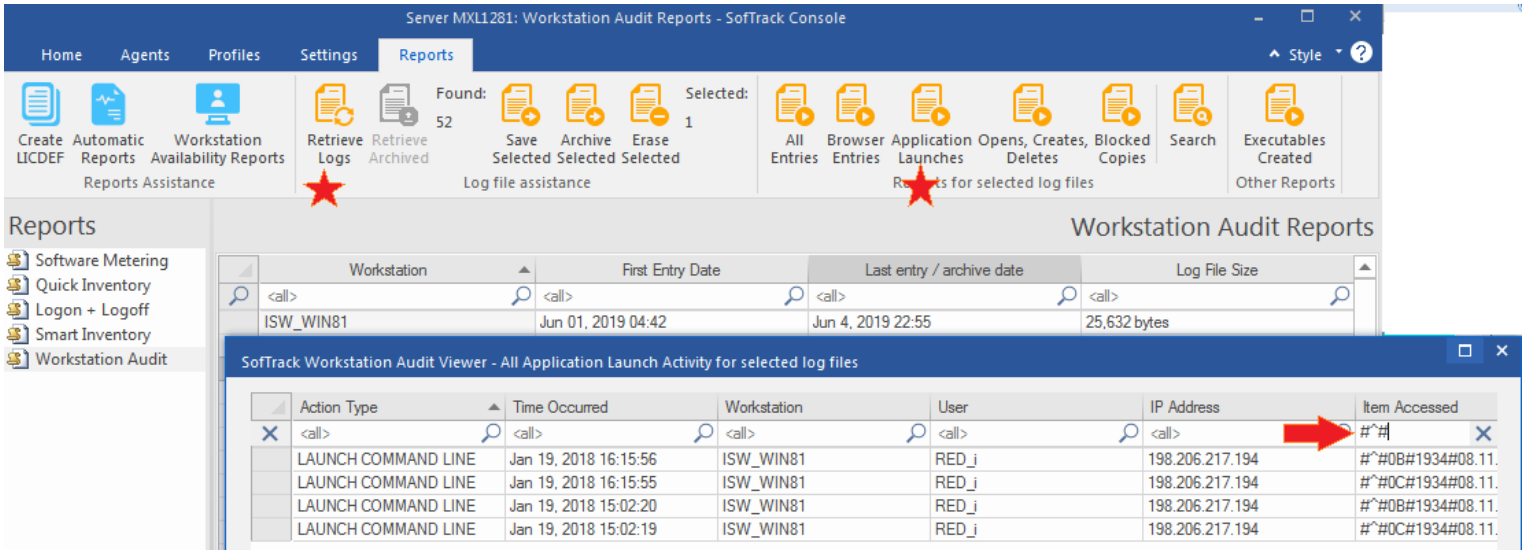


Figure 11-2

7 **In the filter bar above the Items Accessed column type in #^# (this is the prefix for all Bentley Codes)**

8 Review the log entries for the Bentley application launch

SofTrack's Definition for Bentley Codes Discussion

NOTE: The following section was created using an older SofTrack Console interface, some images will be of the older interface and some of the newer, in each case the examples remain valid:

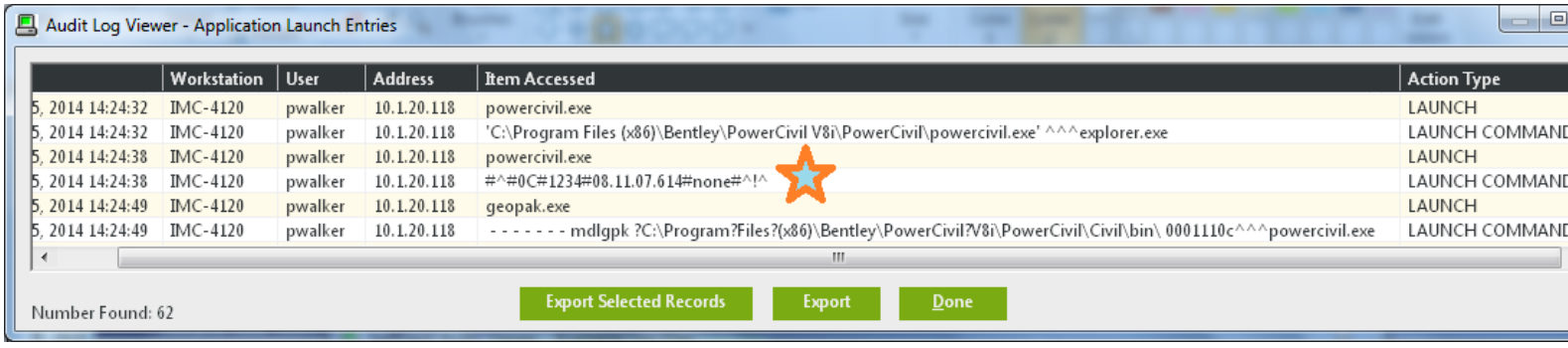


Figure 11-4

The following will explain each line shown in Figure 11-4.

At 14:24:32	The Bentley application "powercivil.exe" was launched
At 14:24:32	The Launch Command Line indicates the full path plus a special designation of ^^^explorer.exe - this was not part of the actual command line but was appended for purposes of SofTrack's use and it identifies the name of the "parent" application/process that was used to launch "powercivil.exe" - in this case, it was explorer.exe
At 14:24:38	The Bentley application "powercivil.exe" was apparently launched, but, look at the next line.
At 14:24:38	The Launch Command Line indicates a Bentley "*pre-licensing event*" has occurred where the named (powercivil.exe) Bentley Application is about to be licensed but is not yet using a Bentley license. The codes shown in the image above are: **#^#0C#1234#08.11.07.614#none#^!^** The "**prefix**" is **#^#** and this specific set of characters at the beginning of the command line signals that this specific launch is actually a Bentley "pre-licensing event" notification. The "**code**" **0C** or **4A** indicates the type of event, specifically it indicates a licensing event is taking place. Typically, the actual license event occurs when a code **0B**, **0A**, **4B**, or **4A** event occurs. The most common license event is the **0B** "code". Depending on the Bentley application there may be an **0C** code followed almost immediately by an **0B** or **0A** code. If you find either of these combinations always choose the last one that occurs. If your environment includes 2004/XM versions of Bentley products you will instead receive a single code **#XM#**. See the following section for additional details of the #XM# code. The "**product id**" is defined by **#1234** and is the actual Bentley product id for the Bentley license that is about to be consumed. The "**version**" is defined by **#08.11.07.614** and indicates the actual version of the Bentley product that is about to be licensed. This may be useful to know if you have different licenses for different versions of the same "product id". The "**feature string**" is defined by **#none#** and this value indicates there was no feature string. As an example, the Bentley application WaterGEMS could have a "feature string" of **#acad=yes|agis=yes|mstn=yes|pipe=5000#** The last part is a special signal **^!^** it normally indicates there was no parent process and in this case it only indicates this is the end of command line.
At 14:24:38	The Bentley application "geopak.exe" was launched.

At 14:24:38	The Launch Command Line indicates the full path plus a special designation of ^^^powercivil.exe - this was not part of the actual command line but was appended for purposes of SofTrack's use and it identifies the name of the "parent" application/process that was used to launch "geopak.exe" - in this case, it was powercivil.exe
Missing…	Notice, this is the end of the items shown in Figure 11-4, what is important to notice is no "*pre-licensing event*" occurred for GEOPAK.EXE, this means that this particular launch of GEOPAK.EXE is NOT USING a Bentley license.

9 The examination explanation in step 9 (above) is intended to be used with any Bentley application you need to control with SofTrack.

10 When you define the SofTrack License Profile you will use the "Launch Command Line" or portions thereof to accurately control and monitor use of any Bentley application.

Defining a Bentley License Profile

SofTrack includes several features to assist in controlling Bentley Trust Licensing.

SofTrack's unique features include:

- Calendar 10-minute metering (Bentley license control)
- Calendar Hour metering (Bentley license control)
- Calendar Day metering (for Bentley Enterprise License Subscription license reporting and control)
- Command Line metering
- Advanced Timekeeping

11 To begin, open `SOFTRACK_CONSOLE.EXE`.

12 Select the desired server and click the "Profiles" tab (Figure 11-5)

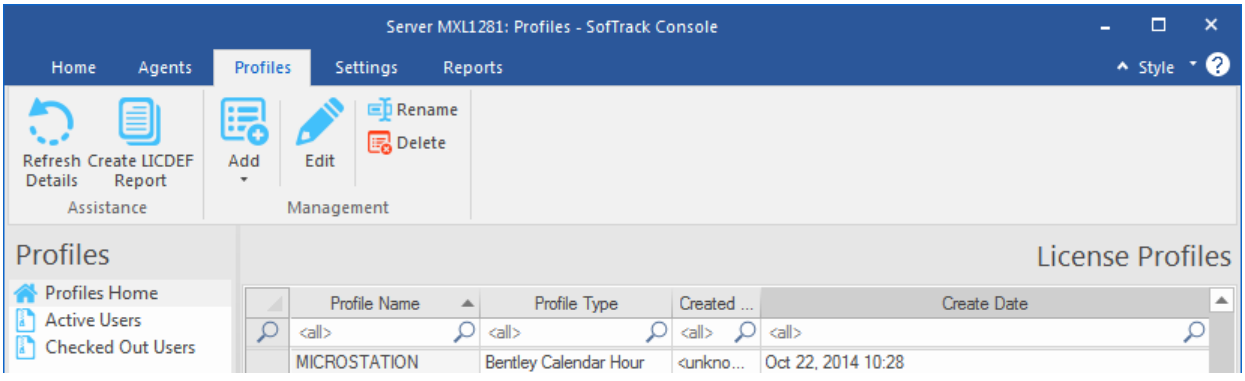


Figure 11-5

14 Click the **Add** button (Fig 11-5) and the following prompt appears:

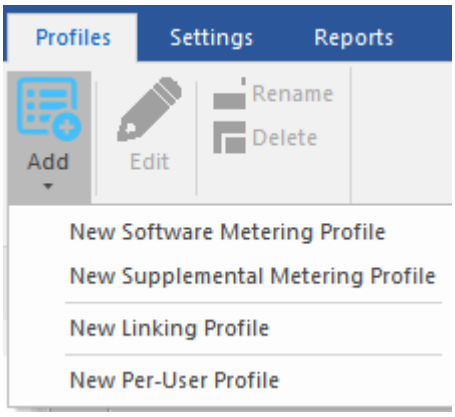
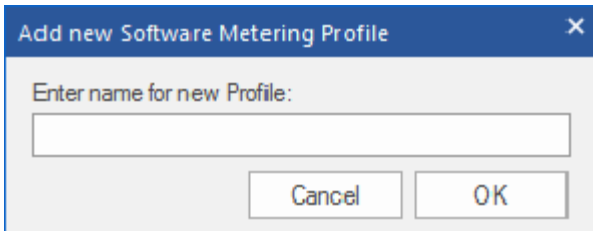


Figure 11-6

Select New Software Metering Profile and the following prompt will appear:



15 Enter the name POWERCIVIL and click **OK**.
NOTE: The License Profile name can contain up to 20 characters and may include symbols and spaces. Spaces will be automatically converted to underscores.

16 The following screen will appear (Figure 11-7)

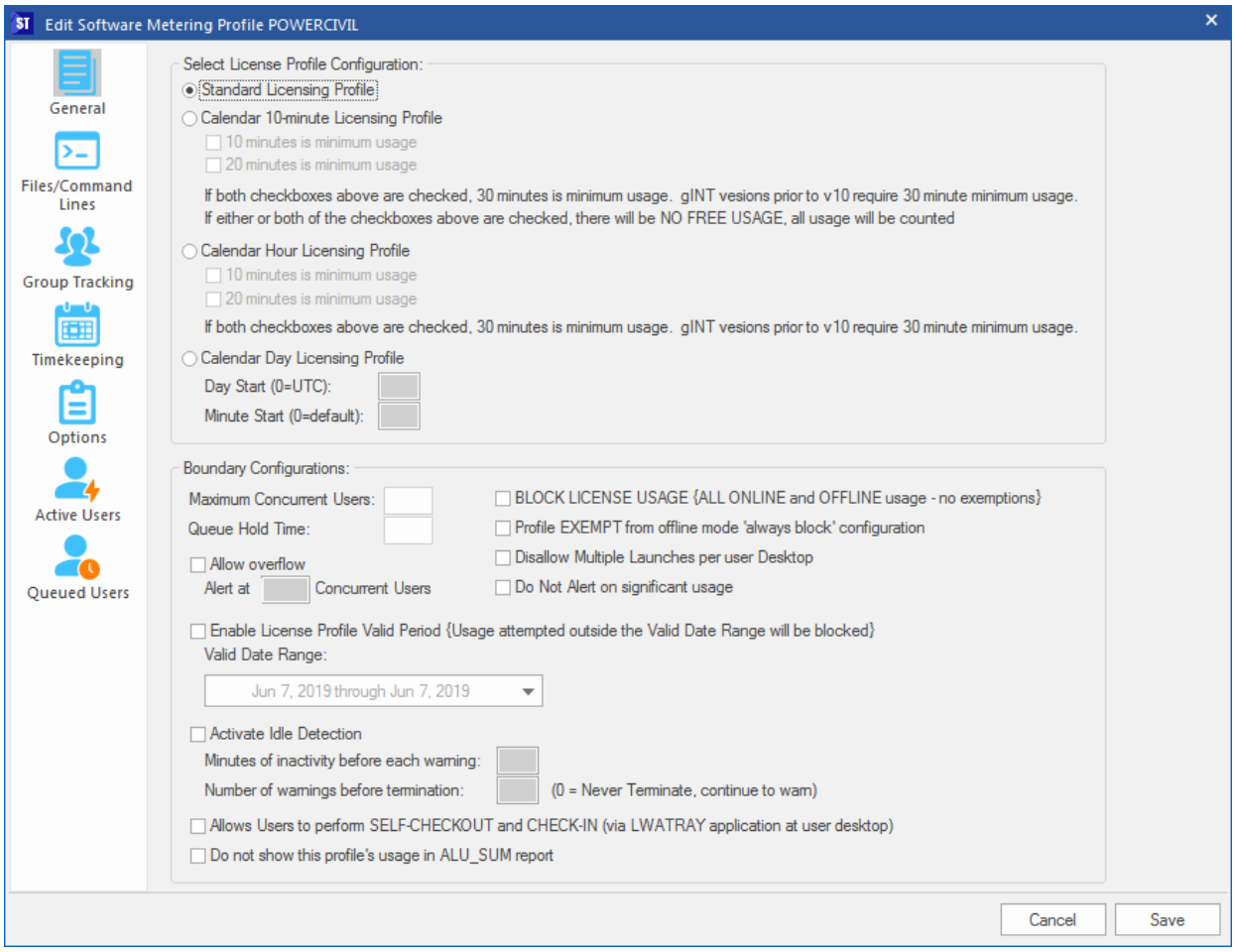
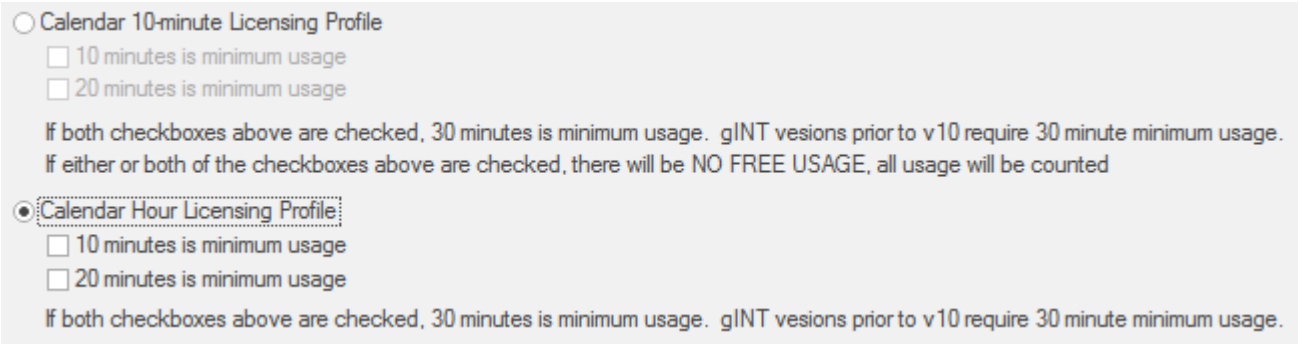


Figure 11-7

17 Click the **Calendar Hour Licensing Profile** or **Calendar 10-minute Licensing Profile** as appropriate to your Bentley license:



This option indicates *hourly* concurrent access control such as that used by Bentley Systems SELECT Open Access "Trust License Usage" policy. This option is a fully discussed in Calendar Hour Licensing: Overview.

If using the new (May 2016) Calendar 10-minute Bentley policy, see the Calendar 10-

minute overview section for further details.

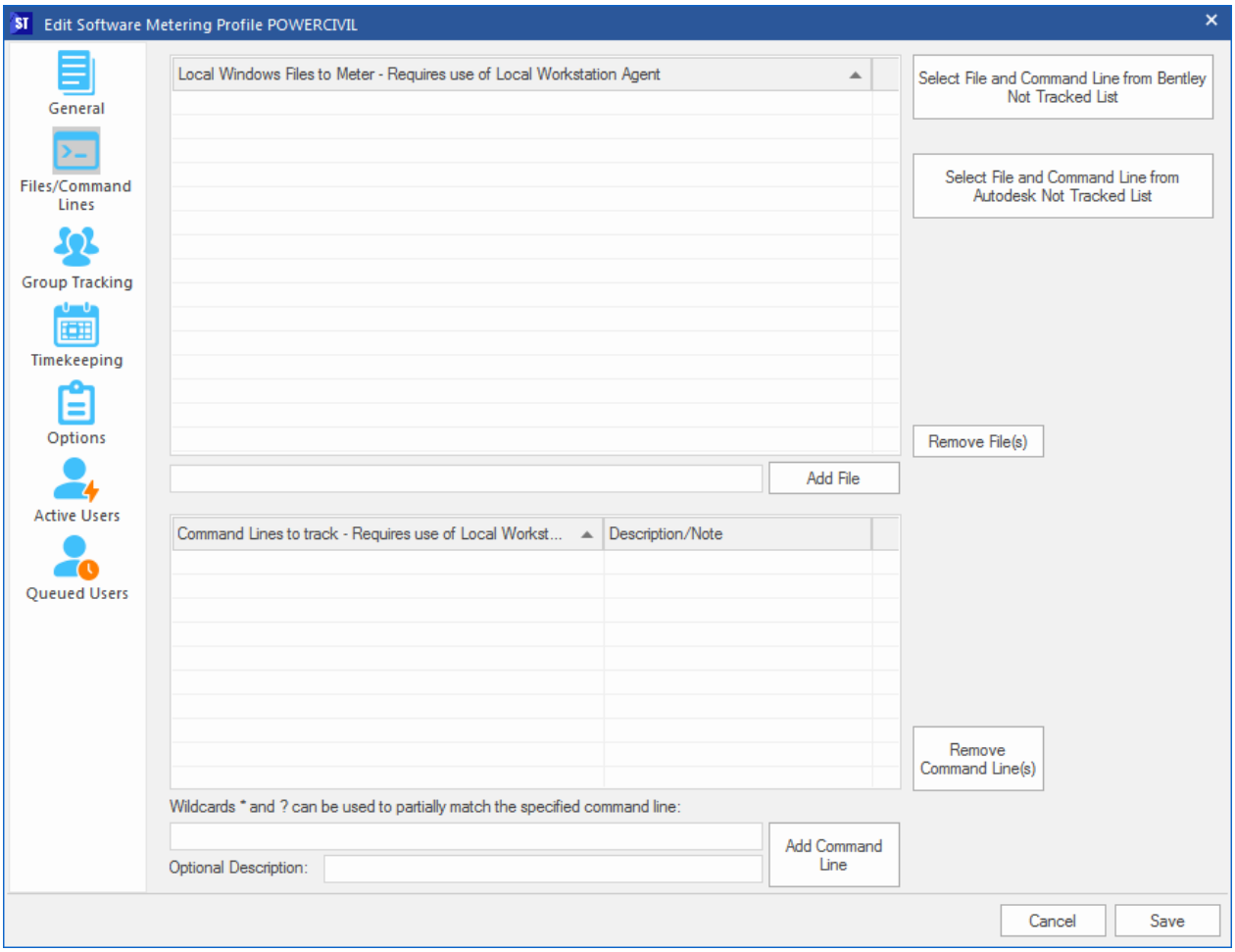
After selecting the Calendar Hour option, determine whether your license requires the "10 minutes is minimum usage" checkbox to be engaged.

