TNX Software Network Installations

Installation Guide (with Sentinel RMS license management software)

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Network Installation

The installation and licensing infrastructure that Tower Numerics (TNX) uses for its software has been originally implemented by RISA Technologies. Pursuant to the agreement between TNX and RISA, RISA provides technical support for installation issues for TNX users. However, all support requests should be initially directed to TNX (support@towernx.com).

These instructions are intended for the network versions of the TNX programs. If you are running a Stand Alone version, refer to the Stand Alone Installation Instructions provided with your software.

The network version of the TNX software has been written specifically for 32 and 64 bit Windows (XP/Vista and 7) operating systems. It uses a customized version of Sentinel RMS to manage and administer the licensing. The details of your software license are contained within a license file. Therefore, you must obtain a license file from TNX and register it with the Sentinel License Management server. If you do not already have a license file, then you must request one by sending an e-mail to support@towernx.com. When you e-mail your request make sure to include the Company Name, Product(s), and the Key ID. For more information, refer to section **B.** sub-section **1. Obtaining the Server License File**.

The network version of TNX is designed such that the application itself is stored and run entirely on the ***Client*** computer. The ***File Server*** is used only to store the files for setup / installation. In addition to the file server, there must be a ***License Server*** computer that will host the license management software. In many cases, the *File Server* and the *License Server* will be the same computer.

A new or upgrade installation is a normally three part process (A, B and C) as summarized below. Each step is explained in greater detail in the appropriate section.

- **A.** **Perform the installation on the File Server**: This involves copying data files onto the computer that will act as the ***File Server***. This must be done for new installations and for an upgrade /update to an existing program. Note that NO drivers are installed on the file server during this step.
- **B.** **Install (or Update) the License Manager**: This involves installing the license manager (Sentinel RMS) onto the ***License Server*** computer that will *host* the license management software. For most cases where TNX's customized version of the Sentinel License Management service is already running, this will involve a simple update rather than a full install.
- **C.** **Perform the Client Installation**: This involves installing the program on the end user's computer. If you want to, you may set up a silent installation and initiate the ***Client*** installation through the registry or log-on scripts. For an update / upgrade to an existing program, this installation may be performed automatically.

When adding a new product to, or removing a product from, an existing installation, there is an additional step that will be needed. This is described in the following section. *Note: Section D does NOT normally apply when upgrading an existing product to a newer version.*

- **D.** **Using an RUS password to Update the Hardware Key**: When adding a new product to, or removing a product from, an existing installation, you will use the TNX Key Manager utility along with the RUS password provided from either a **red** Installation Information sheet or via email to update your Sentinel Pro hardware key.

In addition, we have added sections regarding some of the other administrative functions. These instructions are brief and are intended only to be a simplified introduction to the concepts. For a more complete explanation, see the Sentinel Website (www.safenet-inc.com) or contact TNX technical support (support@towernx.com).

E. **Troubleshooting the Sentinel RMS Installation**: Contains a brief explanation of the most common installation problems and potential solutions.

F. **Commuting Licenses:** A brief overview on how to commute licenses and control the amount of commuting that is allowed.

G. **Usage Reports and License Monitoring:** A brief overview on how to setup usage reports regarding the use of the programs.

A. Server Installation

To create the necessary data files on the File Server please follow these instructions:

1) Put the TNX CD in the ***File Server***'s CD drive.

2) If the CD starts automatically go to step 4. If after 15 seconds the CD has not started click the Windows **Start** button and select **Run**.

3) In the Run dialog box type "d**:launch**" (where "d" is the label of your CD drive) and then click the **OK** button.

4) Follow the on-screen instructions.

NOTE : No drivers are installed onto the file server during this step.

Updating a previous version: When upgrading from a previous version that did NOT use the Sentinel License Manager there will NOT be an automatic upgrade of the client computers.

When upgrading from a previous version that DID use the Sentinel License Manager, the client upgrades will happen automatically. However, this will only occur if you maintain the appropriate sub-directory structure on the File Server. This is because an upgrade is only detected when a client computer looks at the subfolders under the ProgramServer directory. These folders will follow this naming convention:

<C:\Program Files\TNX\tnxTower>\<ProgramServer>\<VersionNumber>

Where ***<C:\Program Files\TNX>*** is the drive and base directory on the File Server for all application installs, ***<ProgramServer>*** is the directory for a TNX product, and ***<VersionNumber>*** is the directory referring to the version number for that program (e.g. 6_00_00). The Version Number directory contains all the current installation information from that version (6.0). When the program detects another subfolder (e.g. G:\Program Files\TNX\tnxTower\TowerServer\6_10_00) it will interpret this to mean that an updated version of the tnxTower program is available.

For the remainder of the instructions, the folder in which you install a program will be referred to as ***<ProgramServer>*** and the version of the program will be referred to as <***VersionNumber>***

Locating the License Manager Files

During a File Server installation of your TNX program, a **\Sentinel RMS ** directory will be created under the ***<C:\Program Files\TNX\tnxTower>*** directory. This folder will contain the following files specific to the Sentinel License Manager:

loadls.exe	– Installs Sentinel RMS as Windows service
lservnt.exe	– Sentinel RMS (XP/Vista/7 version) executable

lsapiw32.dll	– Required by WlmAdmin.exe
WlmAdmin.exe	– Administers RMS server / licensing

Locating the SuperPro Device Drivers

During a File Server installation of your TNX program, a `Sentinel Protection Installer\` directory will be created under the *<C:\Program Files\TNX\tnxTower>* directory. This folder will contain the following files specific to the installation of the Sentinel Pro device drivers:

SetupSPI.exe	– Installation routine for Sentinel SuperPro drivers
ReadMeSPI.pdf	– Detailed Installation instructions from Sentinel

Locating the Key Manager Utility

During a File Server installation of your TNX program, a `TNX Key Manager\` directory will be created under the *<C:\Program Files\TNX\tnxTower>* directory. This folder contains a utility that may be used for diagnosing problems related to the Sentinel SuperPro hardware key.

B. Installing the License Manager (Sentinel RMS)

After the File Server installation has been completed, the following steps must be taken to ensure the proper installation of Sentinel License Management software. Each step is explained in greater detail in the following sections. (The TNX customized Sentinel RMS is fully compatible with RISA's Sentinel RMS. Consequently, licensing of TNX and RISA programs may be administered by either version.)

For cases where TNX's customized version of the Sentinel RMS service is already running, this will involve a simple update rather than a full install.

