A MITEL
PRODUCT
GUIDE

Enterprise License Manager

TECHNICAL GUIDE

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Mitel
Powering connections

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1 WELCOME TO ENTERPRISE LICENSE MANAGER

The Enterprise License Manager is a client – server based license server serving Mitel Networks products. As such, Enterprise License Manager is not tied to any particular product.

2 REQUIREMENTS

2.1 GENERAL

Enterprise License Manager has very little dependency on either hardware or software. In the case that some dependencies do exist, they are listed below.

2.2 HARDWARE

There are no specific hardware requirements to use Enterprise License Manager.

2.3 SOFTWARE AND DEFAULT VALUES

This release of the Enterprise License Manager is compatible with the following software:

- Microsoft Windows Server 2016, 2019 and 2022.
- Microsoft Edge, Google Chrome, Firefox or any other modern browser.
- Default socket port number is 2580.

2.4 CAPACITY AND LIMITATIONS

- Enterprise License Manager does not impose any limitations to number of connected clients.
- Enterprise License Manager is limited to support only one application server at a time. Installations of multiple applications require additional ELM servers. For example, two Solidus/MiCC Enterprise installations may not use the same ELM server.
- Under virtualized environments, actions such as moving or copying the virtual images may change the MAC address. It is recommended that fixed MAC addresses being used in virtualized environments. Refer to the documentation for your virtualized environment for details on setting up fixed MAC addresses.

3 ABOUT LICENSES

3.1 GENERAL

There are two important license concepts, supported by Enterprise License Manager: license types and license classifications.

3.2 LICENSE TYPES

There are four types of licenses: Concurrent, Locked, Capacity, and Site.

- **Concurrent licenses**, also called floating licenses, are licenses that are used on a first-come-first-served basis. Concurrent licenses must be reserved, meaning the available license pool is reduced once a license is reserved. When the available license pool goes to zero, license reservations are no longer accepted.

- **Locked licenses** are tied to a particular person or other entity. Before a locked license can be successfully requested, the corresponding identifier must be configured in the license server. Failure do so may result in none or a select few locked licenses being successfully reserved. A reserved license belongs to a person or identity and can be reserved unlimited times by the same person or identity. Only the people or identities defined can reserve a locked license and they can do so unlimited times.

- **Capacity licenses** defines an upper licensed capacity limit. A capacity license is not reserved; rather the application uses the value to determine if the requested action will fall below or above the capacity limit.

- **Site licenses**, also called enable/disable, are licenses that are used to enable/disable a feature for a whole site. If this license is enabled, then unlimited number users can use the feature/function.

3.3 LICENSE CLASSIFICATION

There are three types of license classifications: Trial, Permanent, and Emergency. Note that all three license classifications can be combined with any of the four license types.

- **Trial licenses** expire after a predefined number of days. A trial usually comes with an application, is installed and then allows use of features and function for a limited period of time. A trial license can only be installed once. Further attempts to install a trial will result in the licenses not being installed.

- **Permanent licenses** are licenses that are purchased. Purchased licenses typically do not have a time limit or expiration. However, under certain circumstances, permanent licenses could be sold as leased licenses. In this case, the permanent license does have an expiry date. A new permanent license can be installed to replace an expired permanent license.

- **Emergency licenses** are temporary licenses provided to give enough time to resolve an initial license problem. Emergency licenses expire within a predefined time and cannot be reused.

3.4   PRODUCT SPECIFIC LICENSE INFORMATION

The applications requiring licenses may handle the licenses in many different ways. Enterpriser License Manager does not have any knowledge of how specific licenses are handled or administered by individual applications.

For specific license information for a product, please refer to the documentation of the product in question for more information.

4 INSTALLATION

4.1 GENERAL

The installation program for Enterprise License Manager contains both the Enterprise License Manager Client and Enterprise License Manager Server installation options.

The Enterprise License Manager Client is typically installed on hosts where client applications reside and require license enforcement.

The Enterprise License Manager Server is installed to on a predetermined host, which serves license requests from client applications.

4.2 IMPORTANT INFORMATION ABOUT INSTALLATION

The installation of Enterprise License Manager requires some planning. To better understand why the planning is needed, some background information about license handling is needed.

As mentioned previously, one or more products can use the Enterprise License Manager. When more than one product is purchased, all licenses are delivered in a single license file. The licenses are tied to a physical host – this is the host where the Enterprise License Manager is installed.

Delivering all licenses in a single license file simplifies license administration for both the customer and Mitel. However, it also means that for the use of multiple products at a customer site, the products must be served by a single license server.

If you want to use a dedicated instance of the Enterprise License Manager for each product, you must order each product separately. This ensures that Mitel generates separate license files for each product.

The installation of products and the corresponding license server must be coordinated. Failure to coordinate the installations may result in not being able to install the licenses or requiring manual re-configuration of installed products.

4.3 PRE-INSTALLATION – INSTALLING IIS

The Windows operating system contains Internet Information Server (IIS), a web server component. For some versions of Windows (and depending on the initial configuration), the IIS component may need to be added for Enterprise License Manager to be fully functional.