The "10 minutes is minimum usage" is a checkbox, that, if clicked will be used to determine when the "license usage" is actually to be completed. This option exists because many if not all Bentley® product licensing is performed in such a way that the license use initially set to be 10 minutes regardless of amount of time the application was actually used. Specifically, what this means is if usage starts between :50 minutes and :59 minutes past the hour, the license, at a minimum, will be held until the end of the next Calendar Hour.

For example, when checked, if a user begins using the metered application at 9:53am the exits at 9:54am the time 10:03am will be used as the actual end of the license usage period. The license will be held through 10:59am. If not checked, the license use will be held through 9:59am.

If the license profile has been created to control usage of gINT versions prior to version 10, you must also check the "20 minutes more minimum" checkbox. This is because all versions of gINT prior to version 10 are internally configured to use 30 minutes as the minimum usage time regardless of actual usage. If only the "20 mininutes more minimum" is checked, then SofTrack will automatically check the 10 minute minimum usage as well (once you save the change and re-edit you will find both checkboxes being checked).

18 Click on the Files/Command Lines section:



In the field next to the **Add File** button (near the center of the image above) enter the executable name. For our first test, enter `POWERCIVIL.EXE`

19 Click the **Add File** button and the file is entered in the list to be tracked (Figure 11-8).

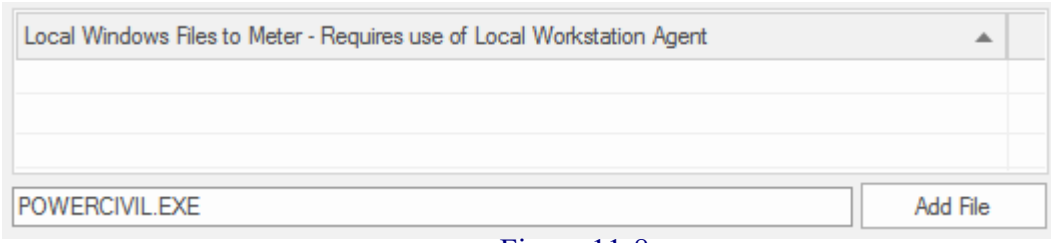


Figure 11-8

NOTE: When choosing the application file to meter, always select the initial `.EXE` file that is used to run the application. Reference Step 9 above, the filename is shown there.

Ordinarily you may also specify the application path or partial path (no wild cards allowed), however, when defining a Bentley license profile using the codes show in Step 9 above, ***only the application's filename will be used, therefore do not specify any portion of the path***. If you have different versions installed, use the "version" code found on the Launch Command Line shown in Step 9 above.

If you are metering a DLL file, simply enter that filename. However, with Bentley applications you will always use the initial .EXE file that is used to run the application.

20 Next, in the section below, the **Command Lines to track**, you will enter the code(s) to track:

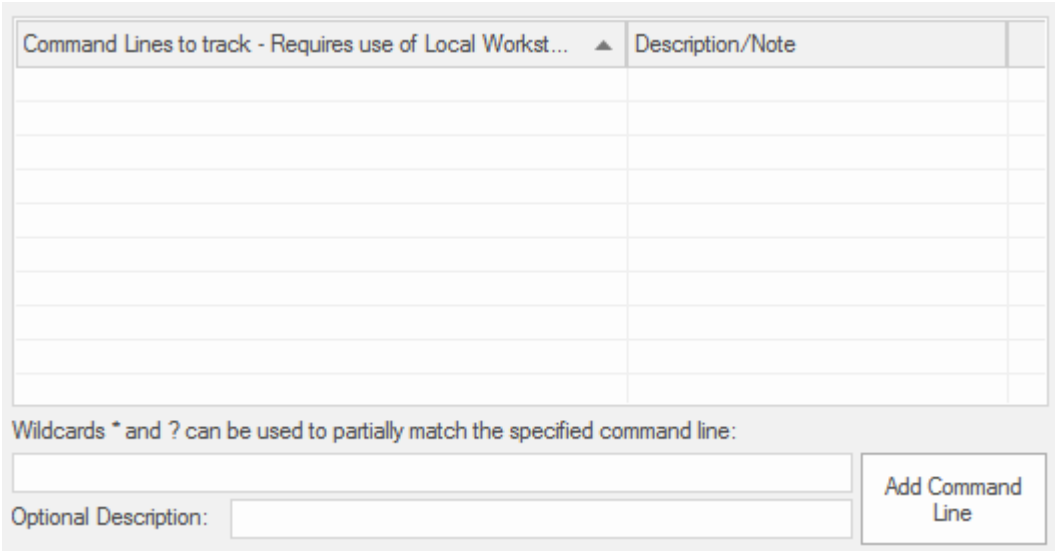


Figure 11-9

21 Enter an appropriate command line pattern to match such as:

```
#^#0B#1234#08.11.07.614*
or
#^#0B#1234#*
or
*#0B#1234#*
or
*#1234#*
```

Reference Step 9 above, the codes above are derived from the findings in the Application Launch records. Notice each code above ends with * (asterisk) this is to ensure "wildcard matching" will occur so it does not matter what occurs before or after the specified codes so long as those codes are present in the order shown. **Caution**: Do not prepend the **#^#** characters with an asterisk as these are the start of the command line and there are no characters to match previous and if you include a leading asterisk it will result in no match being found.

The last option shown above does not reference the "0B" code, this typically is the preferred entry to use.

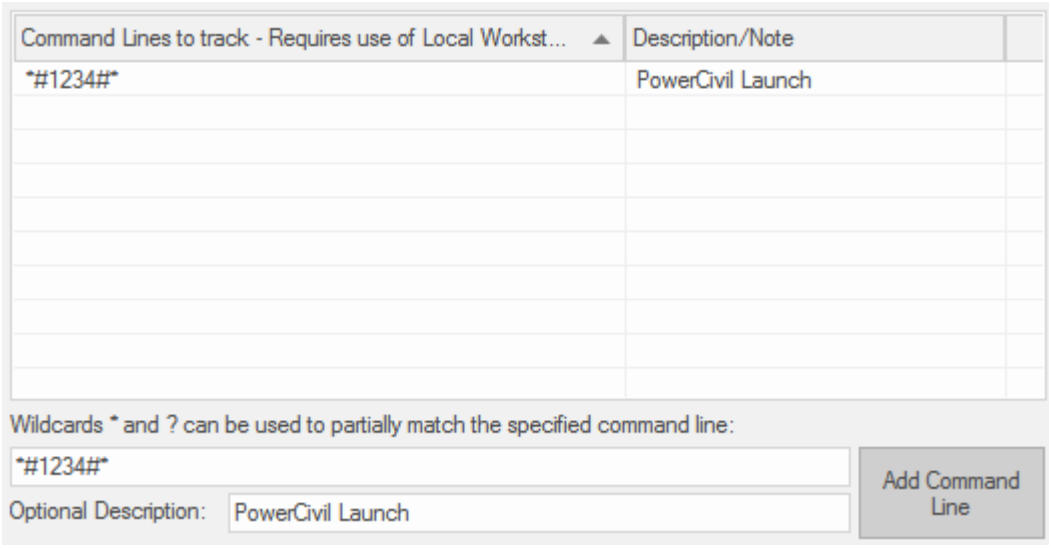


Figure 11-10

You may enter as many command lines to match as required.

The trailing * is used to ensure the pattern is matched regardless of any other text in the command line. You may also use a ? to match a single character.

For instance, if instead the following was specified:

```
#^#0B#1234#
```

Then the command line must exactly match with no text following – this is because as all characters except * and ? are interpreted *literally*.

You can enter as many command lines to track as required by this license profile. Each is limited to a maximum of 116 characters. You can use the wildcards * and ?, all other characters will be literally interpreted.

Bentley Site Activation Code Option

If any of your workstations use multiple Bentley Site Activation codes there is a special workstation-specific option that, when used, will include the current Site Activation code for each Bentley license activation.

If you require this option, at each workstation where needed perform the following:

- Open CMD.EXE (right click and “run as administrator”)
- Type the command “CD \windows\syswow64\drivers” and press enter (this will change the current path)
- Type the command “STLWA_NT –IncludeBActivationOn” and press enter

- This option will be engaged the next time the SofTrack Workstation Agent is started.

- To remove this option, repeat the above except for the last command, type instead "STLWA_NT –IncludeBActivationOff" and press enter.

The following is a sample workstation audit entry for a Bentley launch that includes the Bentley Site Activation code:

```
#^#0B#1000#08.11.09.459#none#^!^!!!TK_HCD4159859404533AF002350B85B1!!!
```

Notice the highlighted !!! values, these "bookend" the Bentley Site Activation code that was used for the particular Bentley application.

What happens when use of a Bentley License is to be blocked?

When a Bentley application is about to use a license, the SofTrack Server Agent will determine if use can continue or if it is to be blocked due to no available licenses. If the SofTrack Server Agent directs the SofTrack Local Workstation Agent to block the application use, the application and any "child processes" it has previously started WILL BE TERMINATED and no Bentley license will be used.

2-Minute Warning

The SofTrack workstation agent, in limited cases, will issue a 2-minute warning pop-up message to the user instead of immediately terminating the application. Typically this will occur when an application that has previously engaged a Bentley Code (License) is attempting to engage an additional Bentley code and if that new code is to be blocked.

An example would be Microstation that enages a license for GeoPAK, PowerCivil or other Bentley applications. This 2-minute warning feature was developed to enable the user to save their work prior to automatic termination. The user may also want to change the if the application will be automatically engaged while Microstation is being started.

During this 2-minute warning period it is presumed the user will save their work and exit. If not exited at the end of the 2-minute period, the SofTrack workstation agent will automatically terminate the application to prevent overusing Bentley licenses.

SofTrack will record that the use was blocked and this can be found in SofTrack Reports. Optionally the blocked user can be queued and if queued the user will be notified when a license is available. For additional details, please review the Queue Hold Time option.

Using Timekeeping with a Bentley License

22 The following is *optional* and is not required to accurately track your Bentley applications. To continue, click the **Timekeeping** section and the following screen appears:

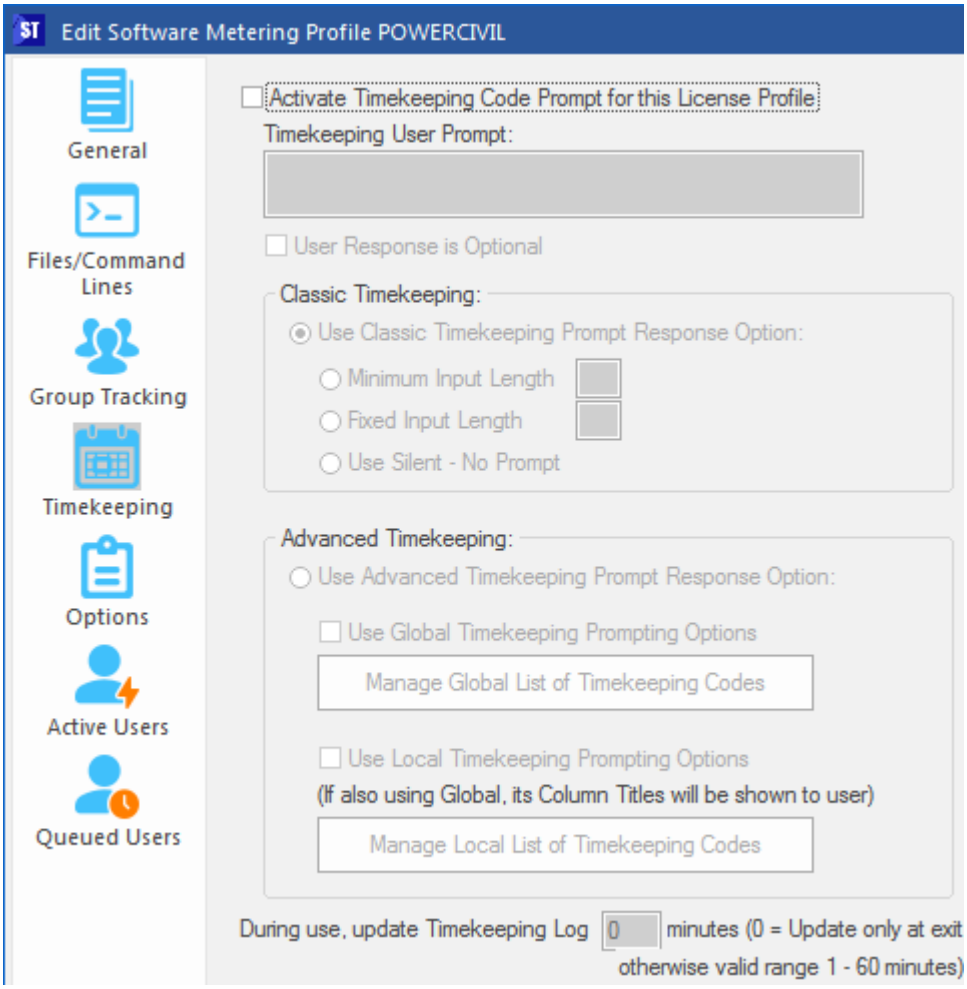


Figure 11-11

23 Click **Activate Timekeeping Code Prompt for this License Profile**

24 Click **Use Advanced Timekeeping Prompt Options**

25 Click **Use Local (to this Profile) Timekeeping Prompt Options**

26 Click **Manage Local List of Timekeeping Codes** and the following appears:

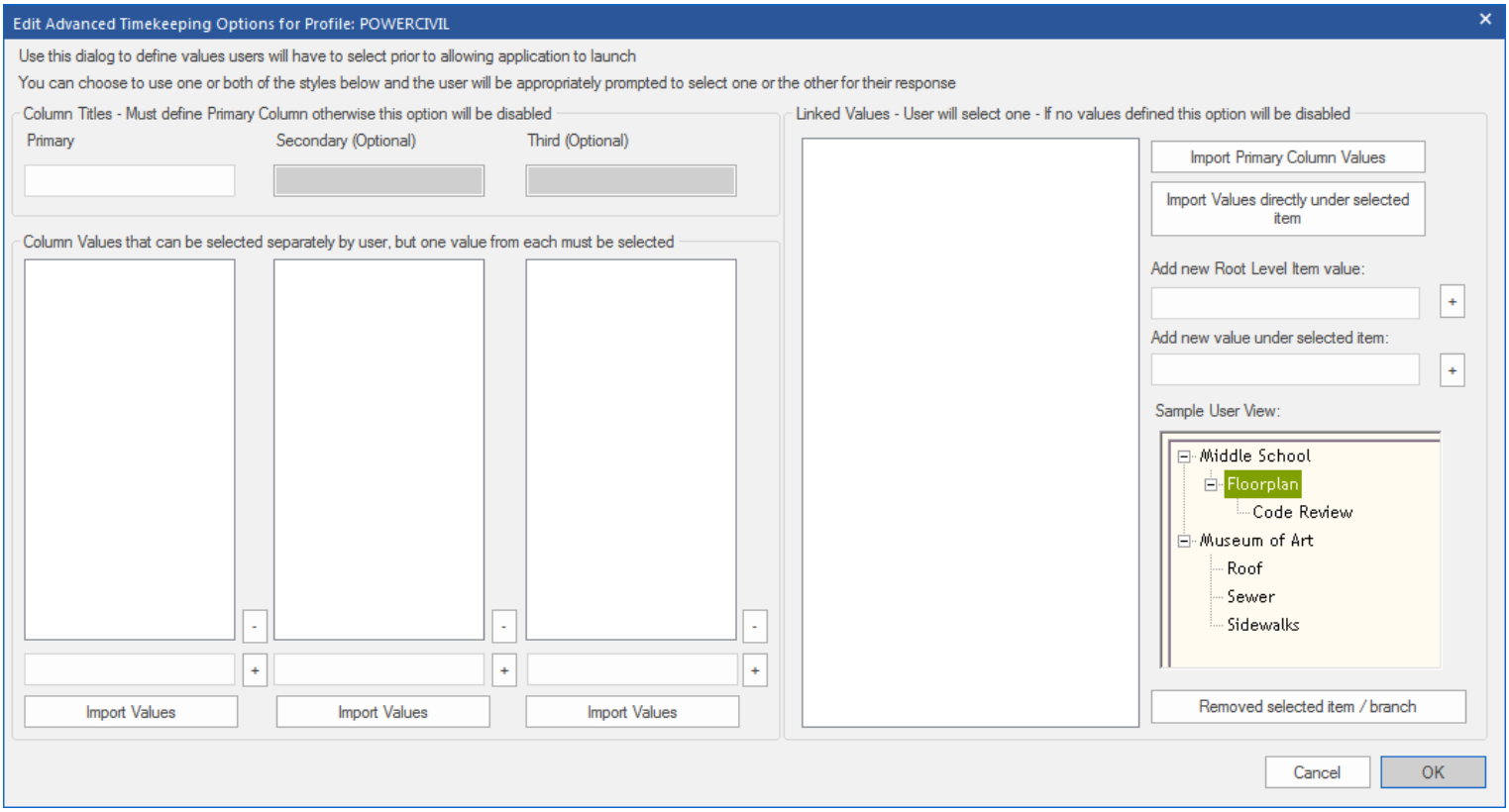


Figure 11-12

27 Enter the Timekeeping codes in the desired format(s). Click here for details.

28 Reporting for the Timekeeper option is found under the Reports tab on the SOFTRACK_CONSOLE.EXE's main screen.

Full details found in Chapter 7, Timekeeping Reporting.

Microstation Example of how to determine Bentley Application + Product ID Code + Version

The following is an additional example of how to "read" the SofTrack Application Launch report to determine the codes to use when defining your SofTrack License Profile to accurate control your Bentley applications.

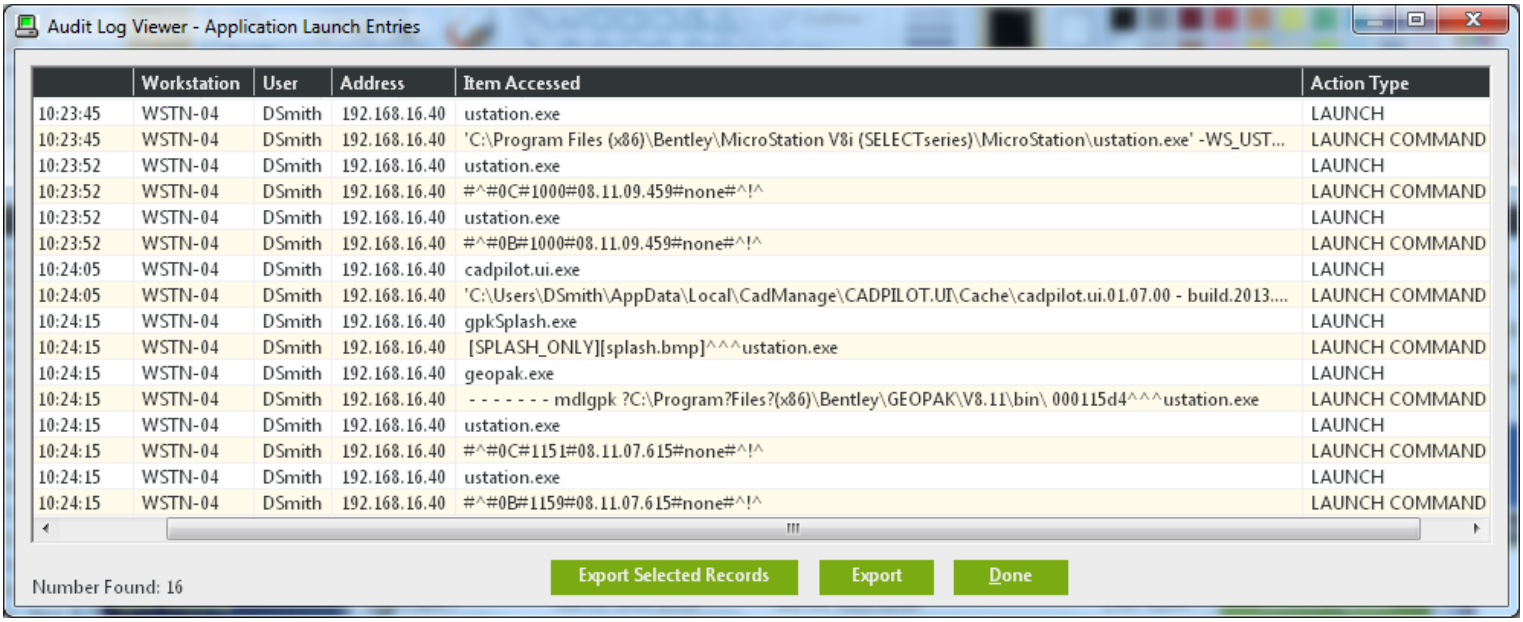


Figure 11-13

The following will explain each line shown in Figure 11-13.