For most updates, only steps 1) and 4) will be required.

1) Obtain the TNX license file
2) Install the Sentinel Pro device driver
3) Install or Update TNX's customized version of Sentinel RMS on the License Server
4) Configure Sentinel RMS License Server to work with the new license file

1. Obtaining the TNX License File

TNX will ship a Sentinel SuperPro hardware key which will be used to secure your network installation. Each key will have a unique KeyID.

You will need to request a license file from TNX. You may do so by e-mailing support@towernx.com with your company information, product information, and the program serial number(s) or Key ID. TNX will then send you a license file in return.

The license will have a name similar to "TNX_LM_KeyID", where KeyID corresponds to your USB key. In some cases, the file may be called "TNX_LM_CompanyName", where CompanyName is the name of your company. This file is a unique identifier / license file for your TNX programs. The generated license will be locked to your KeyID. Each time TNX is launched, Sentinel RMS will validate the license to ensure that the key is present. This file needs to be updated for each new release or whenever you add or reduce the license count of your network version of the TNX program.

2. Installing the Sentinel SuperPro device driver

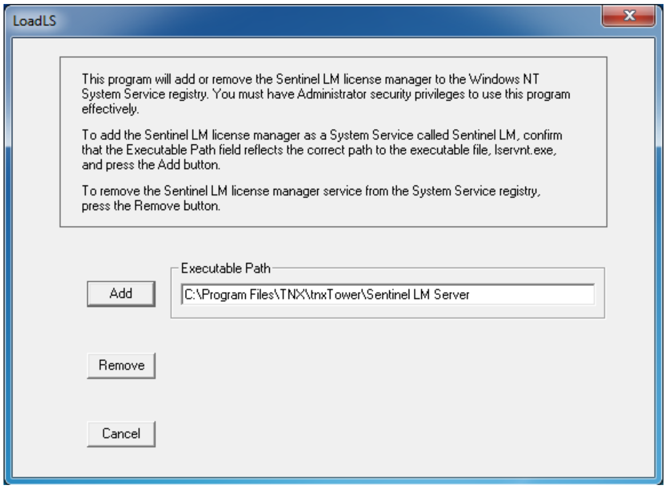
Copy the Sentinel Protection Installer directory onto the License Server computer which will host the Sentinel RMS Service. This computer need not be an actual server. All that is required is that it be running XP/Vista/7 and that it be on a network that can be accessed by the client computers.

MAKE SURE you remove ALL of the Sentinel SuperPro and Rainbow keys from your computer BEFORE you initiate the installation. Then run the SetupSPI.exe file that exists in that directory. This will launch the InstallShield Wizard for the SuperPro device drivers. Follow the on screen instructions to complete the installation of the SuperPro drivers. We recommend that you select the “complete” install.

3. Installing (or Updating) Sentinel RMS on the License Server

Installing a new Sentinel RMS Service: TNX runs a customized version of Sentinel RMS. If you are already running a non-customized version of Sentinel RMS refer to the next section on updating a Sentinel RMS service. If you are running another version of Sentinel RMS, then a customized version is found in `Sentinel RMS\` and the directions for upgrading are the same.

- Copy the SentinelRMS directory onto the computer which will host the Sentinel RMS service.
- Run the loadls.exe utility. When the LoadLS dialog box appears click the “Add” button. Sentinel RMS has now been installed as a Windows service.



LoadLS

This program will add or remove the Sentinel LM license manager to the Windows NT System Service registry. You must have Administrator security privileges to use this program effectively.

To add the Sentinel LM license manager as a System Service called Sentinel LM, confirm that the Executable Path field reflects the correct path to the executable file, lservnt.exe, and press the Add button.

To remove the Sentinel LM license manager service from the System Service registry, press the Remove button.

Executable Path: C:\Program Files\TNX\tnxTower\Sentinel LM Server

- Plug the Sentinel Key into a USB port on the License Server computer which will host the Sentinel RMS Service.

Updating an Existing TNX Service: If this version of the program requires an update to the Sentinel RMS service itself, then the quickest way to accomplish this is to go to Services settings on the RMS Server (Windows Control Panel – Administrative Tools – Services).

a. Find the “Sentinel RMS” service listed there and STOP that existing service.

b. Next replace the old LSERVNT.EXE with your new updated one. If you do not know where the existing executable is located, you can look at the General Properties of the existing Sentinel RMS service and it will give you a “Path to Executable” where the LSERVNT.EXE resides.

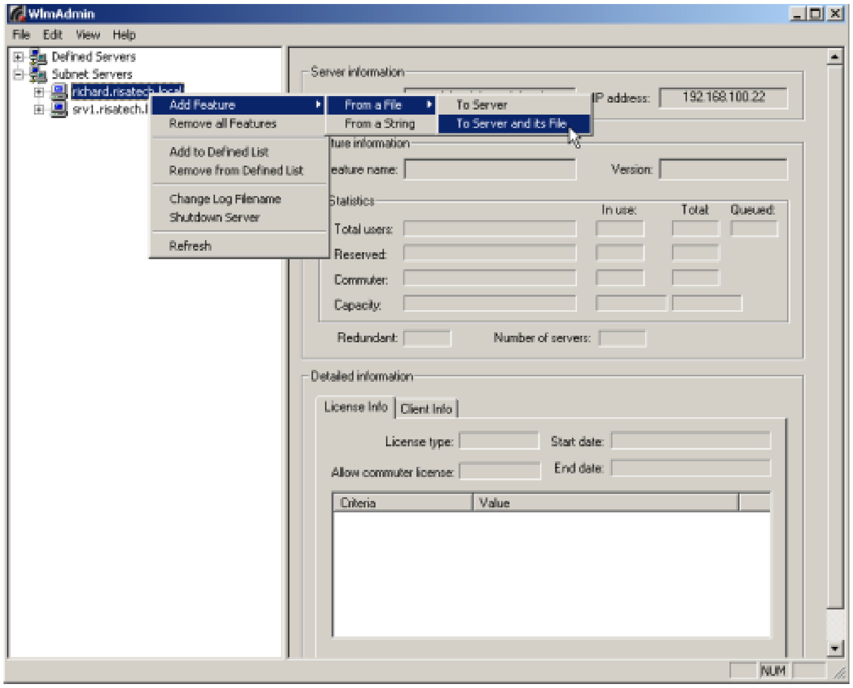
c. Once you have replaced the old executable with the new one, all you need to do is re-start the service and you will have completed to update of the RMS Service itself.