To add the IIS server to Windows Server 2012 (example), do the following:

1. Click on **Start** ->**Server Manager** -> **Manage** -> **Add Roles and Features (Wizard)**.

2. Navigate to **Select Roles**, and click **Web Server (IIS)**.
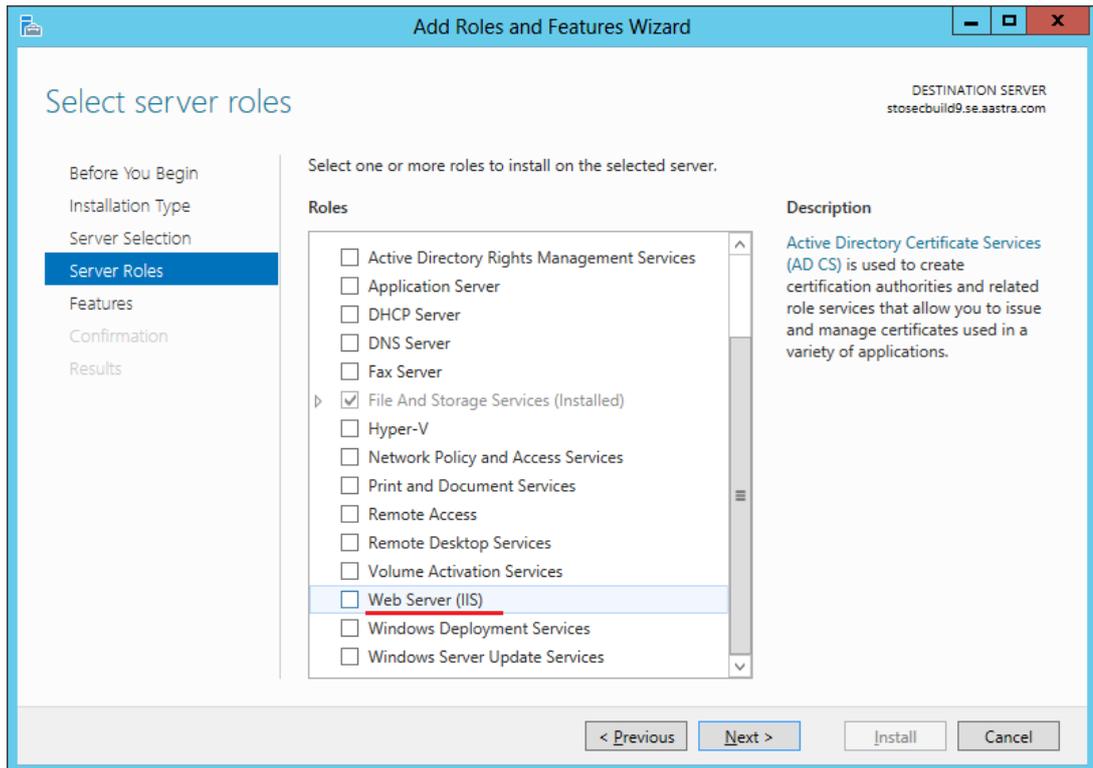
3. In the Web Server (IIS) dialog window, click on **Add Features**.
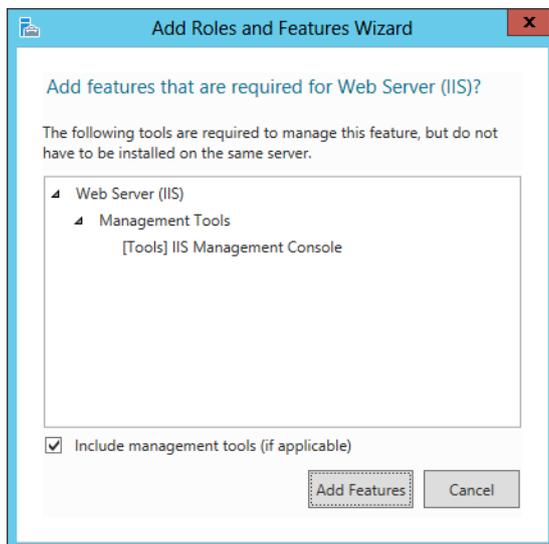
4. Click **Next** to proceed through the Wizard to the final window.

5. Click **Install** to complete the installation.

Note! It is not necessary to install IIS for the license server to function. However, the administration of the license server is greatly enhanced by having IIS installed, thereby enabling the Enterprise License Manager Web administration.

4.3.1 ROLE SERVICES INSTALLED ON THE SERVER

The following role services must be installed on the server:

- Web Server
- Web Server\ISAPI Extension
- Web Server\ISAPI Filter
- Web Server\ASP
- Web Server\IIS 6 Management Compatibility
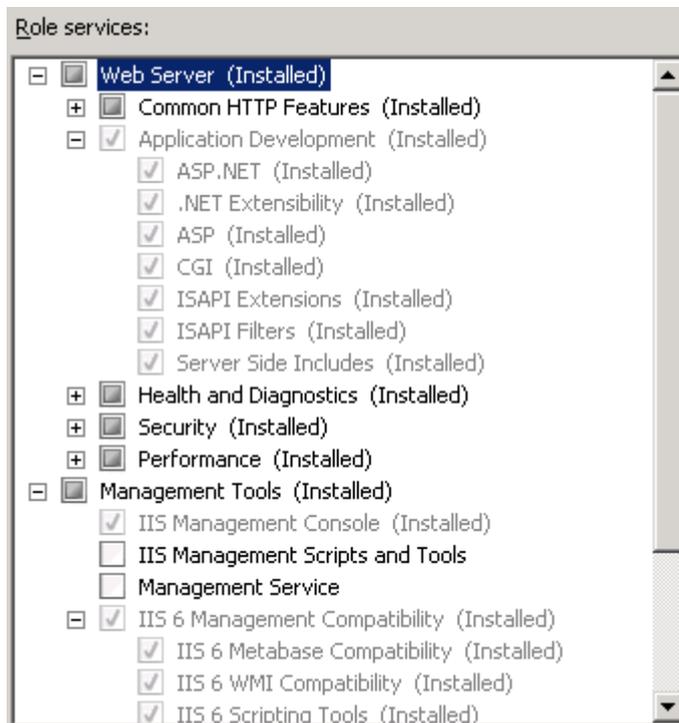
Role services can be accessed by selecting the Roles tree item in the Server Manager.

4.3.2 ENABLE ASP SUPPORT AFTER INSTALLING ELM SERVER

The Enterprise License Manager server installation automatically enables ASP support. However, if IIS is added after the installation of Enterprise License Manager server then ASP support must be manually enabled.

To enable ASP support on Windows Server 2012 (example), do the following:

1. Click **Start** -> **Server Manager** -> **Manage** -> **Add Roles and Features (Wizard)**.
2. Navigate to **Select Roles**, and click **Web Server (IIS)**.
3. Expand the **Web Server (IIS)** entry to **Application Development** and select **ASP (Active Server Pages)**.
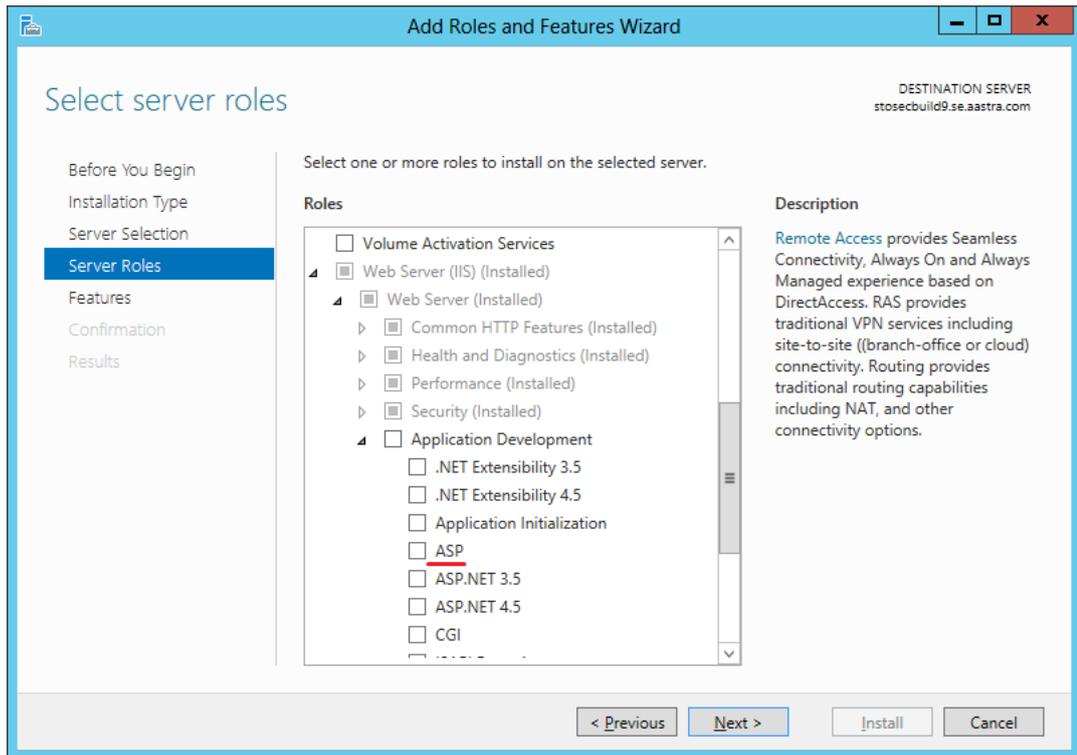
4. In the ASP dialog window, click on **Add Features**.
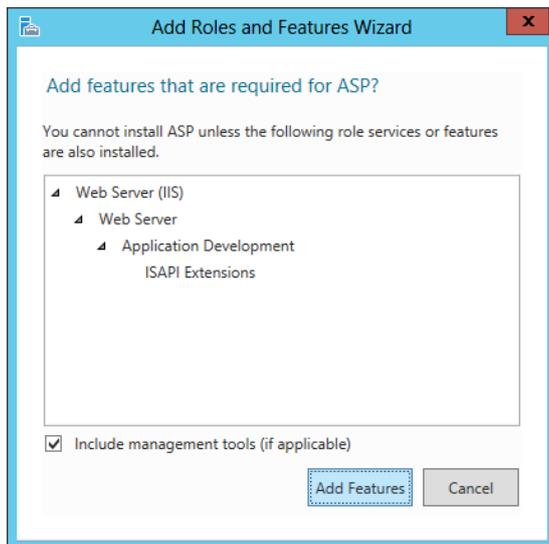
5. Click **Next** to proceed through the Wizard to the final window.