At 10:23:45	The Bentley application "ustation.exe" was launched
At 10:23:52	The Bentley application "ustation.exe" was apparently launched, but, look at the next line.
At 10:23:52	The Launch Command Line indicates a Bentley "*pre-licensing event*" has occurred where the named (ustation.exe) Bentley Application is about to be licensed but is not yet using a Bentley license. The codes shown in the image above are: **#^#0C#1000#08.11.09.459#none#^!^** The "**prefix**" is **#^#** and this specific set of characters at the beginning of the command line signals that this specific launch is actually a Bentley "pre-licensing event" notification. The "**code**" **0C** indicates the type of event, typically it is followed by either an **0B** or **0A** event.
At	(Again) The Bentley application "ustation.exe" was apparently launched,

10:23:52	but, look at the next line.
At 10:23:52	The Launch Command Line indicates a Bentley "*pre-licensing event*" has occurred where the named (ustation.exe) Bentley Application is about to be licensed but is not yet using a Bentley license. The codes shown in the image above are: **#^#0B#1000#08.11.09.459#none#^!^** The "**prefix**" is **#^#** and this specific set of characters at the beginning of the command line signals that this specific launch is actually a Bentley "pre-licensing event" notification. The "**code**" **0B** indicates the type of event, this code indicates the Bentley® licensing event is occurring next. This is the command line we will include in the SofTrack License Profile. The "**product id**" is defined by **#1000** and is the actual Bentley product id for the Bentley license that is about to be consumed. This is Microstation's code. The "**version**" is defined by **#08.11.09.459** and indicates the actual version of the Bentley product that is about to be licensed. This may be useful to know if you have different licenses for different versions of the same "product id". The "**feature string**" is defined by **#none#** and this value indicates there was no feature string. As an example, the Bentley application WaterGEMS could have a "feature string" of **#acad=yes|agis=yes|mstn=yes|pipe=5000#** The last part is a special signal **^!^** it normally indicates there was no parent process and in this case it only indicates this is the end of command line.
At 10:24:15	The Bentley application "geopak.exe" was launched.
At 10:24:15	The next line, the Launch Command Line indicates the full path plus a special designation of ^^^ustation.exe - this was not part of the actual command line but was appended for purposes of SofTrack's use and it identifies the name of the "parent" application/process that was used to launch "geopak.exe" - in this case, it was ustation.exe Also notice that the command line includes the unique **mdlgpk** parameter that is used in many Bentley® MDL applications (not only with ustation.exe)
At 10:24:15	The Bentley application "ustation.exe" was apparently launched, but, look at the next line.
At 10:24:15	The Launch Command Line indicates a Bentley "*pre-licensing event*" has occurred where the named (ustation.exe) Bentley Application is about to be licensed but is not yet using a Bentley license. The codes shown in the image above are:

	#^#0C#1151#08.11.07.615#none#^!^ The "**prefix**" is **#^#** and this specific set of characters at the beginning of the command line signals that this specific launch is actually a Bentley "pre-licensing event" notification. The "**code**" **0C** indicates the type of event, typically is followed by either an **0B** or **0A** event. The "**product id**" is defined by **#1151** and is the actual Bentley product id for the Bentley license that is about to be consumed. This code indicates GEOPAK Civil Engineering Suite. The "**version**" is defined by **#08.11.07.615** and indicates the actual version of the Bentley product that is about to be licensed. This may be useful to know if you have different licenses for different versions of the same "product id". The "**feature string**" is defined by **#none#** and this value indicates there was no feature string. The last part is a special signal **^!^** it normally indicates there was no parent process and in this case it only indicates this is the end of command line.
At 10:24:15	The Bentley application "ustation.exe" was apparently launched, but, look at the next line.
At 10:24:15	The Launch Command Line indicates a Bentley "*pre-licensing event*" has occurred where the named (ustation.exe) Bentley Application is about to be licensed but is not yet using a Bentley license. The codes shown in the image above are: **#^#0B#1159#08.11.07.615#none#^!^** The "**prefix**" is **#^#** and this specific set of characters at the beginning of the command line signals that this specific launch is actually a Bentley "pre-licensing event" notification. The "**code**" **0B** indicates the type of event, this code indicates the Bentley® licensing event is occurring next. This is the command line we will include in the SofTrack License Profile. The "**product id**" is defined by **#1159** and is the actual Bentley product id for the Bentley license that is about to be consumed. This code indicates GEOPAK Site. Further notice, this code 1159 is different that the 1151 in the previous 0C event. This is critical to ensure you define the correct Bentley® license to define in the SofTrack License Profile. The code changed as the licensing events determine the correct Bentley® license being activated. The "**version**" is defined by **#08.11.07.615** and indicates the actual version of the Bentley product that is about to be licensed. This may be useful to know if you have different licenses for different versions of the

	same "product id". The "**feature string**" is defined by **#none#** and this value indicates there was no feature string. The last part is a special signal **^!^** it normally indicates there was no parent process and in this case it only indicates this is the end of command line.

Based on the preceding analysis, two Bentley Licenses are being used:

- Microstation (Bentley Product ID 1000)
- GEOPAK Site (Bentley Product ID 1159).

And, you would define two SofTrack License Profiles.

One for Microstation using the "Local Windows" filename of "ustation.exe" and the command line

#^#0B#1000#*

or

#0B#1000#

and

One for GEOPAK Site using the "Local Windows" filename of "ustation.exe" and the command line

#^#0B#1159#*

or

#0B#1159#

Above, the * (asterisks) are highlighted in red for readability, no other reason.

Please note, if your installation includes Microstation + GEOPAK as shown in the above example, and the GEOPAK license is to be blocked due to no license available, the use of GEOPAK and Microstation will be terminated since it was the parent process that started GEOPAK.

SofTrack will automatically free the GEOPAK Site license when it is "deactivated" from within Microstation or when Microstation is exited regardless of whether GEOPAK is first deactivated.

Microstation 2004/XM and other Bentley® 200x Applications

Building on the previous discussions, if your environment includes 2002, 2004 and other previous versions of any Bentley® products the license activation is a single code prefix. Instead of the 0C, 0B, 0A, 4C, 4B, and 4A code prefixes followed by the Bentley product ID code, the following or similar will be found:

```
    #^#XM#FEATURE='MicroStation'
VERSION='8.5.2.70'
    VERSIONREQUIRED=1 TIMEBASEDSUPPORT=1 IS_REG=1
    LANGUAGE='9' #]
```

Notice the **#XM#** code, this signifies that a Bentley® 200x (2002, 2004, etc.) product is activating its license. If you review the other components of the value presented you will notice the product name and version are included as well as other attributes of the license activation process. Any of these values can be included in a SofTrack License Profile "Command Line" sequence such as:

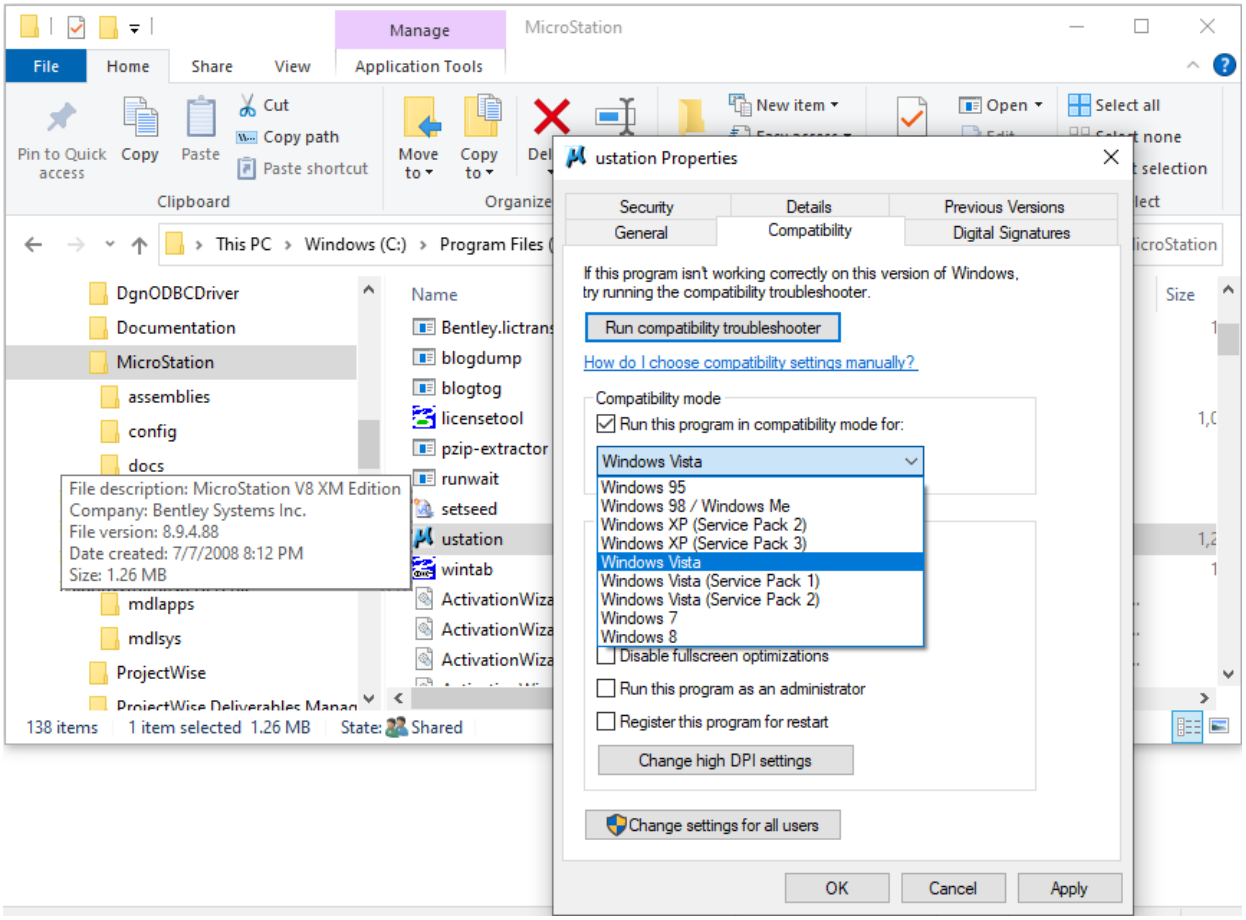
#XM#*microstation

Notice the command line is not case sensitive.

Microstation V8 XM Edition and Windows 10 compatibility

We have discovered Microstation V8 XM (originally developed for Windows 98) on Windows 10 can hang when starting, specifically not allowing any file to be opened.

We have confirmed a solution for those Windows 10 workstations with this issue.



First, click on Run compatibility troubleshooter. Once complete, if not already configured, set the Compatibility mode to "Windows Vista" (see image above).

RAM Concept – Command Line to include

When defining a SofTrack License Profile that includes RAM CONCEPT (concept.exe) you may find that you need to include this command line to ensure complete activity tracking and control:

`*\concept.exe*`

This is in addition to the Bentley Codes you have defined such as *#4B#1477#* and *0B#1479#* and so on.

Bentley Connection Client – Sample Profile

When blocking untracked Bentley Codes (click here for details), the Bentley Connection Client typically issues code(s) but is not itself a billable application.

The following is provided as a sample License Profile definition to create. As part of the definition, include setting the maximum user count to a high value so its usage is never blocked:

Local Windows Files:

```
bentley.connect.advisor.service.exe
bentley.connect.client.exe
```

Local Windows Command Lines:

```
*#2543#*
*#1805#*
*#2439#*
```

Once this License Profile is defined, if any further filenames and/or Bentley Codes occur (and usage blocked due to not being tracked), add each to the list of files and/or command lines.

Chapter 12 Autodesk® and Revu® license tracking

IMPORTANT: SofTrack offers unique features to track use of your Autodesk® products by product id, year code, serial number and feature code (network license manager id). Additionally SofTrack provides serial number, edition and Markup status for Bluebeam's REVU®.

New feature, Resetting Autodesk® FLEX License Usage Daily

The ability to automatically terminate **any** selected application usage daily at 11:59pm (local workstation time) with a 5-minute warning to the user is available beginning with version 7.27b (February 2022) of the SofTrack workstation agent.

This ability enables absolute control of how long Autodesk® applications are allowed to remain in-use, effectively resetting usage each day. This is especially important for Autodesk® applications utilizing FLEX licenses.

This feature is independent of idle timeout and optional termination options. Click here to review implementation and usage details.

To further assist, starting with version 7.28g (September 2022) of the SofTrack workstation agent, when an Autodesk® license is engaged and utilizies a FLEX license, it will be included in a secondary Command Line that occurs approximately 3-minutes after the application starts. Tracking is enabled by appending the following to each Command Line to match:

```
*#88888#*#FLEX*
```

Optionally, a separate license profile can be created and configured with unlimited users so no usage is blocked and includes the configuration to automatically terminate usage of Autodesk® applications engaging a FLEX license at 11:59pm.

Standard Definitions might not be enough

Typically, with SofTrack you only need to define the executable filename to control. Based on that filename, SofTrack will then manage its concurrent usage throughout your environment. And, in cases where multiple versions of the same executable exist (even on different workstations) you might even use a partial path to further define the filename to track. This "standard" type of definition works well for many applications. And, it might be suitable for your installation(s) of AutoDesk® applications.

However, Autodesk® applications provide their own internal licensing. SofTrack uniquely provides you with the details of the Autodesk® license being engaged.

Determining Autodesk® Product Code + Year + Feature NLMid + Serial Number

SofTrack includes the unique ability to specifically monitor Autodesk® application usage based upon the Product Code, Year, and when using network licensing, Feature NLMid (Network License Manager ID) and Serial Number used to license each specific usage.

This ability guarantees you will correctly monitor Autodesk® License usage throughout your network.

Autodesk® Codes via auditing of Application Launch activity

The following steps presume you have previously installed the SofTrack Server Agent, SofTrack Token and SofTrack Local Workstation Agent and they are in a functional state. If you have not, please do this first. Once done, the following steps will outline the procedure to determine the Autodesk Codes for each Autodesk® application used in your environment. This method records the history of Autodesk® license activation per workstation and user.

1. To begin, open `SOFTRACK_CONSOLE.EXE`.
2. Select the "Settings" Tab and then the "Options" section as shown in Figure 12-1:

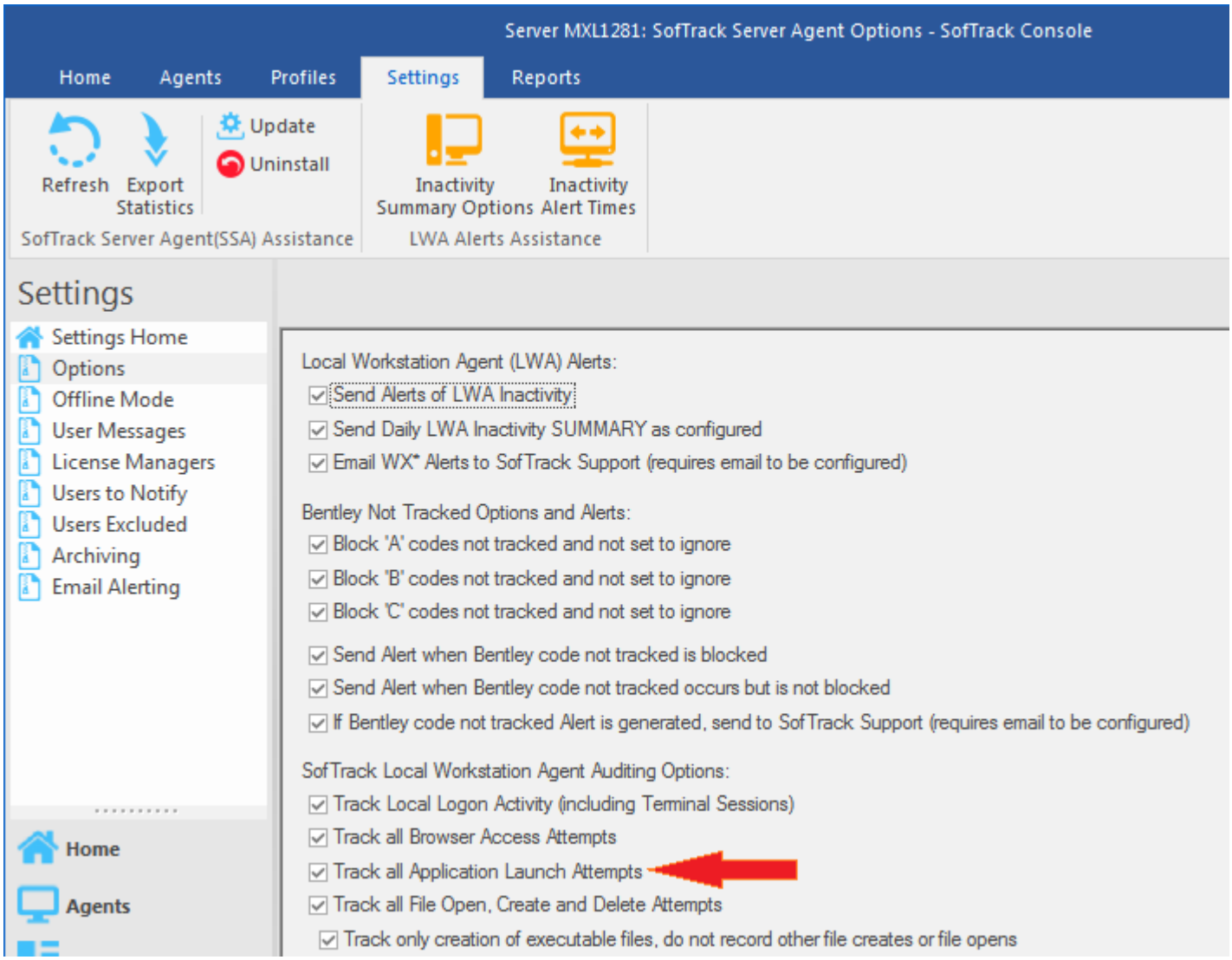


Figure 12-1

3. Select "Include all Application Launch Attempts.." checkbox as shown above. If it was previously checked, leave it checked.
4. The setting is automatically saved
5. Go to a workstation where Autodesk application(s) to review are installed, again, this presumes the SofTrack Local Workstation Agent (LWA) has previously been installed and is functioning.
6. Launch an Autodesk Application.
7. Open (or continue using) the SofTrack Console, click the "Reports" tab, click the "Workstation Audit" section and click Retrieve Logs and/or Retrieve Archived and click **Application Launches** report:

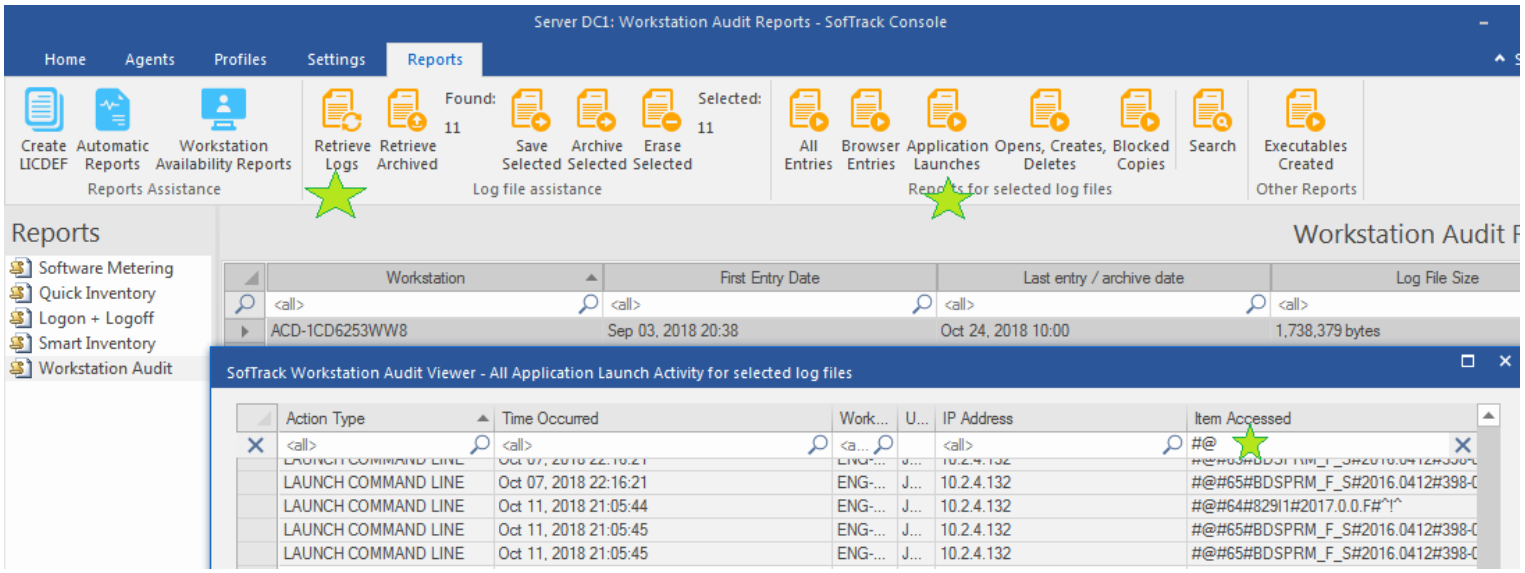


Figure 12-2

8 Review the log entries for the Autodesk® application launch:

SofTrack's Definition for Autodesk® Codes Discussion

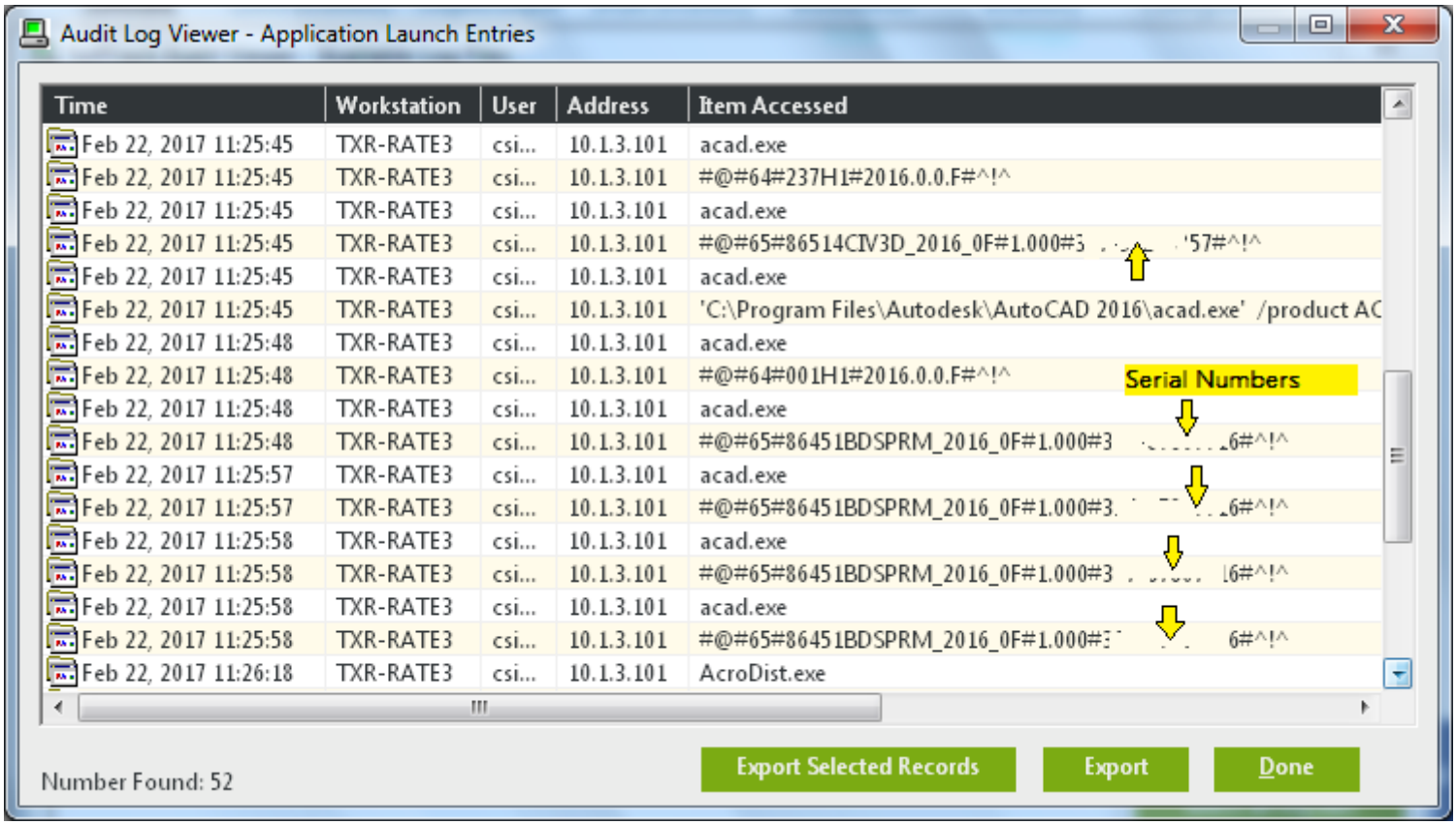


Figure 12-4

The following will explain each line shown in Figure 12-4.

At 11:25:45	The Autodesk application "acad.exe" was launched (5th line)
At 11:25:45	The Launch Command Line indicates the full path
At 11:25:48	The Autodesk application "acad.exe" was apparently launched, but, look at the next line.
At 11:25:48	The Launch Command Line indicates an Autodesk"Product ID" event has occurred (denoted by `#@#64#` prefix) product id 001H1 and version `2016.0.0.F` The product id `001H1` is direct from Autodesk and indicates "Autodesk AutoCAD 2016" Please refer to this link for a list of codes for 2016 versions of Autodesk products: Autodesk 2016 product keys
At 11:25:57	The Autodesk application "acad.exe" was apparently launched, but, look at the next line.
At 11:25:57	The Launch Command Line indicates an Autodesk "Feature Code" event has occurred (denoted by `#@#65#` prefix) feature code `86451BDSPRM_2016_0F` followed by `#1.000` – this indictes number of license units to be consumed. The feature code `86451BDSPRM_2016_0F` is direct from Autodesk and indicates "Autodesk Building Design Suite Premium 2016" Please refer to this link for a list of feature codes for 2016 versions of Autodesk products: 2016 FLEXnet Feature Codes for Autodesk The erased portion is the serial number of the license used for this instance of acad.exe, an example serial number would be: `153-918457A6`

9 The examination explanation in step 9 (above) is intended to be used with any Autodesk® application you will be monitoring/controlling use of with SofTrack.

10 When you define the SofTrack License Profile you will use the "Launch Command Line" or portions thereof to accurately control and monitor use of any Autodesk® application.

Defining an Autodesk® License Profile

SofTrack includes several features to assist in monitoring/controlling use of Autodesk® applications.

SofTrack's unique features include:

- Command Line metering of Autodesk applications by product id
- Command Line metering of Autodesk applications by feature code
- Command Line metering of Autodesk applications by serial number
- Advanced Timekeeping

11 To begin, open `SOFTRACK_CONSOLE.EXE`.
12 Select the desired server and click the "Profiles" tab (Figure 12-5)

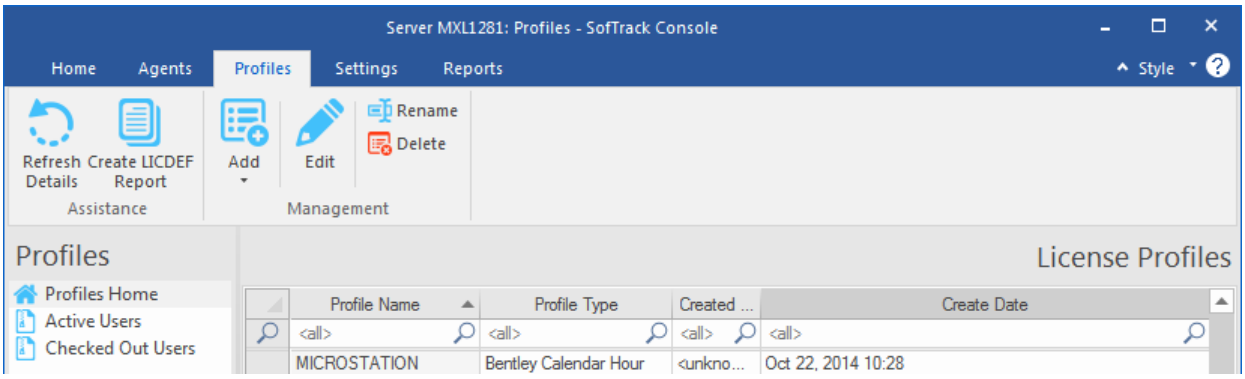
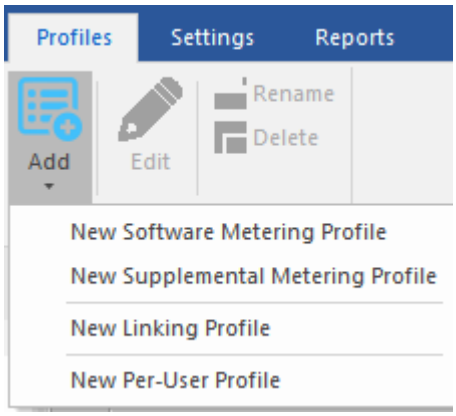


Figure 12-5

14 Click the **Add** button (Fig 12-5)
and the following prompt appears:



Select New Software Metering Profile:

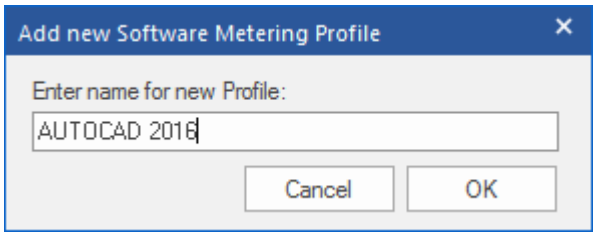


Figure 12-6

NOTE: The License Profile name can contain up to 20 characters and may include symbols and spaces. Spaces will be automatically converted to underscores.

15 Enter the name AUTOCAD 2016 and click **OK**.

16 The following screen will appear (Figure 12-7)

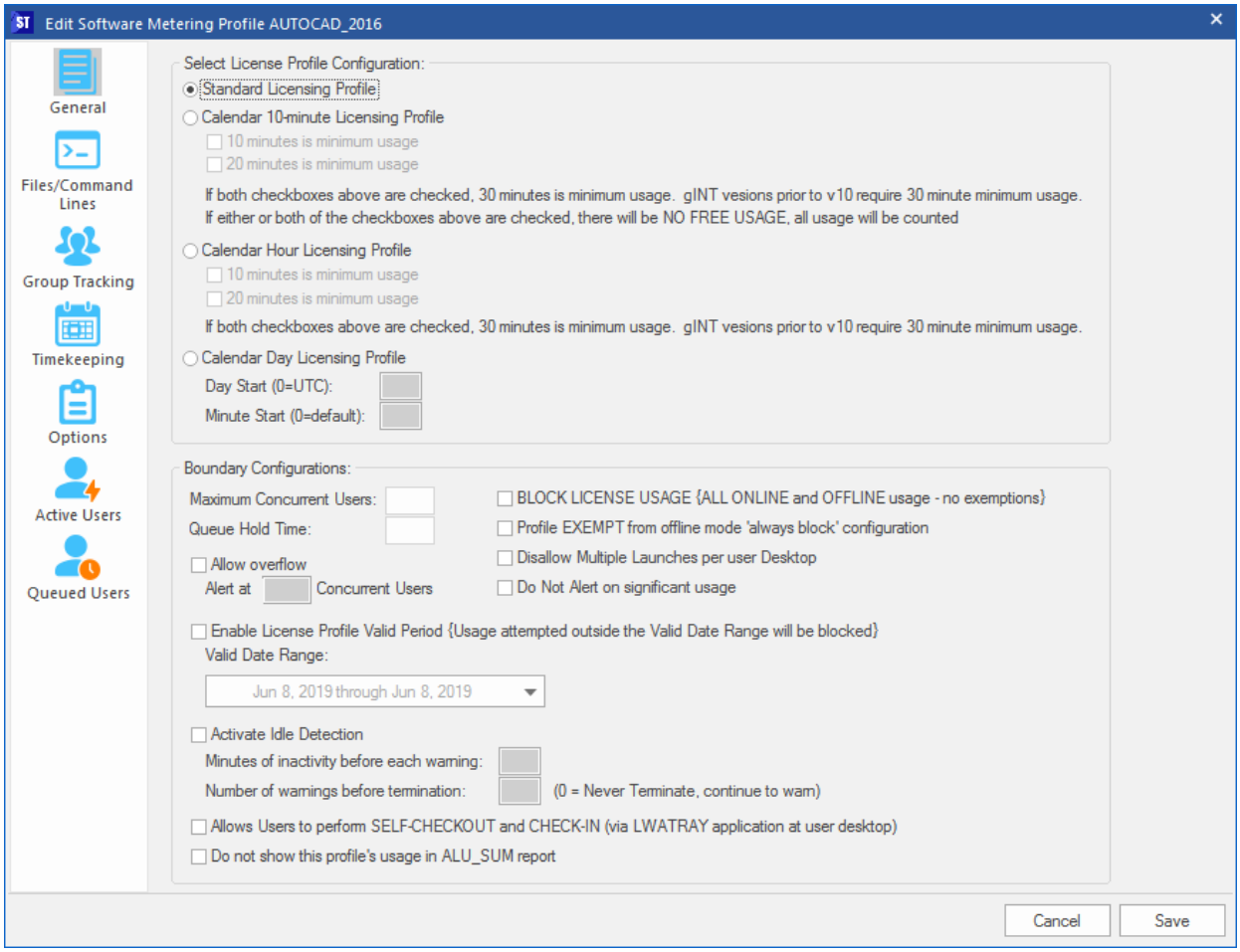
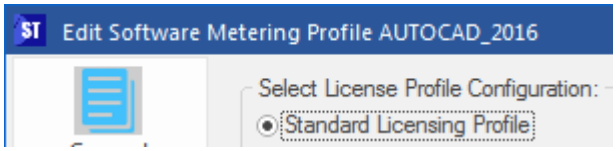


Figure 12-7

29 At top left, notice the **Standard Licensing Profile** option is pre-selected:



30 Select the Files/Command License section and in the field next to the **Add File** button near the center enter the executable name. For our first test, enter `ACAD.EXE`

31 Click the **Add File** button and the file is entered in the list to be tracked (Figure 12-8).

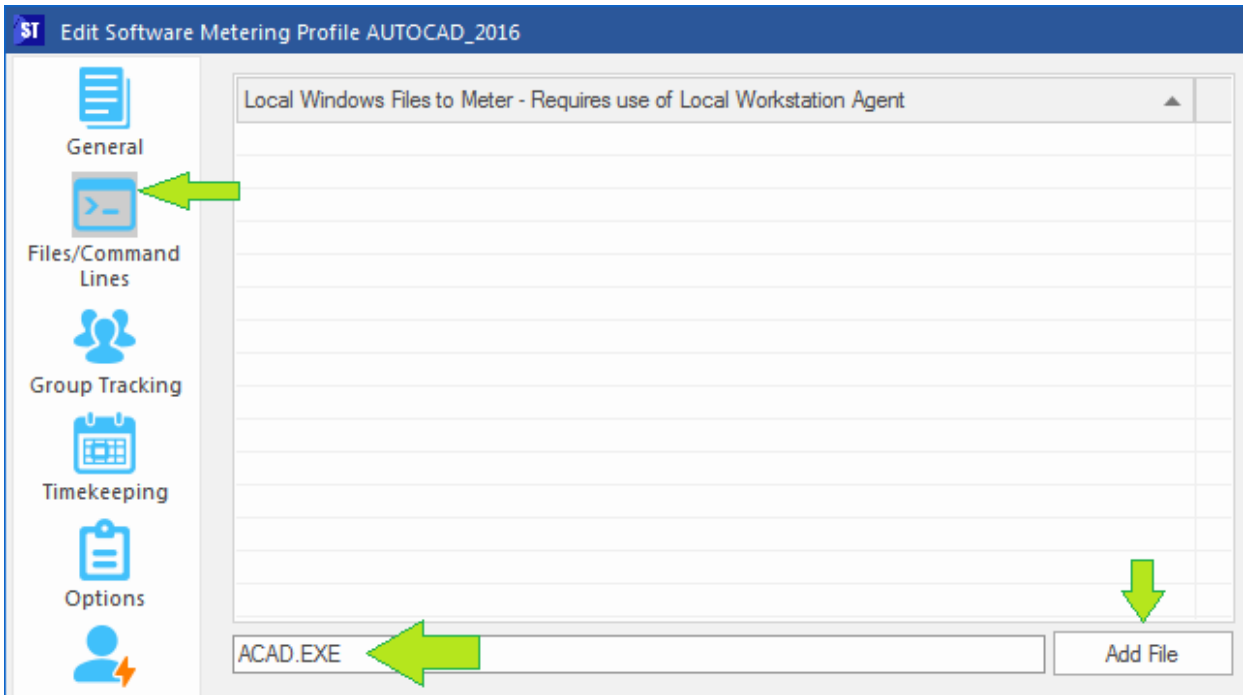


Figure 12-8

NOTE: When choosing the application file to meter, always select the `.EXE` file that is "paired with" the command line to track. Reference Step 9 above, the filename is shown there.

Ordinarily you may also specify the application path or partial path (no wild cards allowed), however, when defining an Autodesk license profile using the codes show in Step 9 above, ***only the application's filename will be used, therefore do not specify any portion of the path***. If you have different versions installed, use the "product id", "version", "feature code" or "serial number" found on the Launch Command Line shown in Step 9 above.

If you are metering a DLL file, simply enter that filename. However, with Bentley applications you will always use the initial .EXE file that is used to run the application.

32 Next, in the the **Command Lines to track** section:

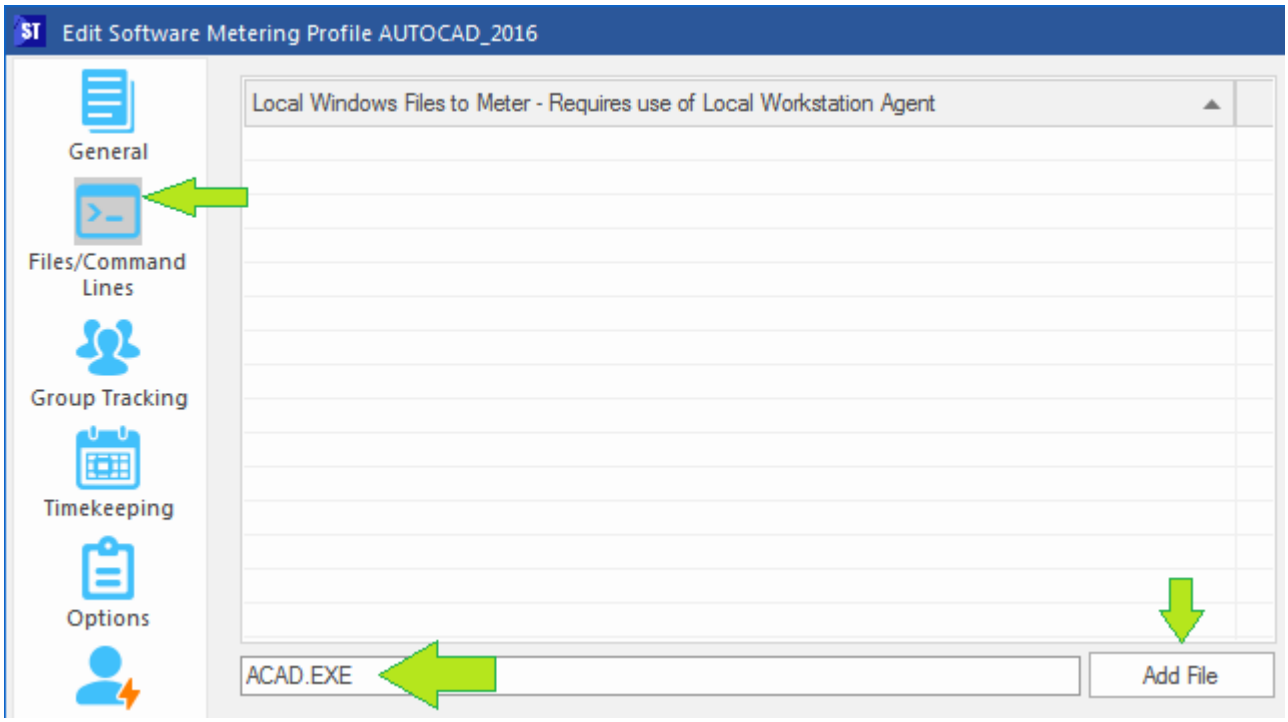


Figure 12-9

33 Enter an appropriate command line pattern to match such as:

```
#@#65#86451BDSPRM_2016_0F*
```

or, to monitor by serial number:

```
#@#65#*153-918457A6*
```

Reference Step 9 above, the codes above are derived from the findings in the Application Launch records. Notice each code above ends with * (asterisk) this is to ensure "wildcard matching" will occur so it does not matter what occurs before or after the specified codes so long as those codes are present in the order shown. **Caution**: Do not prepend the **#@#** characters with an asterisk as these are the start of the command line and there are no characters to match previous and if you include a leading asterisk it will result in no match being found.