Note: TNX uses a CUSTOMIZED version of Sentinel RMS. Therefore, you cannot load the TNX license file onto an existing copy of Sentinel RMS. This customized version is capable of loading the license files for most other applications. However, any application that requires its own customized version will not function from within TNX's.

If you are running a version of **Sentinel RMS**, then a customized version is found in `Sentinel RMS\` and the directions for upgrading are the same except that Sentinel RMS is Sentinel RMS.

4. Configuring the Sentinel RMS license

- Make sure on Sentinel RMS Host computer that UDP port 5093 is open on your firewall.
- Locate the WlmAdmin.exe utility on the Sentinel RMS Host computer. It should exist in the "..\Sentinel RMS \" directory.
- Run WlmAdmin utility and open the **Subnet Servers** tree on the left hand side of the WlmAdmin dialog. If the License Server is accessible by subnet broadcast that computer should appear under **Subnet Servers**. If it is not listed then you will have to select **Edit->Defined Server List** from the Main Menu Toolbar, and add your server to the list. Also refer to the Trouble Shooting section for reasons why the server may not appear under the sub-net server list.



- The license file obtained from Step 1 will now be needed. Make sure this license file is in an accessible location. Right click on the License Server and select **Add Feature->From a File->To Server and its File**. An **Open** dialog will come up, browse to the license file (TNX_LM_KeyID) location and open it. Once the license has been accepted, Sentinel RMS can issue network license tokens for your TNX program. If the licensing file is not accepted, see the section on Troubleshooting.
- The licenses will also be to the appended to the server's license file, *lservrc*. If by mistake the right click menu item **Add Feature->From a File->To Server** is chosen, the license will be added to the server but not its file, so when the server machine reboots, it will be missing that license.

C. Client Installation & Licensing Configuration

1. Installing the software on the client

For first-time installations and manual upgrades: You may perform the client installation in one of two ways as outlined below. Either method requires write privileges to the HKEY_CLASSES_ROOT and HKEY_LOCAL_MACHINE registry keys.

For upgrading a previous version: When upgrading from a previous version that did NOT use the Sentinel License Manager there will NOT be an automatic upgrade of the client computers.

When upgrading from a previous version that DID use the Sentinel License Manager, the client upgrades will happen automatically. However, this will only occur if you maintained the appropriate sub-directory structure on the File Server. This is because an upgrade is only detected when the program looks at the subfolders under a program's file server directory. These folders will typically follow this naming convention:

<C:\Program Files\TNX\tnxTower>\<ProgramServer> \<VersionNumber>

Where ***<C:\Program Files\TNX\tnxTower>*** is the drive and base directory on the File Server for all application installs, ***<ProgramServer>*** is the file server directory for that TNX product (3DServer, FloorServer, etc.) and ***<VersionNumber>*** is the directory matching the version number for that program (e.g. a 7_02_00 directory is for version 7.0.2). The ***<VersionNumber>*** directory contains all the current installation information for that version. When the program detects another subfolder (e.g. **G:\Program Files\TNX\tnxTower\TowerServer\6_10_00**) it will interpret this to mean that an updated version of the program is available.

Method 1 – Manual Installation

From the client, execute the setup.exe file that is located in the ***<C:\Program Files\TNX\tnxTower>\<ProgramServer> \<VersionNumber>*** directory. This will prompt you with a series of dialogs that will guide you through the client installation.

Method 2 – Silent Installation

You may use a silent installation to avoid interacting with the client installation dialogs and you may automatically run the silent setup in a log-on script or through the registry. Silent setup uses the SETUP.ISS file in ***<C:\Program Files\TNX\tnxTower>\<ProgramServer> \<VersionNumber>*** to guide the client installation. This file, as provided, will install the above files to the client's ***C:\Program Files\TNX\tnxTower*** directory and place a program shortcut in the **TNX** folder on the Start-Programs menu.

To execute the silent installation from the client, execute the setup.exe file with the "/s" switch. The entire command line would look something like this:

```
<C:\Program Files\TNX\tnxTower>\<ProgramServer> \<VersionNumber>\setup.exe /s
```

Where ***<C:\Program Files\TNX\tnxTower>*** is the mapped drive and directory on the file server containing the ***<ProgramServer> \<VersionNumber>*** directories. This can be called through a DOS prompt on the client, a log-on script or client registry entry.

To record a new or customized SETUP.ISS file, you can use the "/r" switch. This initiates a new client setup and will record all the information that you enter during the setup. The SETUP.ISS file will need to be copied from the C:\WINDOWS folder on the client computer to the ***<ProgramServer> \<VersionNumber>*** directory before it can be used for a silent install.

```
<C:\Program Files\TNX\tnxTower>\<ProgramServer> \<VersionNumber>\setup.exe /r
```

If you wish to manually change the Path or Country options, you can do this by editing the SETUP.ISS file in the ***<VersionNumber>*** subdirectory.

To change the PATH into which the client version gets installed, you would edit the “szDir” value in the following block:

```
[{6D0ED027-9979-4FC8-A0D6-93380CC6C31E}-SdSetupType2-0]
szDir=C:\Program Files\TNX\tnxTower
```

SILENT INSTALLATION ERROR MESSAGES

Be aware that no messages are displayed when running a silent installation. You may view the Setup.log file to determine the result of the setup. To verify if a silent setup succeeded, look at the ResultCode value in the [ResponseResult] keyname. InstallShield places one of the following return values after the ResultCode keyname:

0	Success
-1	General Error
-2	Invalid Mode
-3	Required Data not found in the Setup.iss file
-4	Not enough memory available
-5	File does not exist
-6	Cannot write to the response file
-7	Unable to write to the log file (see below)
-8	Invalid path to the response file
-9	Not a valid list type
-10	Data type is invalid
-11	Unknown error during setup
-12	Dialog boxes are out of order
-51	Cannot create the specified folder
-52	Invalid option selected

If the log file cannot be written because of read only privileges you will have to redirect the log file to a directory with write permission using the following switch:

`/f2<path\LogFile>` (don’t type the <> symbols)

To redirect the log file the example above would now look like this:

```
<C:\Program Files\TNX\tnxTower>\<ProgramServer> \<VersionNumber>\setup.exe /s
/f2g:\okfolder\setup.log
```

2. Configuring software licensing on the client

Typically the network versions of TNX software are usually run over a Local Area Network where the File Server, License Server and Client are located on the same Broadcast Domain, a Subnet where the License Server is accessible from the Client by subnet broadcast. In this case no extra configuration is needed. However, for those networks where the License Server **is not** accessible from the Client by subnet broadcast (such as a VLAN or WAN) additional configuration is needed.