6. Click **Install** to complete the installation.

4.4 ENTERPRISE LICENSE MANAGER SERVER – INSTALLATION

Enterprise License Manager server installs the server components that maintain the licenses and enforce license limits. The web administration tools used to administer licenses are also installed.

In addition, the Enterprise License Manager Server installs the client components needed for license requests on the Enterprise License Manager Server host.

4.4.1   INSTALL THE SERVER

The Enterprise License Manager Server installation program makes the following changes to your system:

- Transfers files

- Makes registry changes

- Adds service

- Creates a virtual directory under Default Web Site.

- Updates file system folder permissions required for the web administration tool

To install the Enterprise License manager Server, do the following:

1. Find and run the `setupELM.exe` file. When the Installation Wizard dialog box appears, click **Next**.

2. In the Feature Selection dialog, select the **Enterprise License Manager Server** radio button and click **Next**.
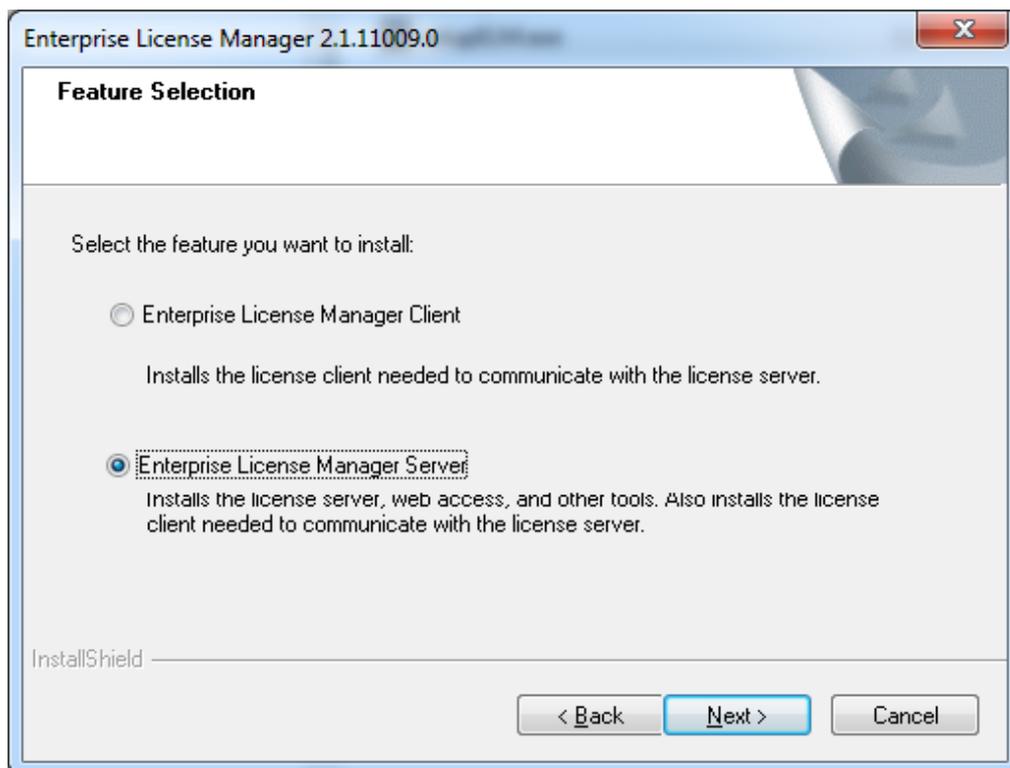
3. In the Choose Destination Location dialog box, specify where you want to install the Enterprise License Manager Server. To select a folder other than the default, click the **Browse** button. When done click **Next**.
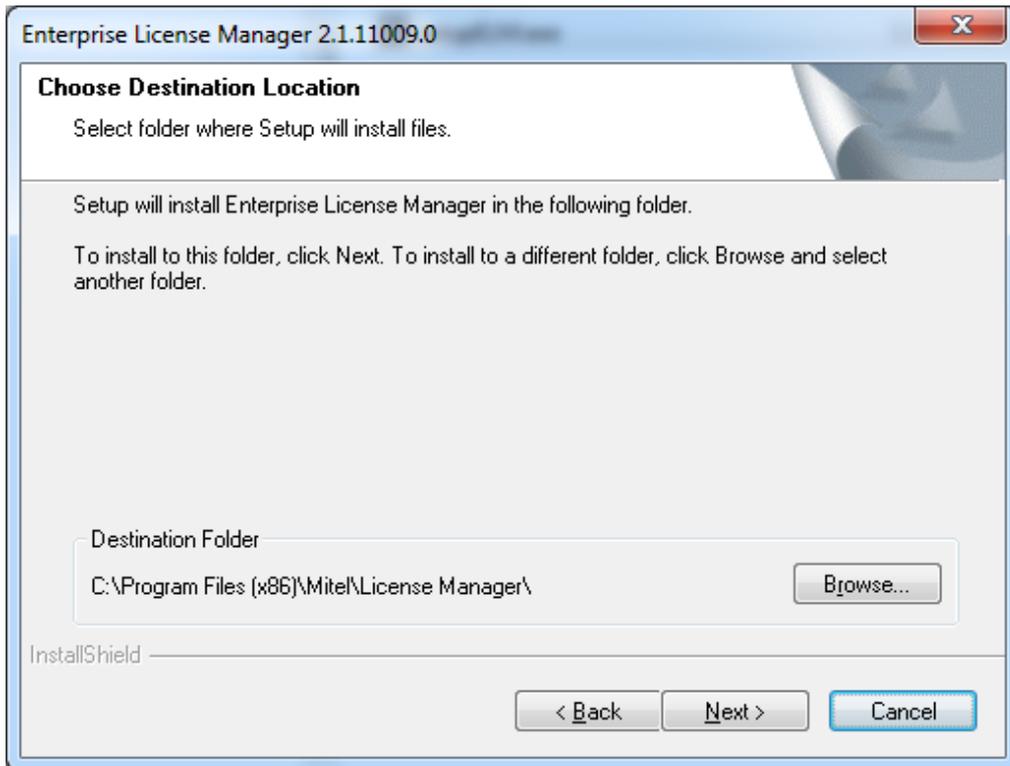
4. In the License Server Options dialog box, confirm the port number to be used by Enterprise License Manager clients and click **Next**.