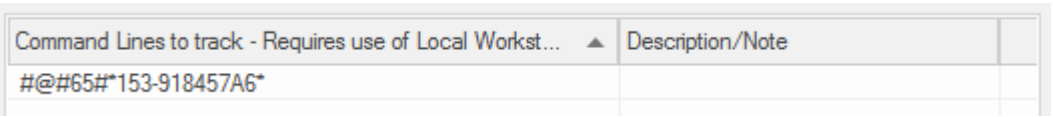


Figure 12-10

You may enter as many command lines to match as required.

The trailing * is used to ensure the pattern is matched regardless of any other text in the

command line. You may also use a ? to match a single character.

Automatic Autodesk Peak Usage Reporting

Beginning with SofTrack Server Agent (SSA) v7.14n (x32) and v8.14n (x64) and SofTrack Local Workstation Agent (LWA) v7.25a, all Autodesk activity will be automatically recorded and available for graphical reporting. Further LWA updates now include tracking of both Autodesk® serial number activity and Autodesk® Named-User activity as well has AutoCAD® Plugin and Addin usage.

Setup

To setup Automatic Autodesk reporting only requires use of the above versions of SofTrack SSA and LWA.

There are no other requirements or configurations required.

If you have any SofTrack License Profiles defined that meter / control use of Autodesk Applications, each will continue to function as it has been without change.

SofTrack's Automatic Autodesk reporting functionality operates completely independently of any License Profiles that may or may not be present.

SofTrack's Automatic Autodesk reporting will continue to function whenever the PC is offline even if SofTrack's Offline Mode is not configured.

Paths

SofTrack will create the following paths:

At each PC, in the path were STLWA_NT.EXE is located:

```
LWA.ASL
```

This path will contain completed records that are awaiting upload to the SSA. If the LWA is online with the SSA these files are typically uploaded within 15 minutes.

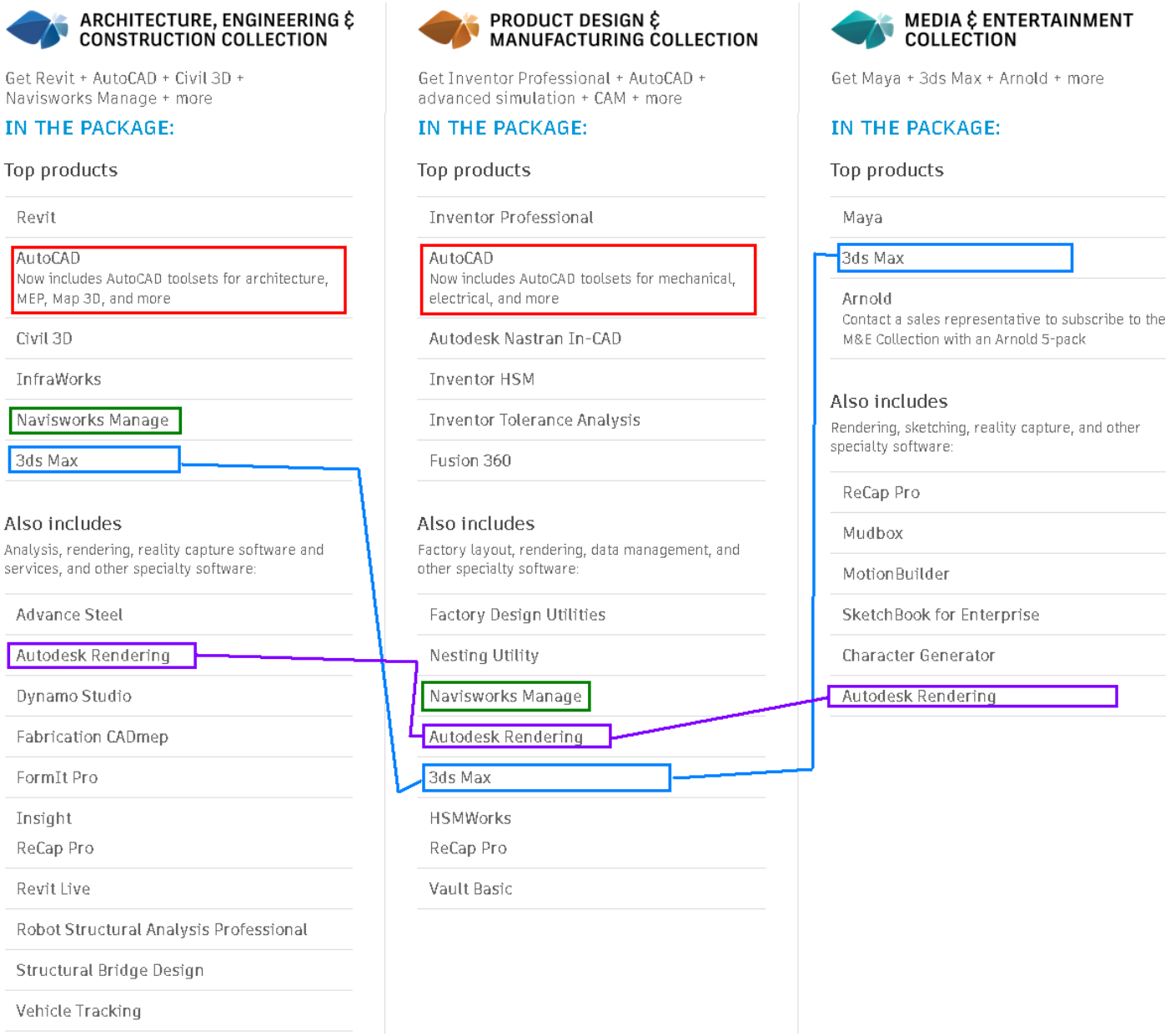
At the SSA host the following paths are created:

```
STLOG\AutodeskActivity
STLOG\AutodeskActivity\Products
```

These folders will contain Autodesk activity as reported by the LWA at each PC.

Reporting by Serial Number and Named-User

Autodesk® has at least 3 different Industry Collections, each contain several individual Autodesk products:



As shown above, several products are shared between the Collections. SofTrack's Automatic Autodesk reporting has been designed to report the serial number consumed by each Autodesk Application used. This is very important, SofTrack's Automatic Autodesk reporting discovers the serial number consumed for each usage which can be different depending on current Autodesk license usage.

SofTrack will record the actual serial number used by each Autodesk Application used. The detail of the actual serial number used is critical to knowing your usage. This is of added importanance for organizations that utilize several serial numbers, perhaps a mix of

Autodesk Industry Collections, including individual networked / stand-alone licenses. SofTrack gives you insight into exactly how your Autodesk license serial numbers are being utilized even when Autodesk cascading licensing is configured.

Additionally, SofTrack will monitor each Autodesk application consuming the same serial number together, as one, when used concurrently. For instance:

User starts AutoCAD at 9am, consumes serial number 444-01935123

User starts Civil3D at 915am, consumes serial number 444-01935123

User exits AutoCAD at 1115am.

User starts 3ds Max at noon, consumes serial number 444-01935123

User exits Civil3D at 120pm

User exits 3ds Max at 4pm

SofTrack will record serial number 444-01935123 being *continuously* utilized from 9am until 4pm.

If the scenario above is revised to include User starting Navisworks at 330pm, consuming serial number 444-88933471 and exiting Navisworks at 6pm. SofTrack will additional record serial number 444-88933471 being used from 330pm until 6pm.

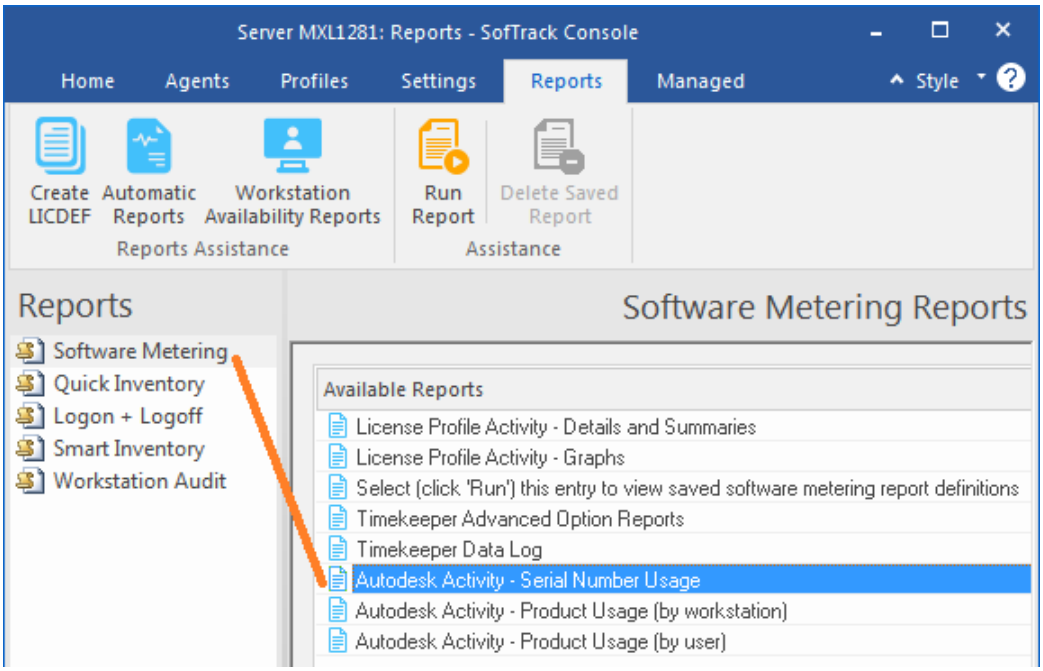
If the scenario includes a stand-alone license of Revit being used, that too will be recorded as a separate usage and so on.

If the user's PC "crashes" SofTrack will record the "exit" time of each Autodesk serial number being used as the time the PC was stopped, this is done so no usage is lost. To restate: Reporting will continue if the user's PC is suddenly re-started while Autodesk applications are in-use so no activity is lost. The last time the PC was active is used as the "exit time" for such sudden reboots as that would be the time the applications were exited (due to PC being restarted/rebooted/crashed and recovered).

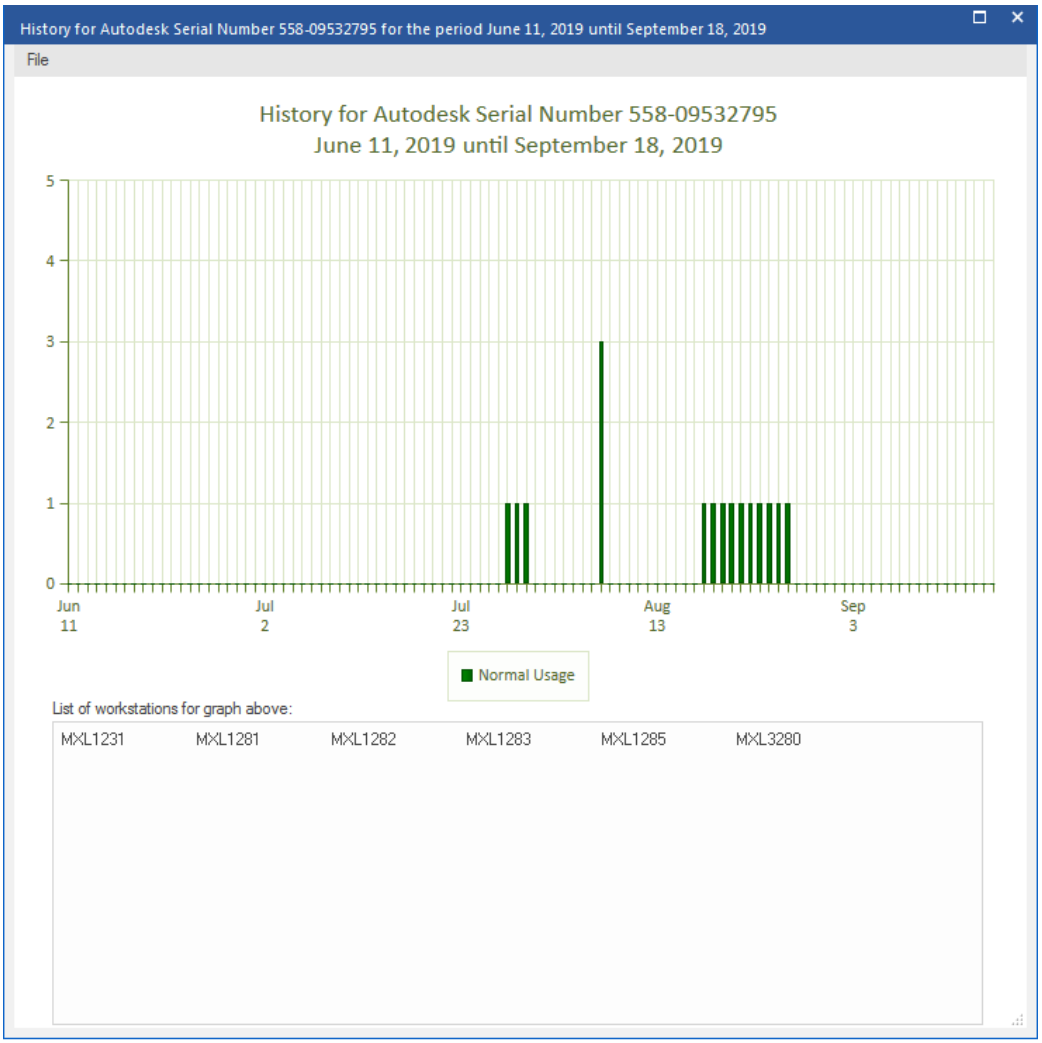
In summary, SofTrack's Automatic Autodesk reporting has been designed to provide reporting of concurrent use by serial number as well as usage of individual Autodesk applications (regardless of serial number used) – this is detailed in the next section.

SofTrack's Automatic Autodesk reporting works with LMTOOLS/ Network licensing, to provide the serial number consumed/assigned for each usage.

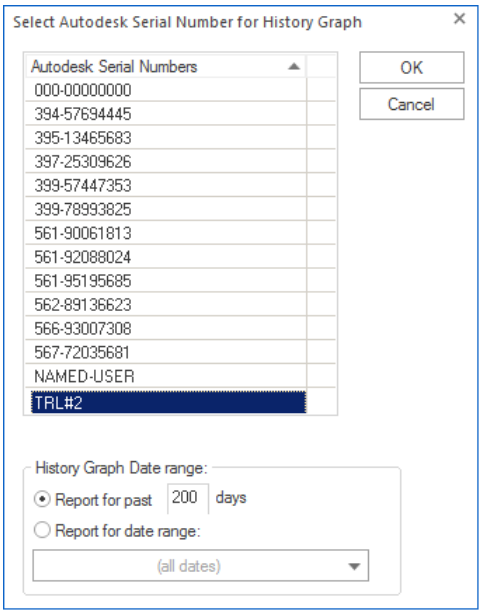
Reporting is located here:

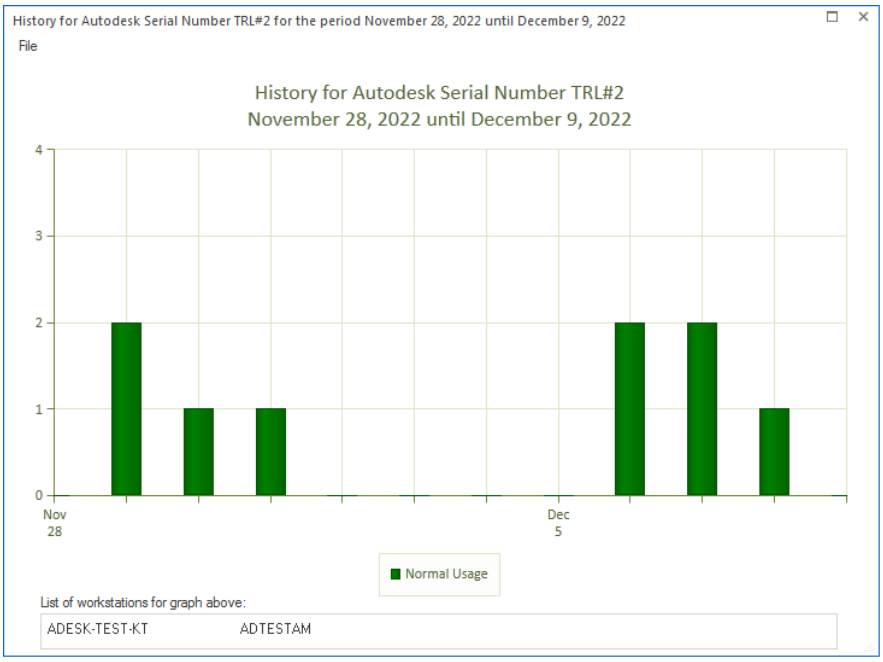


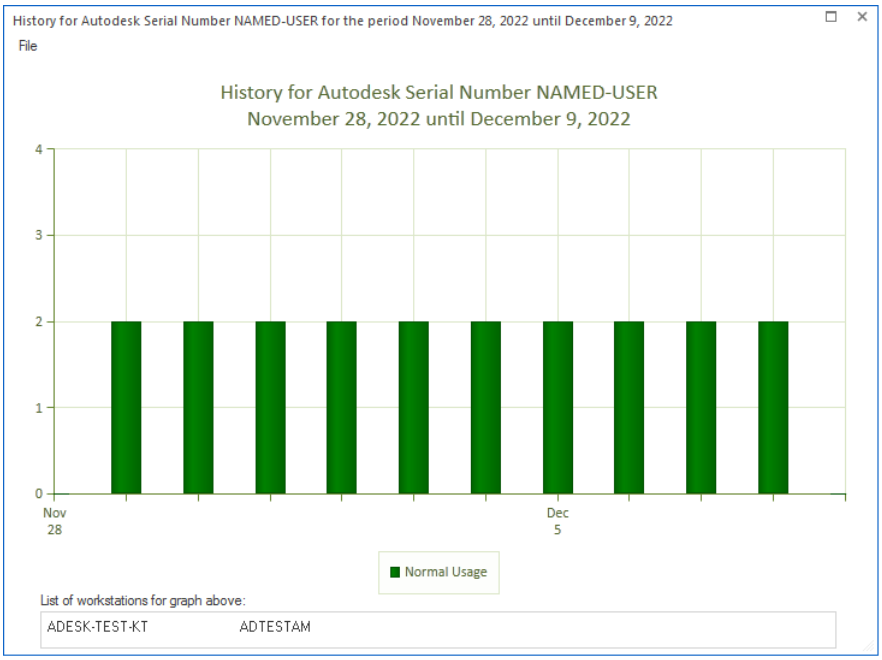
A sample report:



Reporting for Named-User includes separate usage tracking of free Autodesk® Trial Licenses:

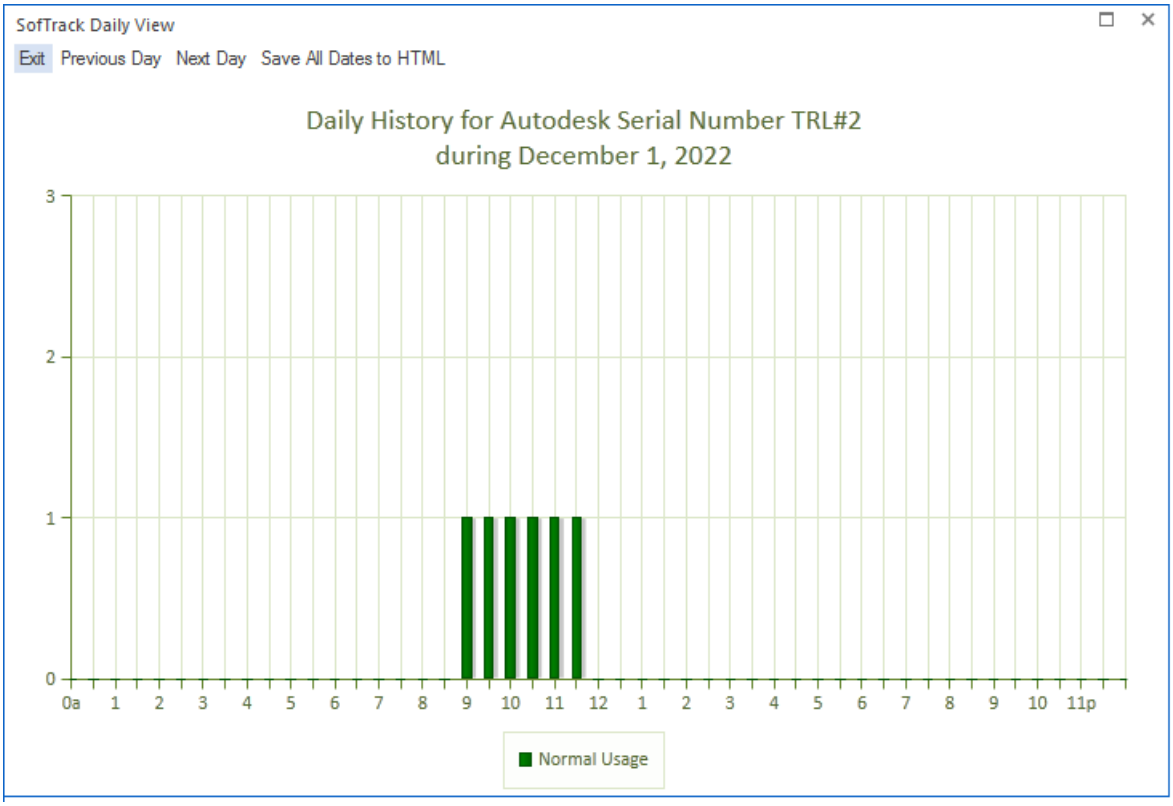






Notice list of workstations is included and under the File menu there is the ability to save this graph and list of workstations to an HTML file that can be easily shared with others.