To access licenses over these types of networks, on the Client go to the registry key for the application. This Application Registry Key will look something like:

HKEY_LOCAL_MACHINE\SOFTWARE\TNX\tnxTower Network\<*Version Num*>

Where ***<Version Num>*** is the version of the program (e.g. 6.0). In that registry key you find the registry value named “LS Query List” and put in the IP address of the license server. If your company has two License Servers, you can enter both of them separated by a colon. The order in which they appear determines the order the application accesses them for authorization.

2.1 Using the Network.ini File to Automatically Set Advanced Registry Entries

There is a file, *Network.ini*, that gets installed in the **Sentinel RMS** subdirectory that can be used to automate the setting of the “LS Query List” registry value. You may use this file to have the License Server’s address automatically written to the end user’s registry by following these steps:

- ***Network.ini*** should be placed in the ***<C:\Program Files\TNX\tnxTower>*** as the client install looks two levels up from the location of setup.exe.
- Client installation looks for ***Network.ini*** and if it finds that file it searches for the section **LS Query List** and the parameter **Initialize=<*License Server Address*>**.
- For update installations:
  If the “LS Query List” registry entry under the Application Registry Key does not already contain the address of a license sever, the installation will write ***<License Server Address>*** as the value in the “LS Query List” registry entry
- For a new install:
  In the Application Registry Key, the “LS Query List” value is set to ***<License Server Address>***.

So for the following Network.ini file:

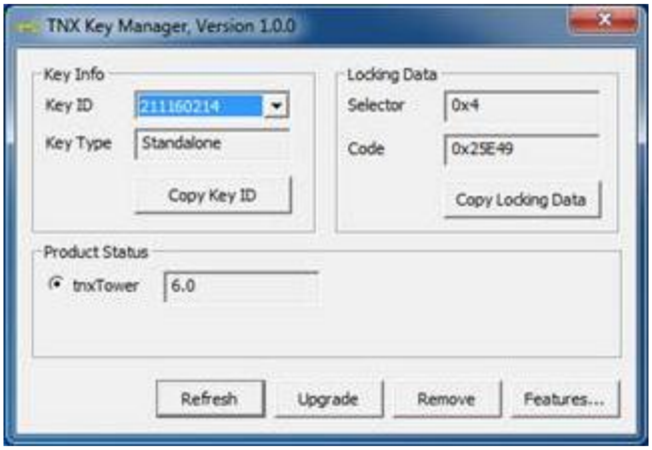
```
[LS Query List]
Initialize='192.168.100.52'
```

The “LS Query List” registry entry gets set to the value 192.168.100.52

D. Using an RUS password to Update the Hardware Key

Typically, you will only need to update the hardware key on your license server when you adding new products or removing products. To update the key, you will want to run the utility “`TNX Key Manager.exe`” on the License Server, this utility can be found in the *<C:\Program Files\TNX\tnxTower>\<ProgramServer> \<VersionNumber>*\TNX Key Manager folder.

You will then be presented with a Key Manager window similar to the one shown below.



TNX Key Manager, Version 1.0.0

Key Info

Key ID: 211160214

Key Type: Standalone

Locking Data

Selector: 0x4

Code: 0x25E49

Product Status

● tnxTower: 6.0

Verify that the Key ID listed on your RUS Update / Installation Information sheet corresponds to the Key ID listed on screen. Click the **Upgrade** button. You then enter in the RUS password given on your installation sheet and click Update.

The Key Manager allows access to the hardware key over Terminal Services, so the Hardware Key can be updated remotely. The Sentinel Protection Installer must be version 7.5.0 or higher to support this new remote capability.

E. Trouble Shooting Sentinel RMS Networking

There are a number of common issues that you may encounter while installing or using the network version of the TNX programs. These can be grouped into the following main categories:

1) You receive Error Codes 19, 92, or 150 when adding your license file
2) Your client computers cannot access your RMS Host computer or the access is very slow
3) Network version stops working or your Client computers get an error message at start-up

1. You receive Error Code 19 or 92 when adding your license file

- ***Loading the TNX License File onto a non-customized Sentinel RMS host:*** TNX uses a CUSTOMIZED version of Sentinel RMS. Therefore, you must remove the existing copy of Sentinel RMS and replace it with the customized one provided with your TNX installation.

  It is not good enough to merely stop that old Sentinel RMS Service. It must be "removed" using the LOADLS utility that was used to install it.

  TNX's customized version of Sentinel RMS is capable of loading the license files for most other applications. However, any application that requires its own customized version will not function from within TNX's.

- ***Two Instances of Sentinel LM/RMS are running on the same computer:*** If you look at the list of services (Control Panel – Administrative Tools – Services), you may find that there are TWO services running. One will be called "Sentinel LM" (with or without the space) and is the standard non-customized version. The other will be called "Sentinel RMS License Manager" (with a space between words) and is the customized version provided by TNX.

  It is not good enough to merely stop that old SentinelLM (no space) service. It must be "removed" using the LOADLS utility that was used to install it.

- ***A non-customized copy of Sentinel RMS is running on that machine:*** If you look at the list of services (Control Panel – Administrative Tools – Services), you may find that there is a service running that is called "**`Sentinel RMS Server`**". If this was not provided by TNX, then it is probably the standard non-customized version of sentinel RMS. As such, it would not be compatible with TNX's customized version of Sentinel RMS or RMS. If this is the case, and you require that the TNX license manager be loaded on the same server, then you will have to install the customized version of RMS which may be found in the C:\Program Files\TNX\tnxTower\Sentinel RMS folder of any new install. This version is capable of running any features that require version 8.0.5 of Sentinel RMS.

- ***The license file information doesn't match with the USB key:*** If the information encrypted into the license file (KeyID and program authorization) doesn't match the information on your USB key you will receive error code 19. Contact TNX technical support (support@towernx.com) for a new license file or for an RUS password to update the information on your USB key.