    Note! Unless there is a port conflict, it is recommended that you use the default port number. If the port number is changed, all clients connecting to the server must also change their configuration to use the new port number.
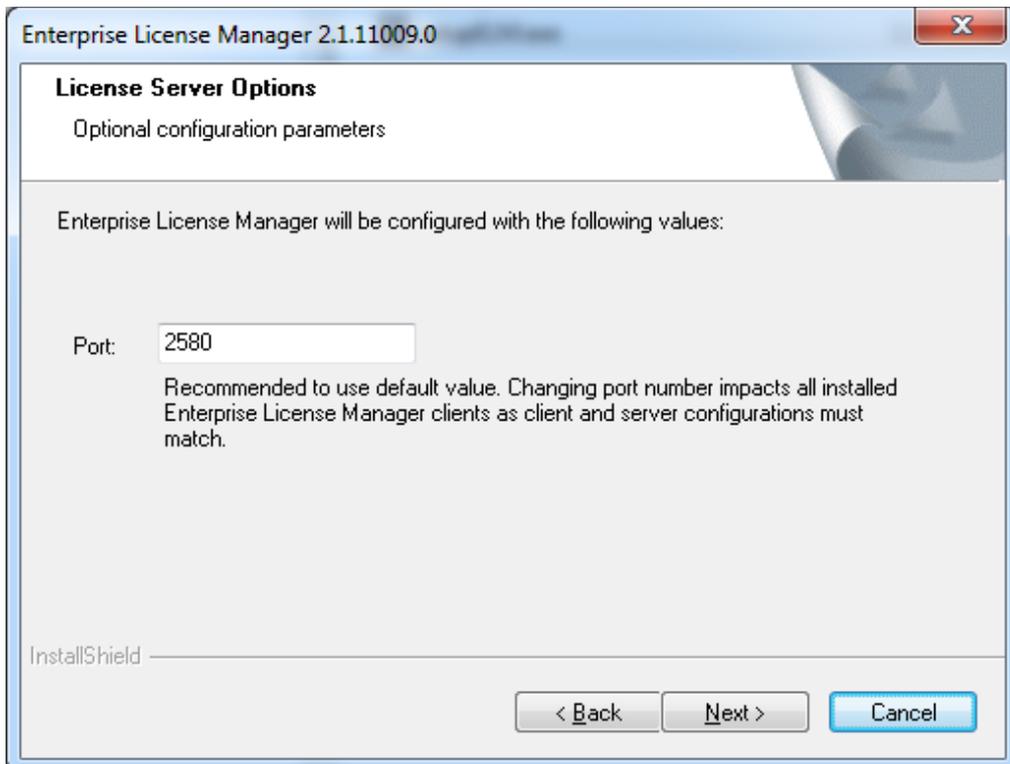
5. In the Start Copying Files dialog box, review the installation settings information carefully and click **Next**.

Note that if IIS is not installed, the system displays a warning in this dialog box.

6. In the Wizard Complete dialog box, click **Finish** to complete the installation of Enterprise License Manager Server.

4.4.2   RE-INSTALL THE SERVER

Reinstalling the Enterprise License Manager Server refreshes the system settings. To re-install the Enterprise License Manager Server, do the following:

1. Find and run the `setupELM.exe` file.

   Alternatively, click on **Start** -> **Settings** -> **Control Panel** -> **Add/Remove Programs**, select **Enterprise License Manager** from the list of installed programs, and click **Change/Remove**.

2. In the Maintenance Welcome dialog window, select the **Reinstall** option and click **Next**.

3. In the Start Copying Files dialog box, review the installation settings information carefully and click **Next**.

   Note that if IIS is not installed, the system displays a warning in this dialog box.