Further, if you click on any of the bars an intra-day view is presented:



Notice the menu options in the above image. The *Save All Dates to HTML* menu item saves a graph of each day's usage by hour to a single HTML file that can be easily shared with others.

Reporting by Product

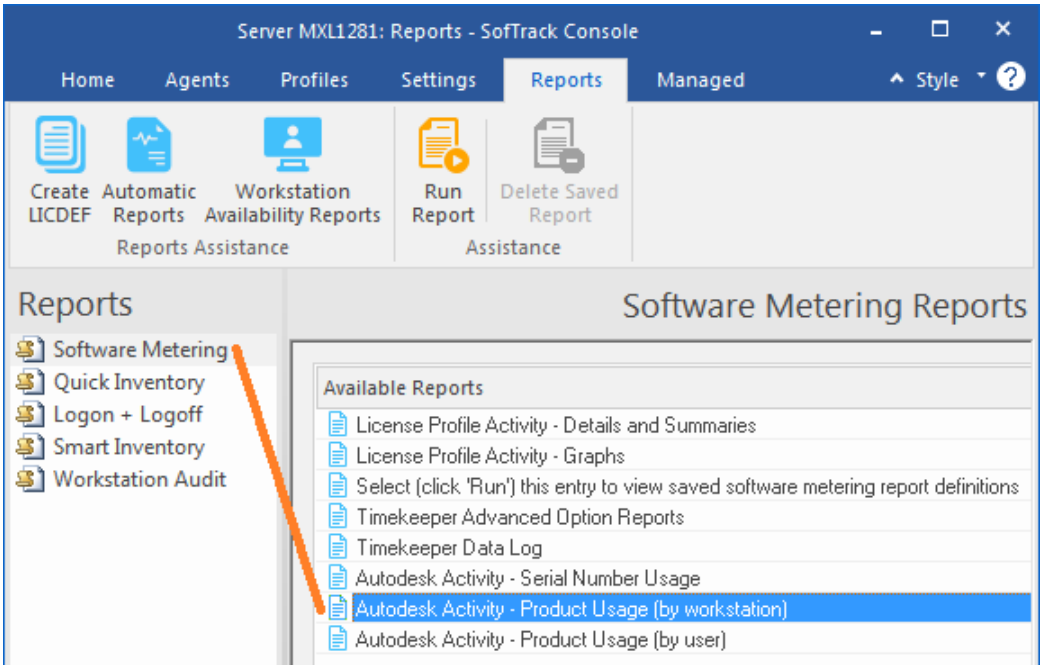
By Workstation

SofTrack's Automatic Autodesk® reporting includes separate reporting of each Autodesk application's use. These applications are tracked by the feature code (or product id) utilized. SofTrack also reports the actual product name of each.

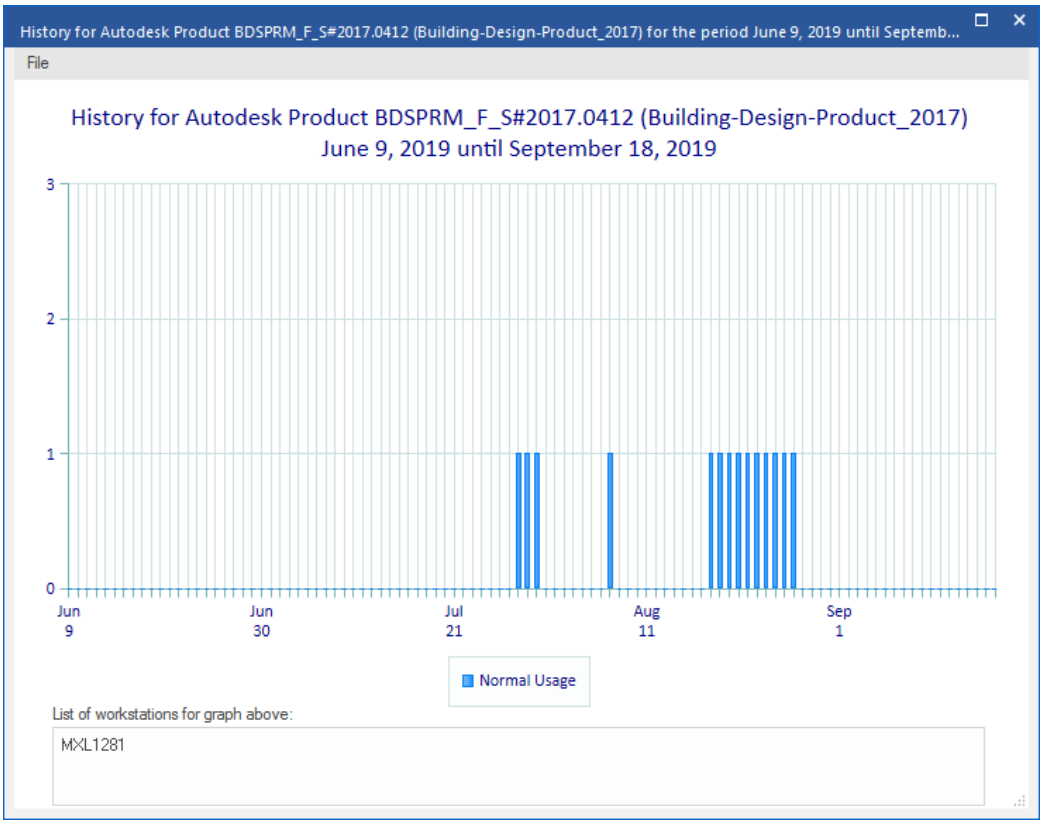
Reporting by Product is independent of tracking and reporting by Serial Number.

SofTrack's Autodesk Product Usage reporting provides individual product utilization insight:

Reporting by workstation is located here:

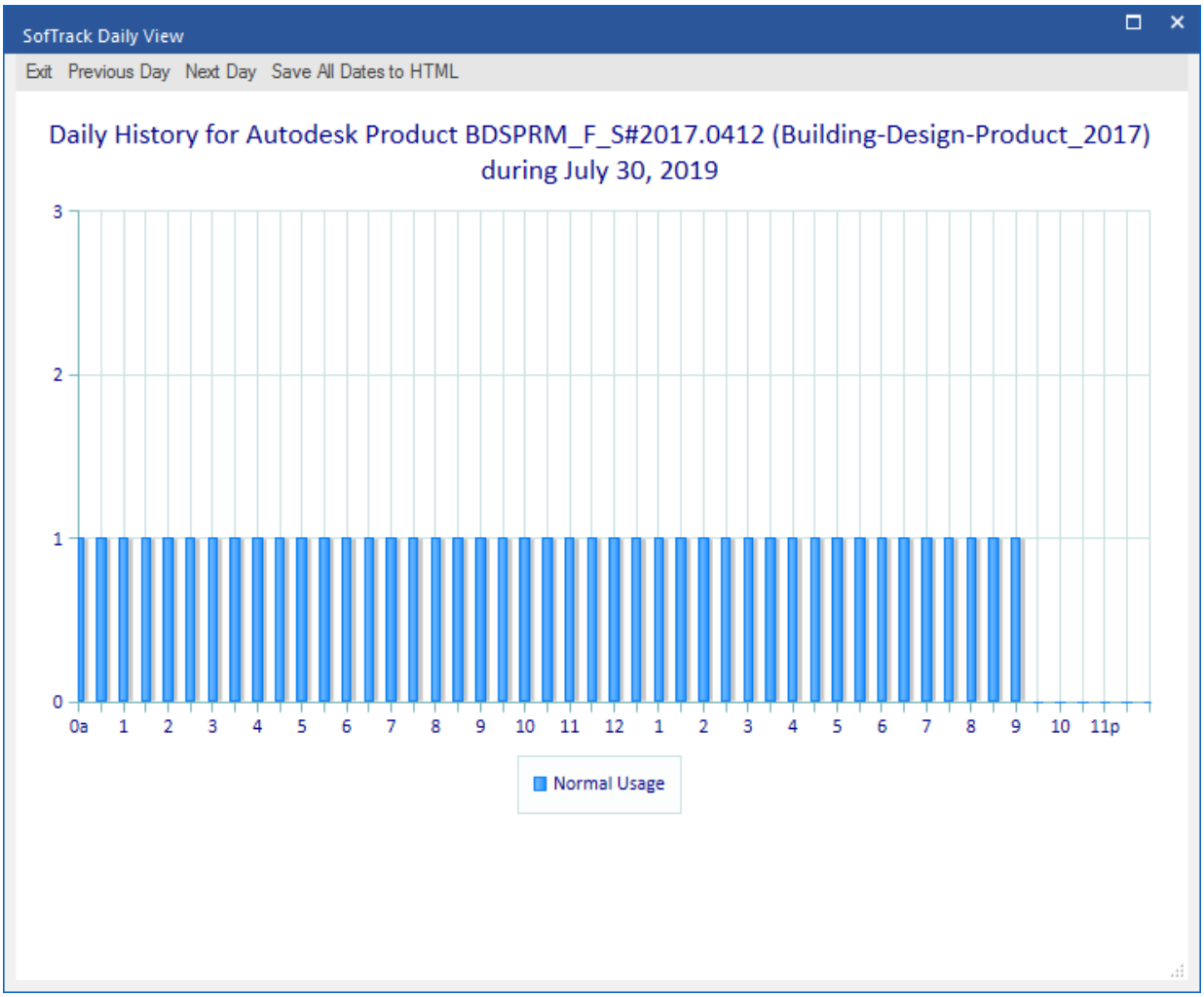


Sample report:



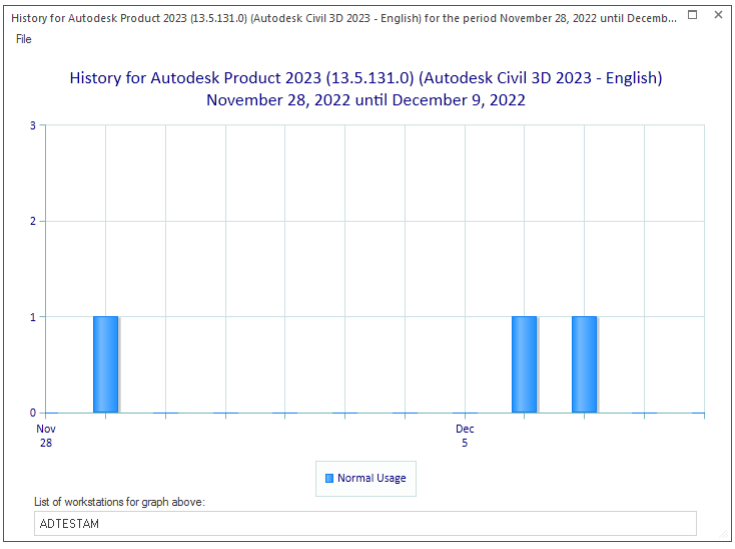
The report includes a list of workstations providing usage data. The File menu option allows saving of the report to an HTML file that can be easily shared.

When you click on any day an intra-day graph is presented:

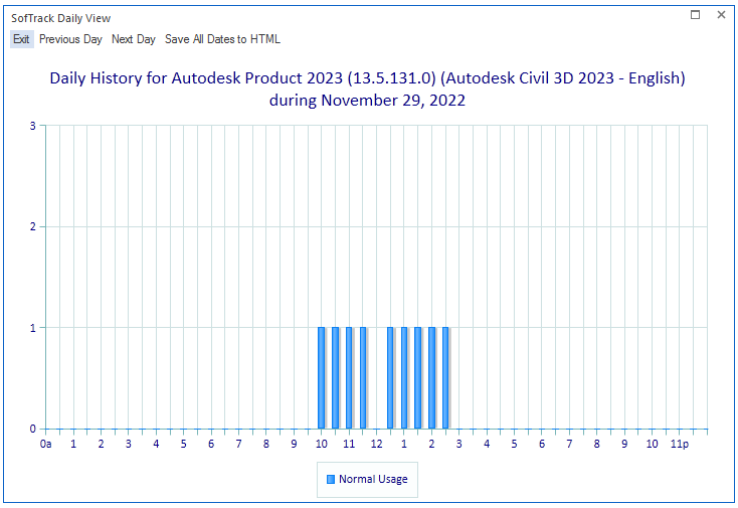


Notice the menu options, the *Save All Dates to HTML* menu item will produce a single HTML file that contains every date graphed with a separate image showing intra-day usage.

Below is an additional example featuring Autodesk® Civil 3D 2023:



When clicking on November 29, the following intra-day graph appears:



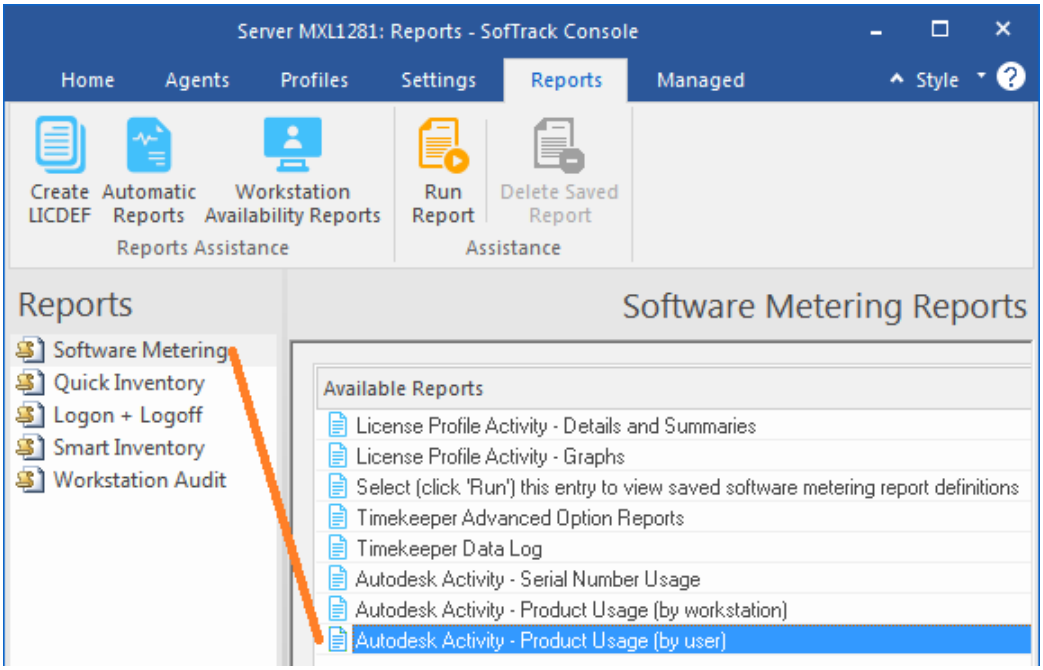
By User

SofTrack's Automatic Autodesk® reporting includes separate reporting of each Autodesk application's use. These applications are tracked by the feature code (or product id) utilized. SofTrack also reports the actual product name of each.

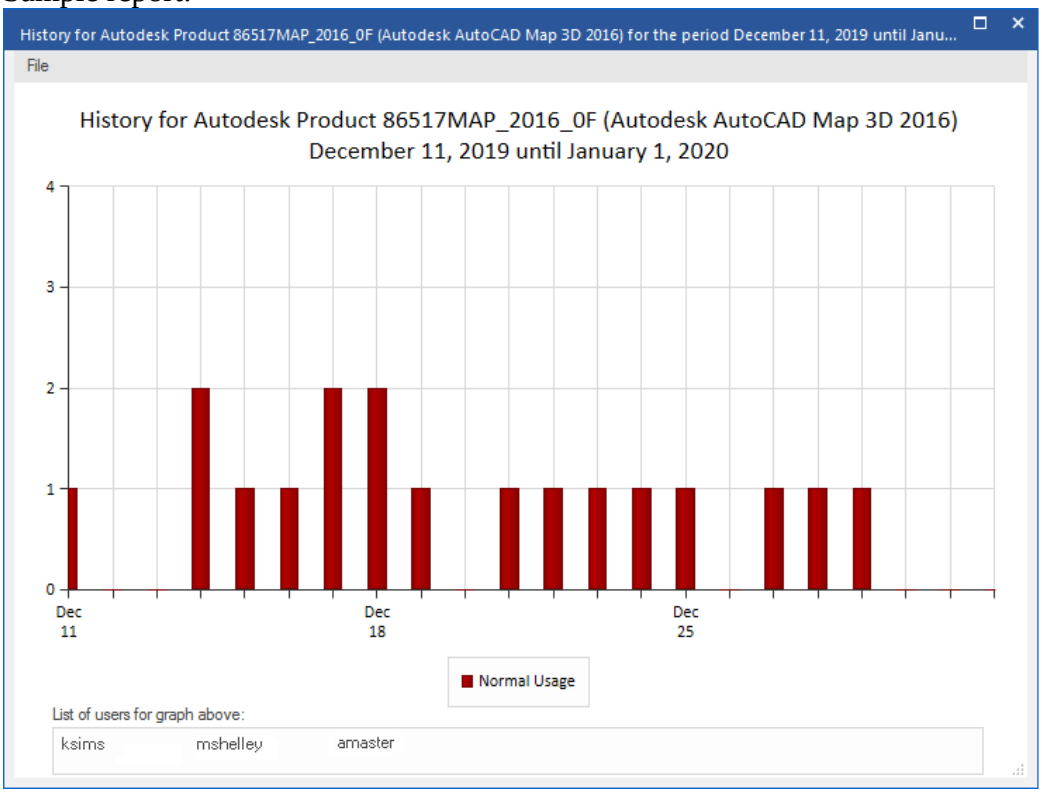
Reporting by Product is independent of tracking and reporting by Serial Number.

SofTrack's Autodesk Product Usage reporting provides individual product utilization insight:

Reporting by user is located here:

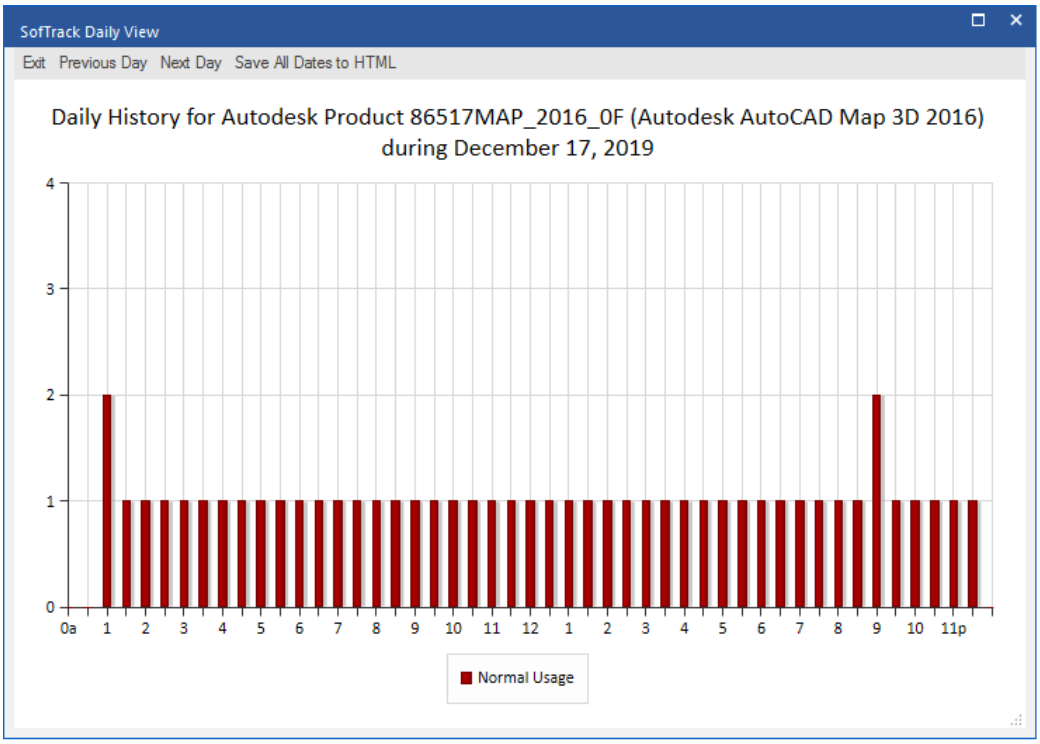


Sample report:



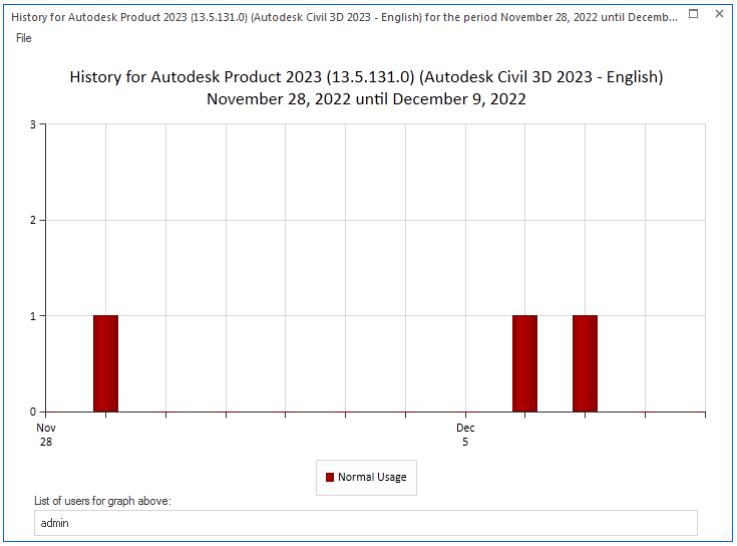
The report includes a list of user providing usage data. The File menu option allows saving of the report to an HTML file that can be easily shared.