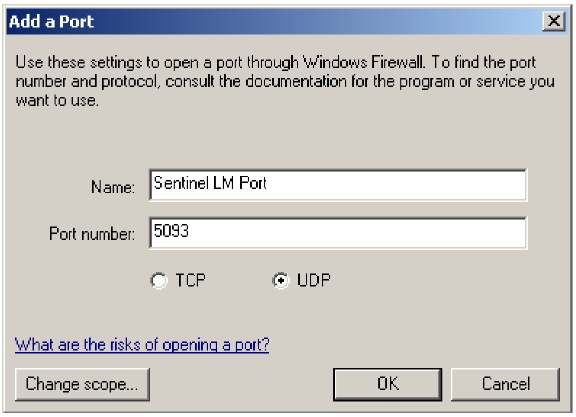
2. You receive Error Code 19 or 92 when adding your license file

- ***The USB key is not present or cannot be read properly:*** If the licensing file was not accepted when you tried to use the Add Feature utility, first verify that the Sentinel Key is plugged into a USB port on the computer which will host the Sentinel RMS service. When it has been plugged in a green light will appear on the key indicating that it is receiving power.

  Also run the TNX Key Manager utility and make sure that that the key has the proper KeyID, is a network key and authorized for the appropriate programs.

3. Your client computers cannot access your RMS host computer

- ***Client computer cannot access an RMS host that resides on the same Subnet:*** If you are running Windows XP with Service Pack 2 and your client cannot access the Sentinel RMS Service, then you may be dealing with a firewall issue. This could be an issue with the HOST, CLIENT, or with your network in general. If your firewall is a Windows XP firewall, then the settings can normally be manipulated by going to the Windows Security section of your Control Panel. You would then go to the Exceptions tab and add in a Port exception with the following settings:



Use these settings to open a port through Windows Firewall. To find the port number and protocol, consult the documentation for the program or service you want to use.

Name: Sentinel LM Port

Port number: 5093

○ TCP ● UDP

If you have another Firewall protecting your network, then you may need to adjust its settings or add an exception for the Sentinel RMS Service.

In addition, the instructions in the following section (when the client and RMS host are not on the same Subnet) will solve a wide variety of communication issues between client and RMS server.

- ***Client computer and RMS host do NOT reside on the same Broadcast Domain (Subnet):*** The network versions of TNX software are usually run over a Local Area Network where the File Server, License Server and Client are located on the same Broadcast Domain, a Subnet where the License Server is accessible from the Client by subnet broadcast. We do provide a method that will allow the program to function properly on those networks where the License Server **is not** accessible from the Client by subnet broadcast (such as a VLAN or WAN). However, this is not automatically addressed during the installation process.

To get functionality over multiple Subnet's all you have to do is set the following registry entry on the HKEY_LOCAL_MACHINE entry on the client computer.

```
 Software\TNX\<TNXProgram> Network\<Version Num>\
      Or (for 64 bit machines):
Software\WOW6432node\TNX\<TNXProgram> Network\<Version Num>\
```

In the ***<Version Num>*** registry key (e.g. 6.0), there will be a registry value named "LS Query List". If the value for this entry is set to the DNS name or IP address for the Sentinel RMS host computer, then the program will directly access that computer for licensing rather than searching the Subnet. If you split your licenses between multiple license servers (for redundancy purposes), then enter in each server separated by a **colon**.

- ***Client computer cannot access RMS host and you are unsure if the client and host resides on the same Subnet:*** If you are running Windows XP with Service Pack 2 and your client cannot access the Sentinel RMS Service, verify that both your client machine and the computer which serves as the host for Sentinel RMS reside on the same Sub-Net.

  To find your computers' IP settings (for XP only):

  i. From your client computer, go to Start → Run type in `cmd` and click OK.
  ii. You should see a command line window. Type in `ipconfig /all` in the command prompt and hit <Enter>.
  iii. Make note of the IP Address and subnet mask listed for that client computer.

  To determine the IP address of your RMS host:

  iv. In the same command line window that you used for the client, type: `ping` [name of License Server] <Enter>
  v. This will show you the IP address of the server you typed in. Normally, you will have to show this to your company's networking guy to determine if the Client and Host are part of the same sub-net.
     One common configuration would be a client IP Address of XXX.YYY.ZZZ.10, with a Subnet Mask of 255.255.255.0. In this common case, your RMS host would have to have an IP Address in the range XXX.YYY.ZZZ.1 through XXX.YYY.ZZZ.254.

- ***Program responds very slowly:*** If the users do not have the LS Query List entry described above (in the section titled "*Client Computer and RMS Host do NOT reside on the same Broadcast Domain (Subnet)")*, then the program will have to search the entire sub-net every time it tries to verify the license. This will happen every 2 to 5 minutes and can cause sluggish behavior in the program. Setting this registry entry to the IP address (or DNS name) of the license management server should improve the response time.

  The program is mainly designed to work over a Local Area Network. Attempting to load it over a WAN or VPN can cause response time issues that affect the performance of the program. Other than setting the LS Query List registry entry, there is little that can be done on the TNX side to improve the network performance.

  Finally, errors in the network card of the client machine or the host computer can result in a slow response. Errors with the USB port on the HOST machine can also cause a similar slow response.

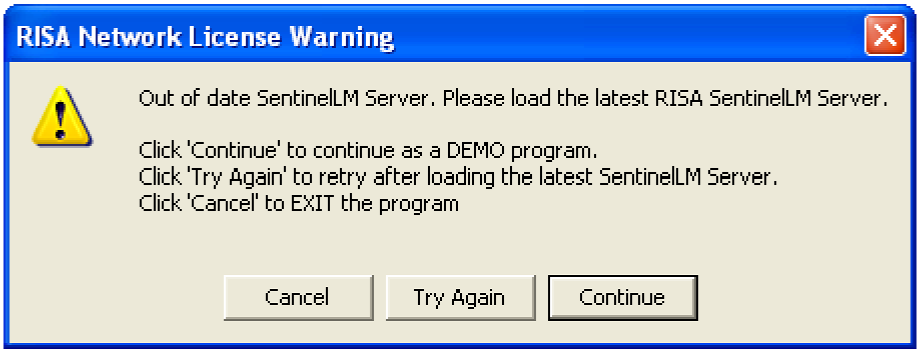
4. Network version stops working or your Client computers get an error message at start-up

- ***The Sentinel RMS service has been stopped:*** Check to make sure that the Sentinel RMS service has not been "stopped". This can be done in the Control Panel – Administrative Tools – Services.