4. In the Maintenance Complete dialog box, click **Finish** to complete the reinstallation of Enterprise License Manager Server.

4.4.3   RE-CONFIGURE THE SERVER

The re-configure option allows you to configure the Enterprise License Manager to use another port. To re-configure the Enterprise License Manager Server, do the following:

1. Find and run the `setupELM.exe` file.

   Alternatively, click on **Start** -> **Settings** -> **Control Panel** -> **Add/Remove Programs**, select **Enterprise License Manager** from the list of installed programs, and click **Change/Remove**.

2. In the Maintenance Welcome dialog window, select the **Reconfigure** option and click **Next**.
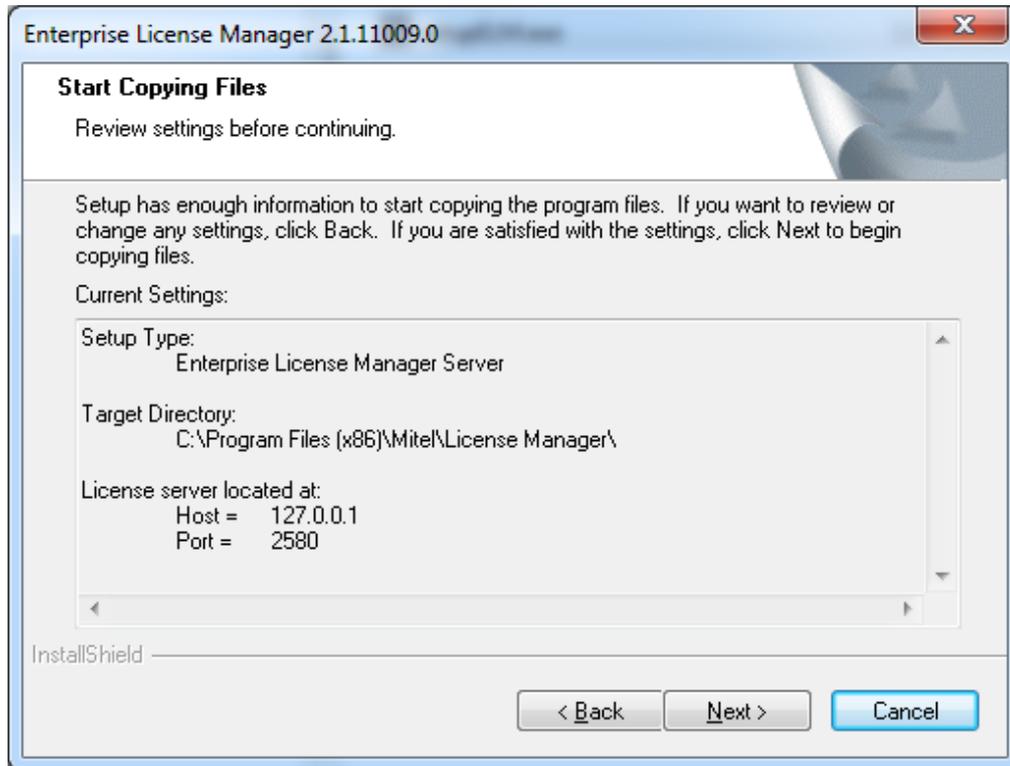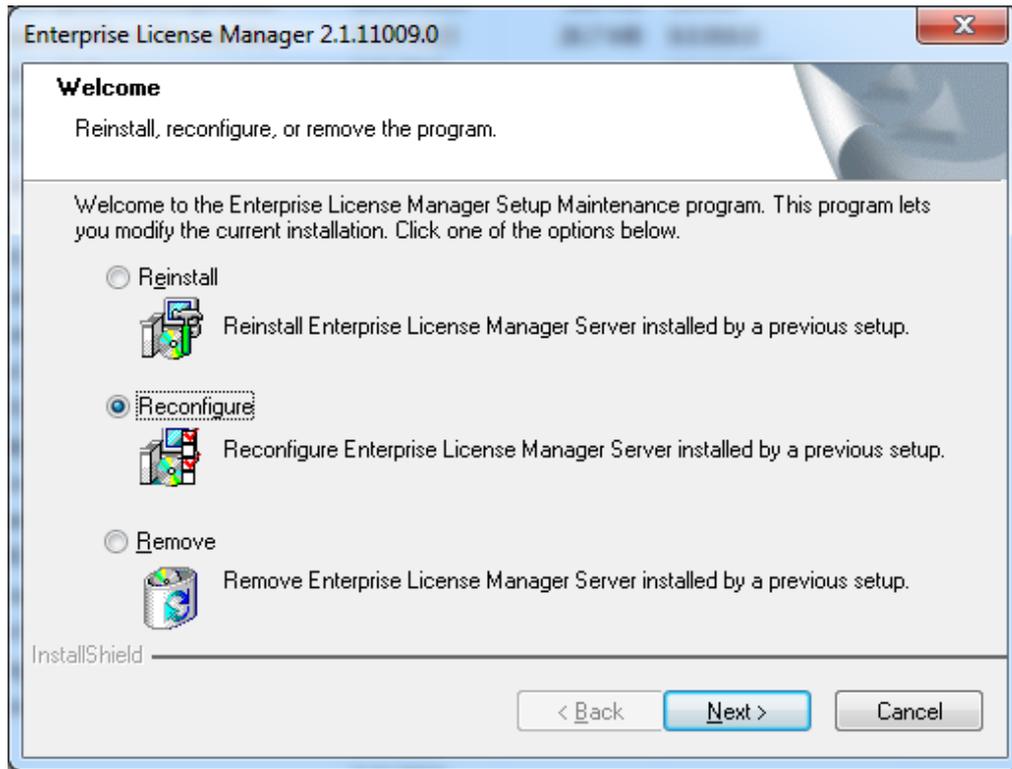
3. In the License Server Options dialog box, specify the port number to be used by Enterprise License Manager clients and click **Next**.