When you click on any day an intra-day graph is presented:

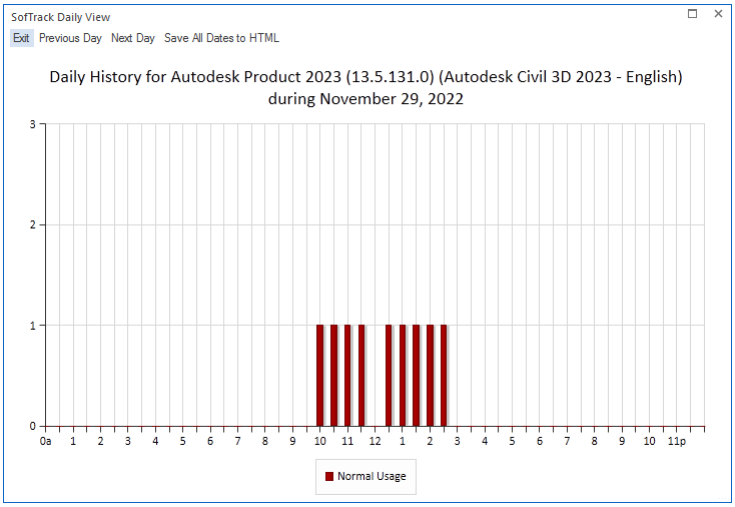


Notice the menu options, the *Save All Dates to HTML* menu item will produce a single HTML file that contains every date graphed with a separate image showing intra-day usage.

Below is an additional example featuring Autodesk® Civil 3D 2023:



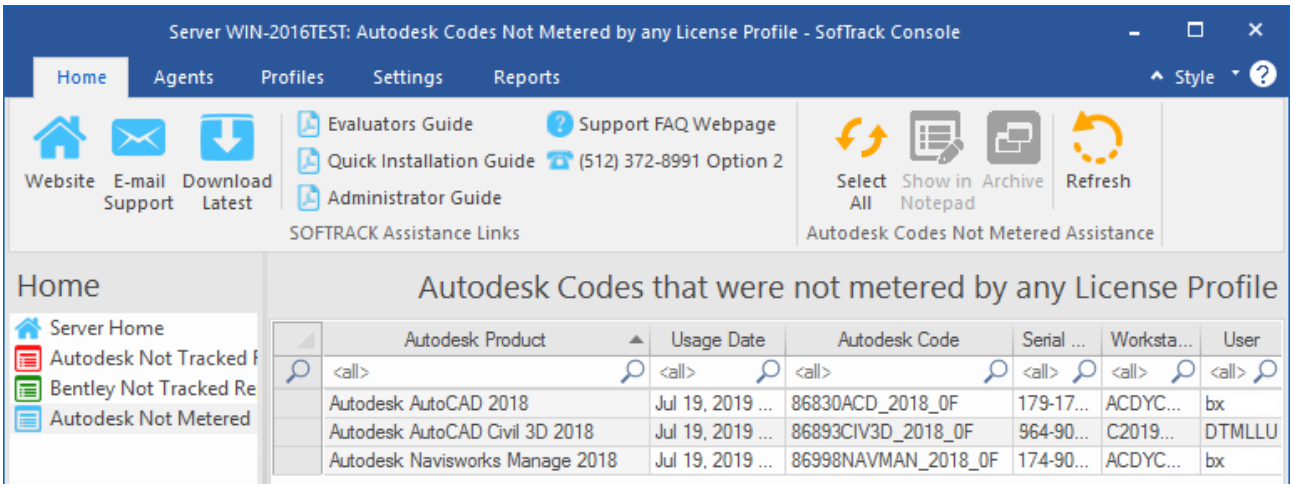
When clicking on November 29, the following intra-day graph appears:



Reporting of any not-tracked by License Profile

In addition to the Automatic Autodesk reports, SofTrack separately reports each Autodesk application used that was not tracked by a SofTrack License Profile. Reporting includes user and workstation where used.

The Autodesk Not Metered report (Autodesk Codes that were not metered by any License Profile) is found in a separate location as shown in the image below:



Real-Time Reporting

There is no real-time reporting with SofTrack's Automatic Autodesk reporting, all activity is available for historical reporting once usage is complete and the LWA has uploaded tracking data to the SSA.

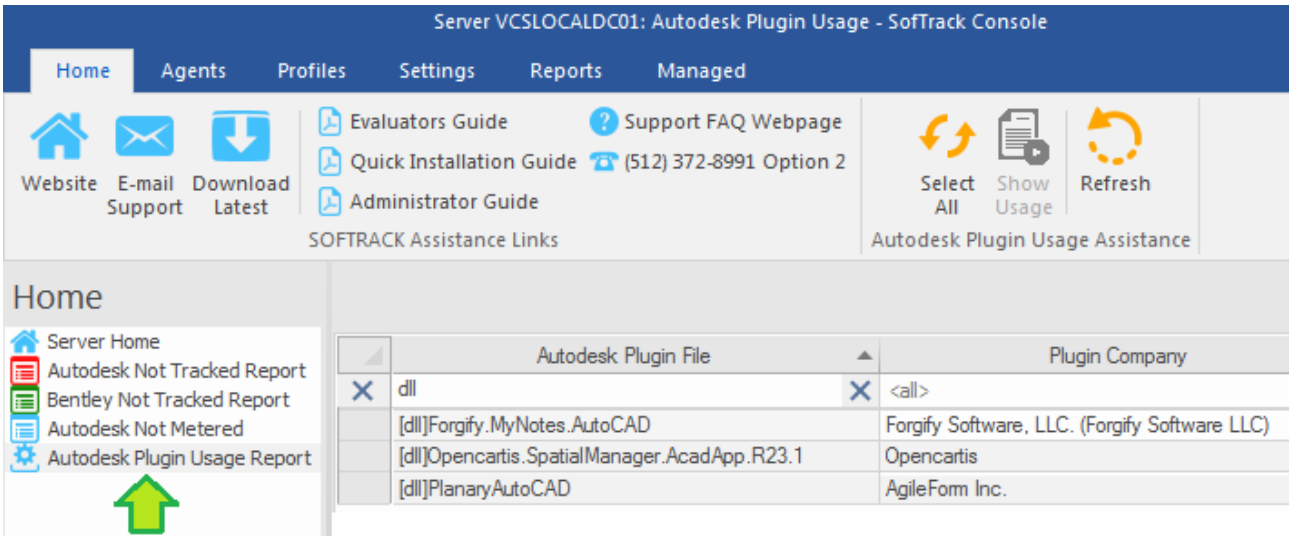
Reporting of Autodesk® Plugins+Addins with detected usage

SofTrack automatically tracks any 3rd party Autodesk® Plugins and Addins loaded (not only installed, but actually started within an Autodesk process). All Plugin+Addin file types are tracked including .ARX, .DLL, .VLX, .LSP, .MNL and all others.

If the loaded Plugin or Addin is located in any of the following paths it is not tracked as any from these paths are presumed to be part of a default Autodesk® product installation:

```
\Program Files\Common Files\Autodesk Shared
\Program Files (x86)\Common Files\Autodesk Shared
\Program Files (x86)\Autodesk
\Program Files\Autodesk
```

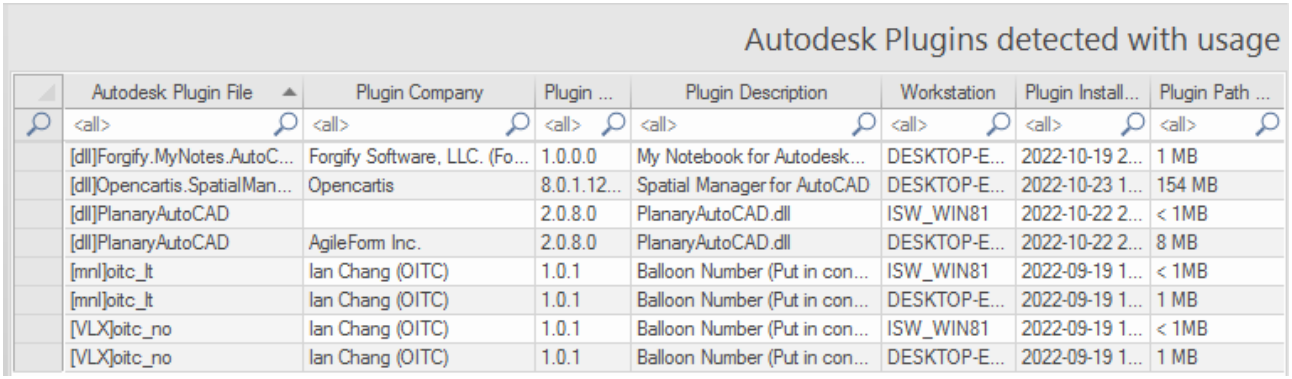
The Autodesk® Plugin usage reports are located in the Home section of the SofTrack Console:



There are 2 reports, the first provides the following columns:

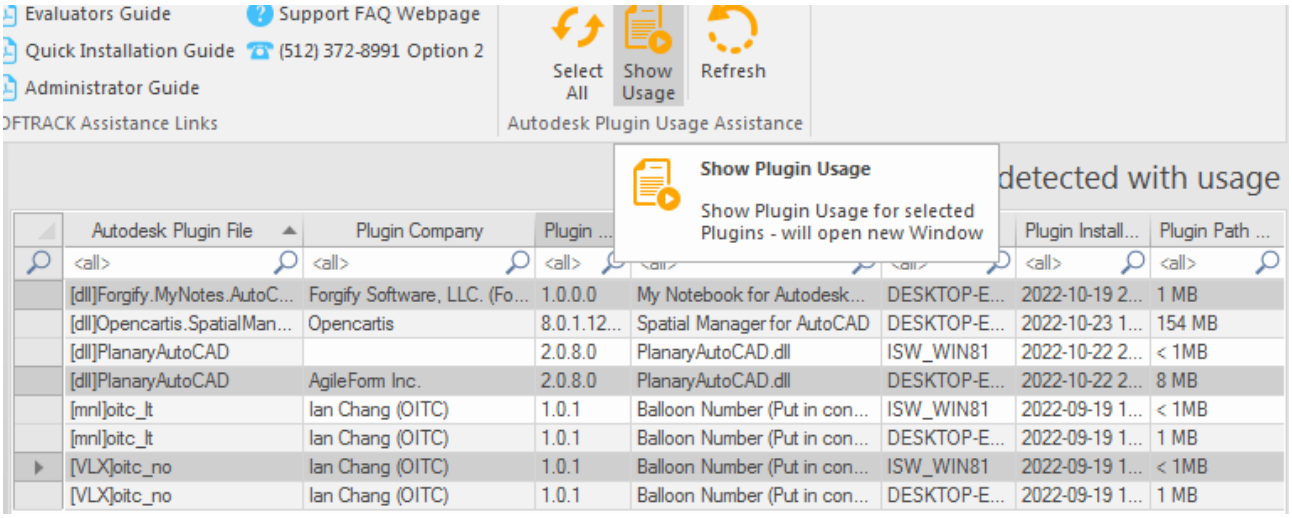
- Plugin Filename
- Plugin Company
- Plugin Version
- Plugin Description
- Plugin Installation Date
- Workstation
- Path size, in MB, of the Plugin

Sample report:



The second report reveals date of each usage. Notice, each time an Autodesk® product is started and the Plugin(s) usage is detected, it will show as a usage. Because of this, it is possible to find multiple usages in the same day.

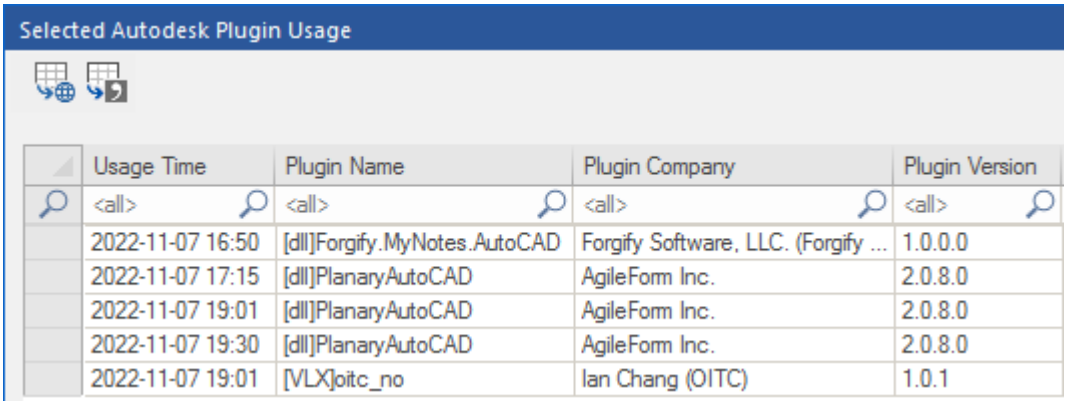
To begin, select one or more rows to show usage:

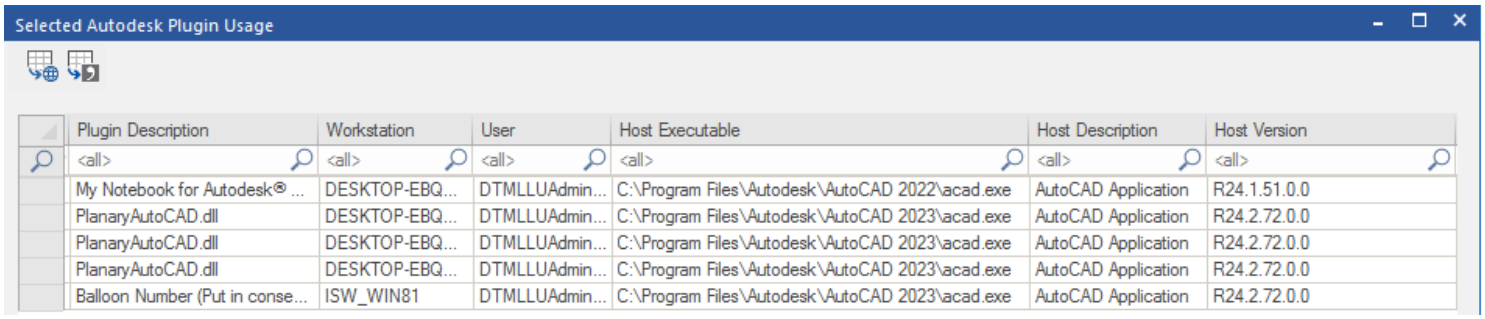


Next, click on the "Show Usage" ribbon button and the report will appear, columns include:

- Usage time
- Plugin Name
- Plugin Company
- Plugin Version
- Plugin Description
- Workstation
- User
- Host Executable
- Host Executable Description
- Host Executable Version

Sample (due to report width, the 2 images below are of the same data, divided to show all columns):





Plugin Description	Workstation	User	Host Executable	Host Description	Host Version
<all>	<all>	<all>	<all>	<all>	<all>
My Notebook for Autodesk® ...	DESKTOP-EBQ...	DTMLLUAdmin...	C:\Program Files\Autodesk\AutoCAD 2022\acad.exe	AutoCAD Application	R24.1.51.0.0
PlanaryAutoCAD.dll	DESKTOP-EBQ...	DTMLLUAdmin...	C:\Program Files\Autodesk\AutoCAD 2023\acad.exe	AutoCAD Application	R24.2.72.0.0
PlanaryAutoCAD.dll	DESKTOP-EBQ...	DTMLLUAdmin...	C:\Program Files\Autodesk\AutoCAD 2023\acad.exe	AutoCAD Application	R24.2.72.0.0
PlanaryAutoCAD.dll	DESKTOP-EBQ...	DTMLLUAdmin...	C:\Program Files\Autodesk\AutoCAD 2023\acad.exe	AutoCAD Application	R24.2.72.0.0
Balloon Number (Put in conse...	ISW_WIN81	DTMLLUAdmin...	C:\Program Files\Autodesk\AutoCAD 2023\acad.exe	AutoCAD Application	R24.2.72.0.0

Bluebeam REVU® Codes

Beginning with SofTrack Local Workstation Agent (LWA) v7.25x, each launch of REVU.EXE will include the serial number being used and edition and, separately, indication of Markup mode status.

When REVU.EXE is first started, the Command Line used will have the REVU Serial Number used appended at the end of the command line, for example:

#REVU#SN=A60B165|Edition=Extreme|

And, approximately 30 seconds after REVU.EXE is started a supplementary launch indication for REVU.EXE will occur with the command line indicating Markup mode status:

#REVU#MARKUPMODE#

-or-

#REVU#VIEWONLYMODE#

These command line values provide the ability to track by serial number, edition and markup mode status.

Bentley® Product Codes

The following table provides the Product Code and corresponding Bentley® product name. This table is not comprehensive but represents many popular Bentley® applications. Please note that several Bentley® products include "feature strings" as part of the license and SofTrack will present the Product Code (number), Version String and, when used, Feature String and each can be used together or separately to control use of your Bentley® licenses.