- ***The Sentinel RMS service is loaded onto a mapped drive:*** Check to make sure that the Sentinel RMS service is loaded onto a local drive of the host machine. This can be done by going to Control Panel – Admin Tools – Services and double clicking on the Sentinel RMS service that is listed. The path to executable should point to the local hard drive.

- ***Multiple copies of the Sentinel RMS service on one machine:*** Check to make sure that there is only one Sentinel RMS service on the host computer. Multiple services will cause a conflict. This can be verified by going to the Control Panel – Administrative Tools – Services.

- ***When launching the application from a Client computer, you receive the following error:***



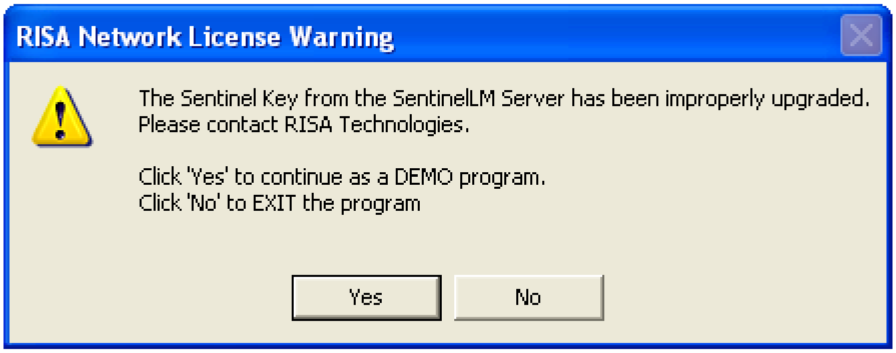
RISA Network License Warning

Out of date SentinelLM Server. Please load the latest RISA SentinelLM Server.

Click 'Continue' to continue as a DEMO program.
Click 'Try Again' to retry after loading the latest SentinelLM Server.
Click 'Cancel' to EXIT the program

TNX runs a customized version of the Sentinel License Manager. This customized version was updated in early 2006. This error message means that you are running an older version of the License Manager and need to update the Sentinel RMS service as described in part B3 of these Network Installation Instructions.

- ***When launching the application from a Client computer, you receive the following error:***



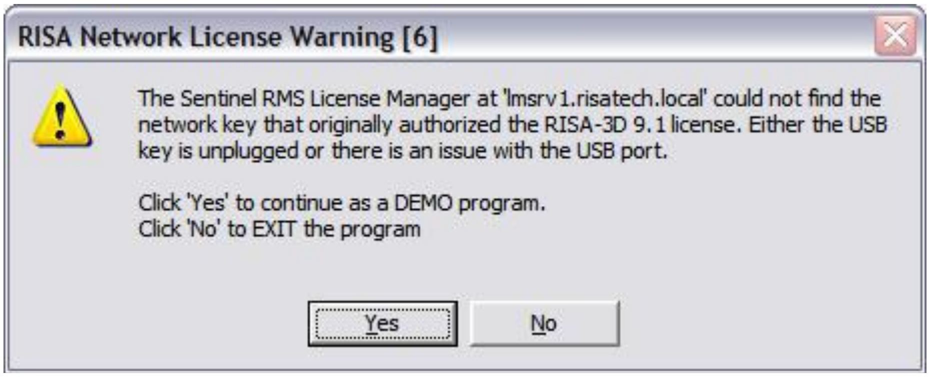
RISA Network License Warning

The Sentinel Key from the SentinelLM Server has been improperly upgraded.
Please contact RISA Technologies.

Click 'Yes' to continue as a DEMO program.
Click 'No' to EXIT the program

TNX runs a customized version of the Sentinel License Manager. This customized version was updated in early 2006. In order to maintain compatibility between this version of the license manager and the hardware key it is necessary to also update your network key. This is described in part D of these Network Installation Instructions.

- ***When launching the application from a Client computer, you receive the following error:***



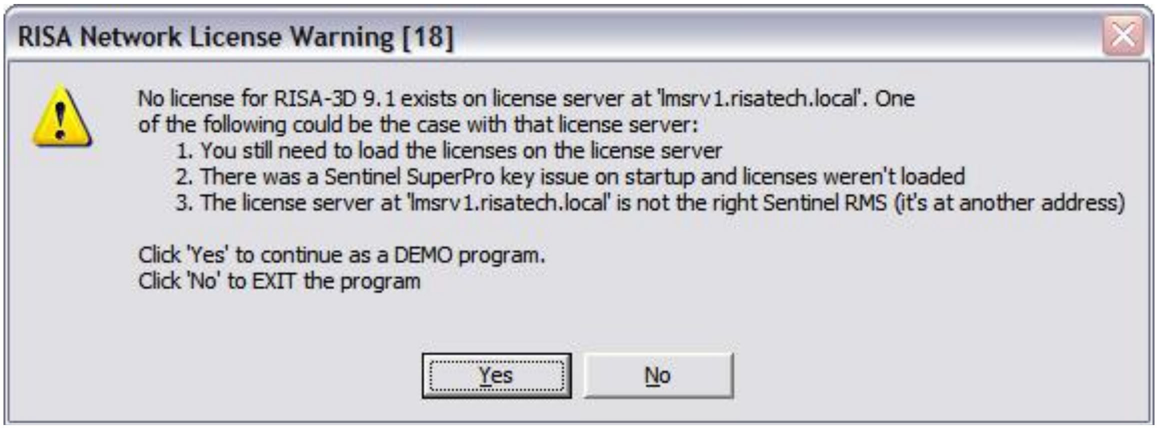
RISA Network License Warning [6]

The Sentinel RMS License Manager at 'lmsrv1.risatech.local' could not find the network key that originally authorized the RISA-3D 9.1 license. Either the USB key is unplugged or there is an issue with the USB port.

Click 'Yes' to continue as a DEMO program.
Click 'No' to EXIT the program

Licenses exist on the Sentinel License Manager but the Hardware Key that the licenses are locked to cannot be found to authorize the license. Check that the Hardware key is still plugged into the USB port on the license server and if so that the USB port still functions.