    Note! Unless there is a port conflict, it is recommended that you use the default port number. If the port number is changed, all clients connecting to the server must also change their configuration to use the new port number.
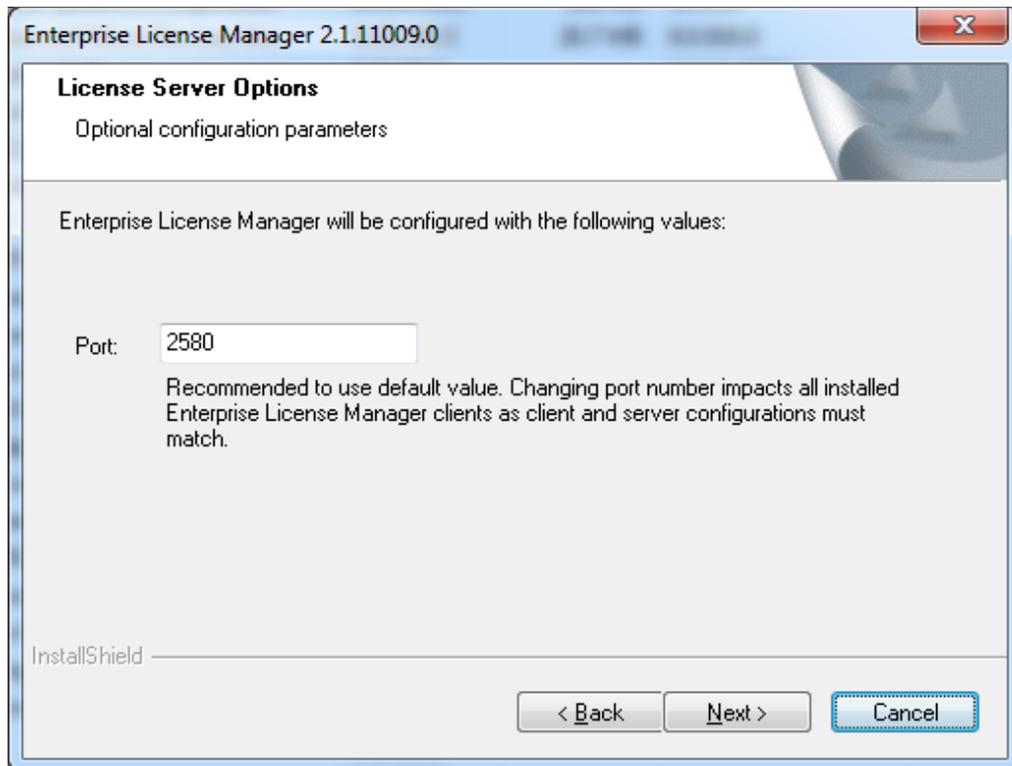
4. In the Start Reconfiguring Enterprise License Manager dialog box, review the configuration information carefully and click **Next**.
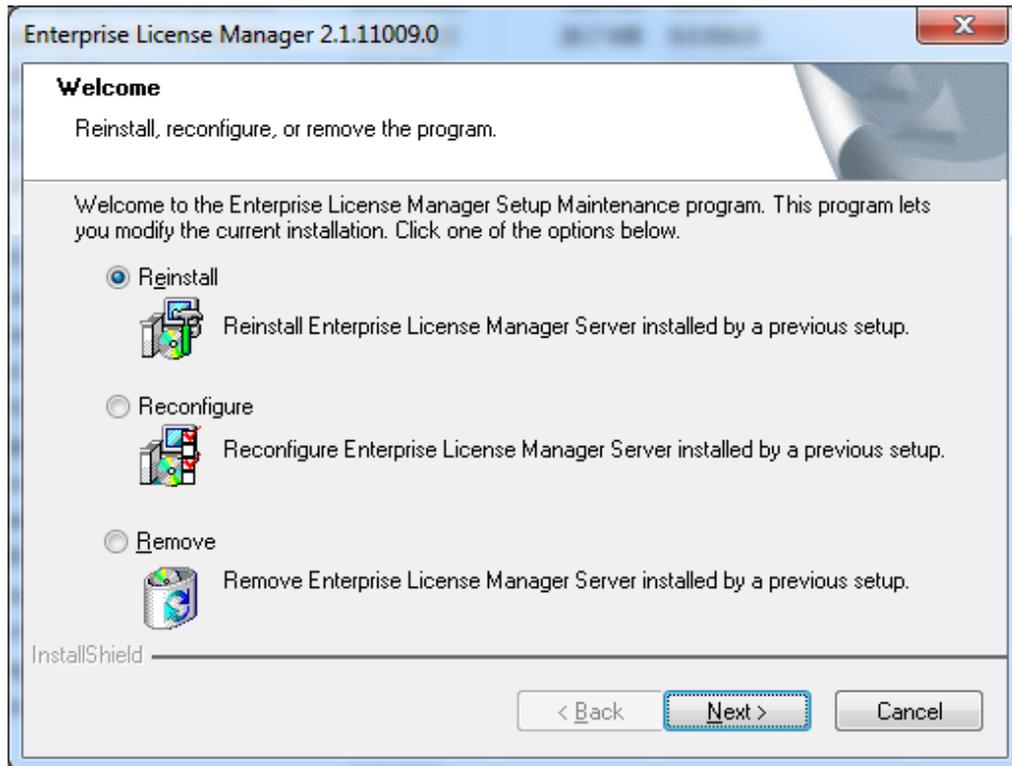
    Note that if IIS is not installed, the system displays a warning in this dialog box.