<this list is not comprehensive, SofTrack will track any Bentley® application>

Bentley Product ID	Product Description
15	Portfolio Subscription Bentley Plant 3D Monthly
15	Portfolio Subscription Bentley Plant 3D MS Bundle PPA
15	Portfolio Subscription Bentley Plant 3D PPA
21	BDN - MicroStation Developer
109	QA&R Add-On for AutoPIPE Subscription
1000	MicroStation Annual License Exchange Subscription
1000	MicroStation Perpetual License
1000	MicroStation SELECT Subscription
1000	Product Subscription, Bentley MicroStation PPA
1000	Product Subscription, MicroStation Monthly
1010	Product Subscription, ProjectWise Web Server Pre-Paid Annual
1010	ProjectWise Web Server Annual License Exchange Subscription
1010	ProjectWise Web Server Perpetual License
1010	ProjectWise Web Server SELECT Subscription
1016	Product Subscription, ProjectWise Integration Server Pre-Paid Annual
1016	ProjectWise Integration Server Annual License Exchange Subscription
1016	ProjectWise Integration Server Perpetual License
1016	ProjectWise Integration Server SELECT Subscription
1022	BPS - Bentley ProjectWise Export/Import Perpetual License
1022	BPS - ProjectWise Document Control Server Maintenance
1022	BPS - ProjectWise Document Control Server Perpetual License
1022	BPS - ProjectWise Export/Import Maintenance

1022	**Product Subscription, BPS - ProjectWise Export/Import Pre-Paid Annual**
1023	**Product Subscription, ProjectWise Caching Server Pre-Paid Annual**
1023	**ProjectWise Caching Server Annual License Exchange Subscription**
1023	**ProjectWise Caching Server Perpetual License**
1023	**ProjectWise Caching Server SELECT Subscription**
1028	**BPS - Bentley ProjectWise Reports Maintenance**
1028	**BPS - Bentley ProjectWise Reports Perpetual License**
1029	**BPS - Bentley ProjectWise Transmittals Maintenance**
1029	**BPS - Bentley ProjectWise Transmittals Perpetual License**
1038	**Bentley PowerDraft Annual License Exchange Subscription**
1038	**Bentley PowerDraft Perpetual License**
1038	**Bentley PowerDraft SELECT Subscription**
1038	**Product Subscription, Bentley PowerDraft Monthly**
1038	**Product Subscription, Bentley PowerDraft PPA**
1039	**Bentley Navigator 2004 Edtion English Cert**
1039	**Bentley Navigator Annual License Exchange Subscription**
1039	**Bentley Navigator, SUB**
1039	**Product Subscription, Bentley Navigator**
1039	**Product Subscription, Bentley Navigator PPA**
1042	**Bentley Descartes Annual License Exchange Subscription**
1042	**Bentley Descartes Perpetual License**
1042	**Bentley Descartes Perpetual License - BENI/RASB_TO_DESCARTES**
1042	**Bentley Descartes SELECT Subscription**
1042	**Product Subscription, Bentley Descartes**
1042	**Product Subscription, Bentley Descartes PPA**
1043	**Bentley InRoads Annual License Exchange Subscription**
1043	**Bentley InRoads Perpetual License**
1043	**Bentley InRoads Perpetual License - INRDSSITE_TO_INROADS**
1043	**Bentley InRoads SUB**
1043	**Product Subscription, Bentley InRoads**
1043	**Product Subscription, Bentley InRoads PPA**
1044	**Bentley InRoads Bridge 2004 Edition English**
1044	**Bentley InRoads Bridge Annual License Exchange Subscription**
1044	**Bentley InRoads Bridge SUB**
1044	**Product Subscription, Bentley InRoads Bridge**
1044	**Product Subscription, Bentley InRoads Bridge PPA**
1047	**Bentley InRoads Site Annual License Exchange Subscription**

1047	**Bentley InRoads Site Perpetual License**
1047	**Bentley InRoads Site SUB**
1047	**Product Subscription, Bentley InRoads Site**
1047	**Product Subscription, Bentley InRoads Site PPA**
1048	**Bentley InRoads Site Suite Annual License Exchange Subscription**
1048	**Bentley InRoads Site Suite Perpetual License**
1048	**Bentley InRoads Site Suite Sub**
1048	**Product Subscription, Bentley InRoads Site Suite**
1048	**Product Subscription, Bentley InRoads Site Suite PPA**
1049	**Bentley InRoads Storm & Sanitary 2004 Edition English**
1049	**Bentley InRoads Storm & Sanitary Annual License Exchange Subscription**
1049	**Bentley InRoads Storm & Sanitary SUB**
1049	**Product Subscription, Bentley InRoads Storm & Sanitary**
1049	**Product Subscription, Bentley InRoads Storm & Sanitary PPA**
1050	**Bentley InRoads Suite 2004 Edition SELECT Cert**
1050	**Bentley InRoads Suite Annual License Exchange Subscription**
1050	**Bentley InRoads Suite SELECT Sub**
1050	**Product Subscription, Bentley InRoads Suite**
1050	**Product Subscription, Bentley InRoads Suite PPA**
1051	**Bentley InRoads Survey 2004 Edition English**
1051	**Bentley InRoads Survey Annual License Exchange Subscription**
1051	**Bentley InRoads Survey SUB**
1051	**Product Subscription, Bentley InRoads Survey**
1051	**Product Subscription, Bentley InRoads Survey PPA**
1052	**Bentley AutoPIPE Annual License Exchange Subscription**
1052	**Bentley AutoPIPE Perpetual License**
1052	**Bentley AutoPIPE, SELECT Subscription**
1052	**Product Subscription, Bentley AutoPIPE**
1053	**Bentley KHK2 for AutoPIPE Plus 2004 Edition, English Cert**
1053	**Bentley KHK2 for AutoPIPE Plus Annual License Exchange Subscription**
1053	**Bentley KHK2 for AutoPIPE Plus SELECT Subscription**
1054	**Bentley AutoPIPE Plus - 50 Run V6.2, SELECT Subscription**
1054	**Bentley AutoPIPE Plus Annual License Exchange Subscription**
1054	**Bentley AutoPIPE Plus Perpetual License**
1054	**Bentley AutoPIPE Plus, SELECT Subscription**
1054	**Product Subscription, Bentley AutoPIPE Plus**
1055	**Bentley AutoPLANT 2D Piping Sub**

1056	**AutoPLANT ISOGEN Server, SELECT Subscription**
1057	**Bentley AutoPLANT AutoISOGEN PLUS, SELECT Subscription**
1060	**Bentley AutoPLANT Equipment Annual License Exchange Subscription**
1060	**Bentley AutoPLANT Equipment Perpetual License**
1060	**Bentley AutoPLANT Equipment SELECT Subscription**
1060	**Product Subscription, Bentley AutoPLANT Equipment Monthly**
1060	**Product Subscription, Bentley AutoPLANT Equipment PPA**
1063	**Bentley Hookups 2004 Edition English Cert**
1063	**Bentley Hookups Annual License Exchange Subscription**
1063	**Bentley Hookups, SELECT Subscription**
1063	**Product Subscription, Bentley Hookups**
1063	**Product Subscription, Bentley Hookups PPA**
1064	**Bentley AutoPLANT Isometrics Annual License Exchange Subscription**
1064	**Bentley AutoPLANT Isometrics Perpetual License**
1064	**Bentley AutoPLANT Isometrics SELECT Subscription**
1064	**Product Subscription, Bentley AutoPLANT Isometrics Monthly**
1064	**Product Subscription, Bentley AutoPLANT Isometrics PPA**
1066	**Bentley AutoPLANT P&ID Annual License Exchange Subscription**
1066	**Bentley AutoPLANT P&ID Perpetual License**
1066	**Bentley AutoPLANT P&ID, SELECT Subscription**
1066	**Product Subscription, Bentley AutoPLANT P&ID**
1066	**Product Subscription, Bentley AutoPLANT P&ID PPA**
1069	**AutoPLANT Piping with Isogen Perpetual License**
1069	**AutoPLANT Piping with Isogen SELECT Subscription**
1069	**Bentley AutoPLANT Piping, SELECT Subscription**
1069	**Product Subscription, AutoPLANT Piping with Isogen Monthly**
1069	**Product Subscription, AutoPLANT Piping with Isogen Pre-Paid Annual**
1072	**Bentley AutoPLANT Raceways Annual License Exchange Subscription**
1072	**Bentley AutoPLANT Raceways Petpetual License**
1072	**Bentley AutoPLANT Raceways SELECT Subscription**
1072	**Product Subscription, Bentley AutoPLANT Raceways Monthly**
1072	**Product Subscription, Bentley AutoPLANT Raceways PPA**
1075	**Bentley AutoPLANT Structural Detailer 2004 Edition, English Cert**
1075	**Bentley AutoPLANT Structural Detailer Annual License Exchange Subscription**
1075	**Bentley AutoPLANT Structural Detailer, SELECT Subscription**
1075	**Product Subscription, Bentley AutoPLANT Structural Detailer**

1075	**Product Subscription, Bentley AutoPLANT Structural Detailer PPA**
1076	**Bentley AutoPLANT Structural Engineering Annual License Exchange Subscription**
1076	**Bentley AutoPLANT Structural Engineering Perpetual License**
1076	**Bentley AutoPLANT Structural Engineering, SELECT Subscription**
1076	**Product Subscription, Bentley AutoPLANT Structural Engineering**
1076	**Product Subscription, Bentley AutoPLANT Structural Engineering PPA**
1077	**Bentley AutoPLANT Structural Modeler Annual License Exchange Subscription**
1077	**Bentley AutoPLANT Structural Modeler Perpetual License**
1077	**Bentley AutoPLANT Structural Modeler, SELECT Subscription**
1077	**Product Subscription, Bentley AutoPLANT Structural Modeler**
1077	**Product Subscription, Bentley AutoPLANT Structural Modeler PPA**
1078	**Bentley Data Manager Annual License Exchange Subscription**
1078	**Bentley Data Manager Perpetual License**
1078	**Bentley Data Manager SELECT Subscription**
1078	**Product Subscription Bentley Data Manager Monthly**
1078	**Product Subscription Bentley Data Manager PPA**
1079	**Bentley Datasheets Annual License Exchange Subscription**
1079	**Bentley Datasheets Perpetual License**
1079	**Bentley Datasheets SELECT Subscription**
1079	**Product Subscription, Bentley Datasheets Monthly**
1079	**Product Subscription, Bentley Datasheets PPA**
1081	**Bentley Instrumentation & Wiring Annual License Exchange Subscription**
1081	**Bentley Instrumentation & Wiring Perpetual License**
1081	**Bentley Instrumentation & Wiring SELECT Subscription**
1081	**Product Subscription, Bentley Instrumentation & Wiring Monthly**
1081	**Product Subscription, Bentley Instrumentation & Wiring PPA**
1083	**Bentley Interference Manager Annual License Exchange Subscription**
1083	**Bentley Interference Manager Perpetual License**
1083	**Bentley Interference Manager SELECT Subscription**
1083	**Product Subscription Bentley Interference Manager Monthly**
1083	**Product Subscription Bentley Interference Manager Pre-Paid Annual**
1090	**Bentley Piping Perpetual License**
1090	**Bentley Piping Perpetual License - 2DPIPING_TO_BENPIPING**
1090	**Bentley Piping SELECT Subscription**
1090	**Product Subscription, Bentley Piping Monthly**
1090	**Product Subscription, Bentley Piping PPA**

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1243	**Product Sub, Bentley SewerCAD PPA - MAX_PIPES_UNLIMITED**
1243	**Product Sub, Bentley SewerCAD PPA - PLATFORM_AUTOCAD**
1243	**Product Subscription, Bentley SewerCAD for AutoCAD Monthly**
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1243	**Product Subscription, Bentley SewerCAD Stand Alone Monthly**
1243	**Product Subscription, Bentley SewerCAD Stand Alone Pre-Paid Annual**
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1244	**Bentley SewerGEMS Perpetual License**
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1246	**Bentley StormCAD ALE Sub - MAX_INLETS_25**
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ESRI License Codes

The following is a license of license codes defined by ESRI. You may find additional codes in review of your SofTrack workstation audit logs. Please click here for configuration details.

This list is found on ESRI's website:
http://help.arcgis.com/en/sdk/10.0/arcobjects_cpp/componenthelp/index.html - //001n00000021000000

ESRI License Extension codes.

Constant	Value	Description
Esri/ArcMap Advanced License	1	Advanced
Esri/ArcMap Standard License	3	Standard
esriLicenseExtensionCodeArcPress	4	ArcPress.
esriLicenseExtensionCodeTIFFLZW	5	TIFF LZW.
esriLicenseExtensionCodeGeoStats	6	GeoStatistical Analyst.
esriLicenseExtensionCodeMrSID	7	Mr SID.
esriLicenseExtensionCodeNetwork	8	Network.
esriLicenseExtensionCode3DAnalyst	9	3DAnalyst.
esriLicenseExtensionCodeSpatialAnalyst	10	SpatialAnalyst.
Esri/ArcMap Basic License	11	Basic
esriLicenseExtensionCodeStreetMap	12	StreetMap.
esriLicenseExtensionCodeCOGO	13	Survey Analyst.
esriLicenseExtensionCodeMLE	14	Maplex.
esriLicenseExtensionCodePublisher	15	ArcGIS Publisher Extension.
esriLicenseExtensionCodeArcMapServer	31	ArcMapServer Extension.
esriLicenseExtensionCodeTracking	32	Tracking Analyst.
esriLicenseExtensionCodeBusinessPrem	33	Business Analyst Premium.
esriLicenseExtensionCodeArcScan	34	ArcScan.
esriLicenseExtensionCodeBusiness	35	Business Analyst.
esriLicenseExtensionCodeSchematics	36	Schematics.
esriLicenseExtensionCodeSchematicsSDK	37	Schematics SDK.
esriLicenseExtensionCodeVirtualEarthEng	38	Bing Maps VE Engine.
esriLicenseExtensionCodeVBAExtension	39	VBA.
esriLicenseExtensionCodeJTX	40	Workflow Manager.
esriLicenseExtensionCodeDesigner	43	Designer

esriLicenseExtensionCodeVector	44	Vector Analyst.
esriLicenseExtensionCodeDataInteroperability	45	Data Interoperability.
esriLicenseExtensionCodeFoundation	46	Production Mapping.
esriLicenseExtensionCodeDataReViewer	47	Data Reviewer.
esriLicenseExtensionCodeMPSAtlas	48	PLTS MPS and Atlas.
esriLicenseExtensionCodeDefense	49	Defense Mapping.
esriLicenseExtensionCodeNautical	50	Nautical.
esriLicenseExtensionCodeIntelAgency	51	Intelligence Agency.
esriLicenseExtensionCodeMappingAgency	52	PLTS Mapping Agency Solution.
esriLicenseExtensionCodeAeronautical	53	Aeronautical.
esriLicenseExtensionCodeVirtualEarth	54	Bing Maps VE.
esriLicenseExtensionCodeServerStandardEdition	55	Server Standard Edition.
esriLicenseExtensionCodeServerAdvancedEdition	56	Server Advanced Edition.
esriLicenseExtensionCodeServerEnterprise	57	Server Enterprise.
esriLicenseExtensionCodeImageExt	58	Image Server Extension.
esriLicenseExtensionCodeBingMaps	59	Bing Maps.
esriLicenseExtensionCodeBingMapsEng	60	Bing Maps Engine.
esriLicenseExtensionCodeDefenseUS	61	Defense US.
esriLicenseExtensionCodeDefenseINTL	62	Defense International.

Product Availability

Available with ArcGIS Engine, ArcGIS Desktop, and ArcGIS Server.

Remarks

After 9.3.1, esriLicenseExtensionCodeBaseBISData and esriLicenseExtensionCodeDMTIData are no longer available. Value 38 is changed to esriLicenseExtensionCodeVitualEarthEng. Value 39 is changed to esriLicenseExtensionCodeVBAExtension. Migrated code using these values will need to be modified.

Glossary

Active Metering

Active enforcement of the number of licenses allowed to be in use at any given time. Additional usages are blocked. If configured, a user will be queued.

Allow Overflow

A setting that allows an unlimited number of users to use a License Profile's applications.

Audit

To gather information about an application for tracking, trend analysis, and usage enforcement.

Batch-Mode Reports

Reports produced from the command-line tool `ST2K_RPT.EXE`.

Block License

A setting that blocks use of any files defined within a License Profile.

Calendar Hour Licensing

The ability to share licenses between workstations with a concurrency period set to the current Calendar Hour. Any use of the license will be tracked in such a way that when the user on a specific workstation exits the license (that is, ends the metered application) their usage will be protected until the top of the following hour (for instance 9:00am). The user on the specific workstation is allowed to run and exit the metered application as many times as required during that Calendar Hour without concern SofTrack will return their license to general availability until the top of the next hour. Calendar Hour licensing focuses on the workstation where the license is used, the actual username is not important. This licensing method was developed to protect against "trust licensing" overages that Bentley Systems, Inc. ® products utilize in their specific license policy.

Calendar 10-minute Licensing

The ability to share licenses between workstations with a concurrency period set to the current Calendar 10-minute periods (:00, :10, :20, :30, :40, :50 minute mark of each hour). Any use of the license will be tracked in such a way that when the user on a specific workstation exits the license (that is, ends the metered application) their usage will be protected until the end of the following 10-minute period (for instance 9:29am). The user on the specific workstation is allowed to run and exit the metered application as many times as required during that Calendar 10-minute without concern SofTrack will return their license to general availability until the top of the next 10-minute period. Calendar 10-minute licensing focuses on the workstation where the license is used, the actual username is not important. This licensing method was developed to protect against "trust licensing" overages that Bentley Systems, Inc. ® products utilize in their specific license policy.

Early Global License Request

A setting that allows you to move globally-enabled licenses between servers in anticipation of users' needs. Avoids having to wait until all licenses on a server are exhausted before requesting a license from another server.

Executions

A term used in reports that refers to an application use or a file tracked being opened. Does not include use of data files hosted by the server.

File Pooling

Grouping several applications together within a single License Profile. Allows correct metering for a product containing a group of files.

Global License Profile

A type of License Profile that allows license sharing between servers.

Global Licensing

The ability to share licenses between servers. SofTrack allows you to share up to 65,000 licenses between an unlimited number of servers hosting the SofTrack Server Agent.

Group Tracking

Tracking license use by NT Local Group and/or Active Directory Group membership. You can divide a single application's licenses between groups to ensure availability.

Idle Detection

An option that monitors an application's idle time. Can be used with customized messages to users that an application has been idle for an amount of time that you set and that the application will be terminated if it remains idle. Requires use of the LWA.

Interactive Reports

Reports produced from the `SOFTRACK_CONSOLE.EXE` interface.

License Checkout

Allows administrators to check licenses out to users using local copies of applications when disconnected from the network, i.e., offline.

License Profile

A set of rules created by an administrator that defines what to meter and how to meter it. Includes the number of concurrent instances allowed, which users are allowed to use an application, and so forth.

Local Workstation Agent

Loaded at each user's workstation. Allows you to control all Windows-based applications used at the workstation, regardless of whether the application is stored on the hard drive or a remote device. One of two major components of SofTrack. See also SofTrack Server Agent.

LWA

See Local Workstation Agent.

Maximum Concurrent Users

Determines the maximum number of users allowed to use a License Profile at one time.

METER.LOG

A file maintained by the SofTrack Service that stores all metering activity data, which are used to create reports.

Metered Application

An application that SofTrack is monitoring (i.e., `CALC.EXE`) via a License Profile.

Metering

The process of monitoring and controlling software use. See Active Metering and Passive Metering.

Minimum Concurrent Users

Ensures a minimum number of licenses always remain on a server. A setting available only to Global License Profiles.

NAS

See Network Attached Storage.

Network Attached Storage

Provides shared storage for multiple servers and protocols. Similar to SAN but with a different topology.

Offline Use

Administrators can check out licenses of applications for specific users to use when disconnected from the network for offline use, for example when using metered applications while traveling with a laptop.

Passive Metering

Occurs when all usage is tracked, but no usage is blocked.

Password, Global

Ensures that Global License Profiles are shared only on the servers you want. Prevents inadvertent license sharing between different departments. The password is encrypted and verified between servers hosting the Global License Profile before sharing licenses.

Password, License Profile

Requires a user to be an Administrator and know the password before modifying the details of a License Profile.

Purge Record

Recorded when a user's actual exit time for use of a License Profile is unknown. The SSA records the time when it recognizes that the user's connection to the server was no longer valid. Can occur when the server hosting the SSA or the user's workstation stops responding.

Queue Hold Time

A setting that determines how long to hold a free license exclusively for a previously-queued user before returning it to the pool of available licenses.

Refreshed

Indicates that the SSA has been directed to rescan and update its internal processes with modified License Profile definitions.

SAN

See Storage Area Network.

SOFTRACK_CONSOLE.EXE and SOFTRACK_CONSOLE.EXE

The administrator interface for SofTrack. Can be used to create reports from the activity tracking data stored in the `METER.LOG` file.

SofTrack Server Agent

Runs on file servers to monitor, log, and enforce rules defined in the License Profiles. Records all activity tracking data from which reports are created. Also referred to as the SofTrack Service. One of two major components of SofTrack. See also Local Workstation Agent.

SSA

See SofTrack Server Agent.

Standalone License

A License Profile for a single application, in contrast to a suite of applications. Used in suite metering.

Storage Area Network

Provides shared storage for multiple servers and protocols. Similar to NAS but with a different topology.

STUSER

A utility that provides a method for viewing the current users of selected License Profiles on selected servers. Only renders data when the SSA is active.

STUSER.EXE

The file that launches the STUSER utility. When run on a workstation, creates a registry key that maintains a list of all servers identified by the workstation, thus accelerating connection to servers for active user viewing.

Suite Metering

Allows you to meter a suite of applications, such as Microsoft Office, under one License Profile.

Terminal Services Client

See Thin Client.

Terminal Services Metering

When the LWA is installed on a Terminal Services host, it self-configures its internal processes to allow metering and tracking for up to 4,000 terminal service sessions.

Thin Client

A low-cost, centrally-managed computer running only essential applications and devoid of CD-ROM players, diskette drives, and expansion slots, hence “thin”. Most thin clients today are powered by back-end centralized servers that are capable of serving either fat or thin clients.

Time Restrictions

Allows you to block usage of any file defined in a License Profile for a period of time. Any usage of the application, including queuing, cannot occur during the time usage is blocked.

`TIMEKEEP.CSV`

Stores Classic Option Timekeeping data.

Timekeeping

Tracks the amount of active time an application is used. You can require a user to enter a code that

identifies an application's usage with a particular activity, such as billing a client for usage of AutoCAD on the client's project.

Token

An activation file for the SofTrack program. A time-limited evaluation token is supplied with the evaluation version of SofTrack. It may be replaced at any time with a purchased token. Without a token, SofTrack will not function.

VIP Tracking

Allows you to reserve a particular number of licenses for specific users.