- ***When launching the application from a Client computer, you receive the following error:***



RISA Network License Warning [18]

No license for RISA-3D 9.1 exists on license server at 'lmsrv1.risatech.local'. One of the following could be the case with that license server:

1. You still need to load the licenses on the license server
2. There was a Sentinel SuperPro key issue on startup and licenses weren't loaded
3. The license server at 'lmsrv1.risatech.local' is not the right Sentinel RMS (it's at another address)

Click 'Yes' to continue as a DEMO program.
Click 'No' to EXIT the program

Licenses for the application could not be found on the Sentinel License Manager contacted by the application. If you have more than one machine running the Sentinel Manager Service, verify that the license server machine contacted is the one with the licenses loaded. To determine the contacted server, examine the “LS Query List” registry entry. If that is blank, then the “LS Host” registry entry will contain the address of the contacted server.

If the license server contacted is one that you know the licenses were loaded on, then perhaps the Hardware key was disconnected. If that occurs and the License Manager service was restarted, it will not have loaded the TNX licenses locked to the Hardware Key. Also if the license file was originally loaded using **Add Feature->From a File->To Server** instead of **Add Feature->From a File-> To Server and its File**, the TNX licenses will not reload on restart and you will get this error message.

F. Commuting Licenses

One of the most significant advantages of the Sentinel RMS license management system is that it provides commuter licensing. This allows you to temporarily use the protected TNX application on a portable computer that is not connected to the network.

Note:

- *When a license gets commuted it will decrease the number of seats available through the license manager.*
- *You MUST have administrative privileges on the client machine in order to commute a license.*
- *The TNX program first attempts to check out a license from the License Server. It will first look for a hardware key, then a commuted license. If neither is found, this it will request a token from the License Management software. If the program is slow to start up, then this could be the cause.*
- *If the client machine is Windows Vista or Windows 7, then the commute utilities must always be run as Administrator.*

Locating the WCommute Utilities:

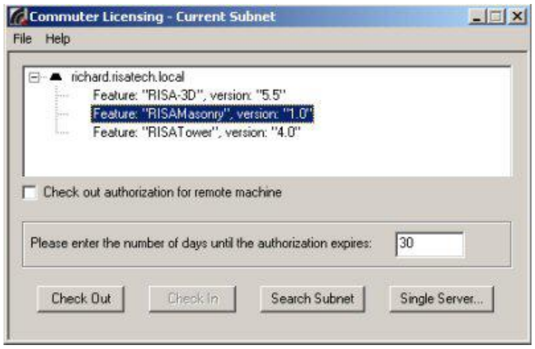
During the client installation of tnxTower, a `Sentinel LM\Commute\` directory will be created under the main TNX directory. This folder will contain the following files used for the commuting of licenses:

WCommute.exe	– Allows for local "commuting" of licenses
WRCommute.exe	– Allows for remote "commuting" of licenses
Lsapiw32.dll	– Required by WCommute and WRCommute

Commuting of Licenses (Local)

The most common use of commuter licensing is when a user needs to travel on business and wants to use a copy of TNX software from his laptop / portable computer during the trip. The commuting features will allow a network user to check out an authorization to use the application for a requested time period. If the user returns before the time period has expired, then they can check the authorization back in making that seat available to other users.

- ***Step 1:*** Make sure the laptop / portable computer is attached to the network and has access to the Sentinel RMS host computer. The TNX application must already be installed on the laptop / portable computer.
- ***Step 2:*** From the laptop, run the WCommute.exe utility. Click the "Search Subnet" button. (*Note: if your RMS Host is not on the same Subnet, then you will have to click single the "Single Server" button and enter the License Server name or IP address*).



richard.risatech.local
Feature: "RISA-3D", version: "5.5"
Feature: "RISAMasonry", version: "1.0"
Feature: "RISATower", version: "4.0"

☐ Check out authorization for remote machine

Please enter the number of days until the authorization expires: 30

The license server(s) and corresponding protected application(s) will appear in upper portion of the dialog. Select the protected application for which you wish to commute a license. Enter the number of days until the authorization expires and then click the **Check Out** button. The portable computer is now licensed to run the protected application until the commuter license expires or is checked back in. Disconnect portable computer from local subnet.

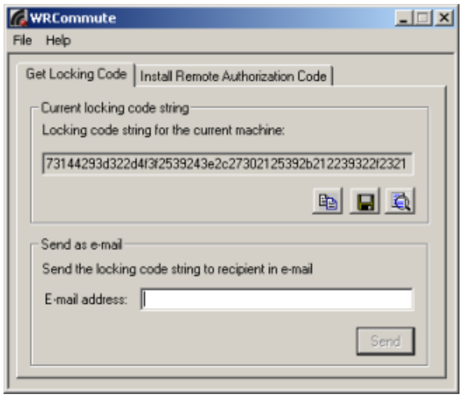
Note: You should NOT check the box that says, "**Check out authorization for remote machine**". This is intended only for the REMOTE commuting, not for local commuting.

- ***Step 3:*** To check the commuter license back in: Connect the portable computer to the local subnet. Follow steps as outlined in Step 2 to search the local subnet for commutable licenses. The upper portion of the dialog should show the license server and application which the portable computer has a commuter license for; This entry will have a red check mark next to it. Select application associated with commuter license and click the **Check In** button.

Commuting of Licenses (Remote)

The commuting feature may also be used for users which are NOT connected to network. This is known as ***Remote Commuting***. An example would be a remote office that has need for the software, but which CANNOT connect to the license management host. *Note: that once a license has been commuted remotely, it cannot be checked back in until the commuting period has ended.*

- ***Step 1:*** On the remote computer run the WRCommute utility. Click the **Get Locking Code** tab and the **Save** button. Save the commuter locking code file. Send the locking code file to a local user who has access to the Sentinel RMS host computer.



Current locking code string

Locking code string for the current machine:

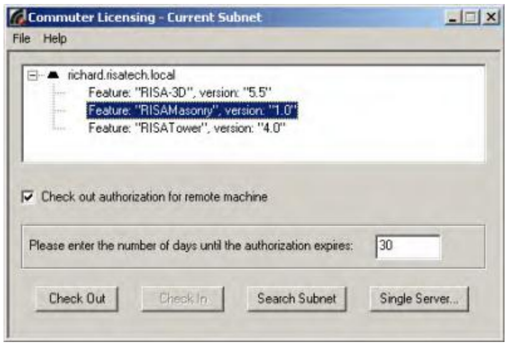
73144293d322d4f3f2539243e2c27302125392b212239322f2321

Send as e-mail

Send the locking code string to recipient in e-mail

E-mail address:

- ***Step 2:*** Once the local user receives the locking code file from the remote user he will be able to generate a remote authorization code. On a local computer run the WCommute utility. Click the **Search Subnet** button. (*Note: if your RMS Host is not on the same Subnet, then you will have to click single the "Single Server" button and enter the License Server name or IP address*).



richard.risatech.local

Feature: "RISA-3D", version: "5.5"

Feature: "RISAMasonry", version: "1.0"

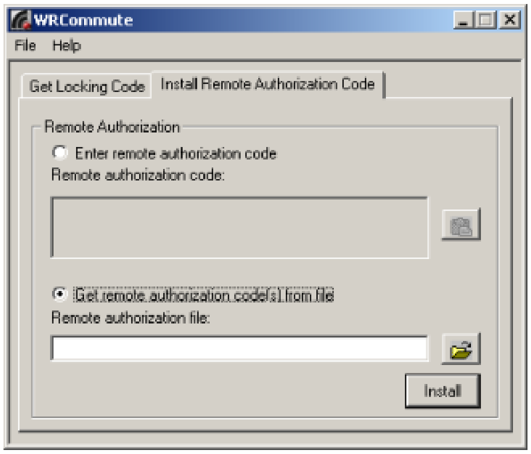
Feature: "RISATower", version: "4.0"

☑ Check out authorization for remote machine

Please enter the number of days until the authorization expires: 30

The license server(s) and corresponding protected application(s) will appear in upper portion of the dialog. Select the protected application for which you wish to commute a license. Enter the number of days until the authorization expires and select the "**Check out authorization for remote machine**" option. Then click the **Check Out** button. The "**Locking Code for Remote Machine**" dialog appears. Select "**Get locking code string for remote machine from file**" and browse to the locking code file obtained from the remote user. Click the **Ok** button. The **Remote Commuter Licensing** dialog appears. Save the remote commuter authorization file. Send the remote authorization file to the remote user.

- ***Step 3:*** From the remote portable computer again run the WRCommute utility. Select the "**Install Remote Authorization Code**" tab. Select the "**Get remote authorization code from file**" option and click the **Browse** button. Open the remote authorization file (obtained from the local Sentinel RMS user). Click the **Install** button. A message indicating that the remote authorization code has been installed successfully should appear. The "remote" portable computer is now licensed to run the protected application until the commuter license expires. There is no option to check a remote commuter license back in.


WRCommute
File
Help
Get Locking Code
Install Remote Authorization Code
Remote Authorization
Remote authorization code:
Remote authorization file:
Install

○ Enter remote authorization code

● Get remote authorization code(s) from file

Limiting the Number of Commutable Licenses

To restrict then number of licenses that can be commuted, the network administrator would go to Control Panel – System Properties and select the Advanced tab. You would then click the Environment Variables button to open up and add (or edit) the environment variable called LSERVOPTS.

To tell the license server to limit commutable licenses to 2/3rds of available license tokens, the LSERVEROPTS environment variable would be to COM66

To prohibit ANY licenses from being commuted, the environment variable would be set to:

LSERVOPTS=-com0

G. Usage Reports and License Monitoring

The WLMADMIN.EXE utility will give you an instantaneous snapshot of which users have checked out a license and how many licenses are available.

For a more advanced usage report, you can do the following.

Step 1: Creating the Log File Reports

Sentinel RMS gives you the ability to create usage reports to monitor how frequently the software is being use. You can turn on logging by adding the string value ***CommandLineOpts*** under the registry key `HKEY_LOCAL_MACHINE\SOFTWARE\Rainbow Technologies\SentinelLM\CurrentVersion`. You can then set the value of ***CommandLineOpts*** to '-l lserv.log'.

When you restart the Sentinel RMS service, it will automatically create an *lserv.log* file in the **`C:\Windows\system32`** folder. Entries in this file will appear only when you will access the License Server either for issue or release of a license.

Step 2: Creating a CSV file that can be read by MS Access

Sentinel RMS also provides reporting capability through a Microsoft Access database table, **ReportDB.mdb**, that allows developers and their customers to view license server log file output in bar chart form (for example, to see total use of a feature during a particular time period). To use the reporting feature, the ***lsusage.exe*** utility must be used. This utility may be present on the License Server in the "`..\Sentinel RMS Server\`" subdirectory. If not, the utility can be obtained by contacting the technical support group at TNX (support@towernx.com).

A command line example of how to use the lsusage.exe utility:

```
lsusage -l "C:\WINDOWS\system32\lserv.log" -c xyz.csv
```

where **lserv.log** file is the license server log file and **xyz.csv** is a output file where decrypted output will be written in a comma separated value format (CSV).

The lsusage utility displays a report of the information in the specified encrypted license server log file. The license server log file contains a record of license transactions made by that license server.

Step 3: Importing the CSV file into Access

This falls outside the realm of technical support for the TNX Program and we can provide on a very limited amount of support on this subject. That being said, we have received some documentation from the Sentinel folks that we have summarized for our clients use as described below:

1. Within Microsoft Access, open the *ReportDB.mdb* file provided with Sentinel RMS. Note that the file is MS Access 97 format – so a newer version of Access will want to convert it to the new format. Go ahead and do that and use the converted MDB file.
2. Select the **Table** tab.
3. Click **New.**
4. Select **Import Table**.
5. Select the CSV file you created with **lsusage** and click **Import**.
6. The **Import Text Wizard** is displayed. Continue to click **Next** until it asks "Where would you like to store your data?"

7. Select In an existing table and select the table *Lservlog*. (If instead of adding to an existing *Lservlog* table you want to create a new one, delete any rows that are already in the Lservlog table before importing new data.)
8. Click **Finish**. Don't forget to keep the table name set to *Lservlog*.

Note: The ReportDB.mdb file mentioned above may be present on the License Server in the "..\Sentinel RMS Server\" directory. If not, it can be obtained by contacting the technical support group at TNX (support@towernx.com).

This Lservlog will contain the entire information of ALL the features in the License Server including the non-TNX features. Once the log file use data is imported into the Lservlog table as discussed above, you can now create reports for that data.

Within Microsoft Access, open the ReportDB.mdb file. You will immediately see the Sentinel RMS report selection screen.

- Within Access, open the ReportDB.mdb file. You will immediately see the Sentinel RMS report selection screen.
- You can now select the date range of the report by specifying Start Date and End Date.
- Now select the type of report you want to create:
    - Total number of tokens granted per feature
    - Maximum number of tokens granted per feature
    - Average number of tokens created per feature
    - Total usage time per feature
    - Total number of tokens denied per feature
    - Percentage of licenses denied per feature