5. In the Maintenance Complete dialog box, click **Finish** to complete the reinstallation of Enterprise License Manager Server.

4.4.4   REMOVE THE SERVER

The Remove option removes the Enterprise License Manager Server from the system. To remove the Enterprise License Manager Server, do the following:

1. Find and run the `setupELM.exe` file.

    Alternatively, click on **Start** -> **Settings** -> **Control Panel** -> **Add/Remove Programs**, select **Enterprise License Manager** from the list of installed programs, and click **Change/Remove**.

2. In the Maintenance Welcome dialog window, select the **Remove** option and click **Next**.
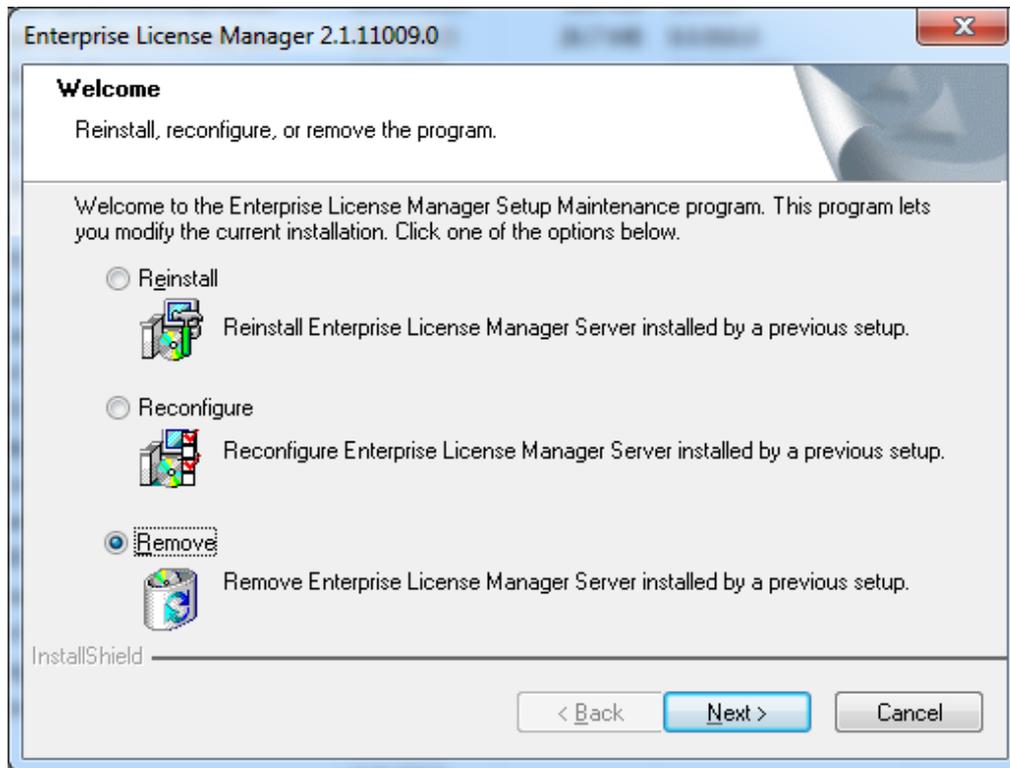
3. In the Start Removing Enterprise License Manager dialog box, review the information carefully and click **Next**.

4. Click **Yes** in the Confirmation dialog box.

5. In the Maintenance Complete dialog box, click **Finish** to complete the removal of the Enterprise License Manager Server.

4.5 ENTERPRISE LICENSE MANAGER CLIENT – INSTALLATION

The Enterprise License Manager Client acts as an interface to the license server for applications with licensing requirements.

4.5.1 INSTALL THE CLIENT

To install the Enterprise License Manager Client, do the following:

1. Find and run the `setupELM.exe` file. When the Installation Wizard dialog box appears, click **Next**.

2. In the Feature Selection dialog, select the **Enterprise License Manager Client** radio button and click **Next**.
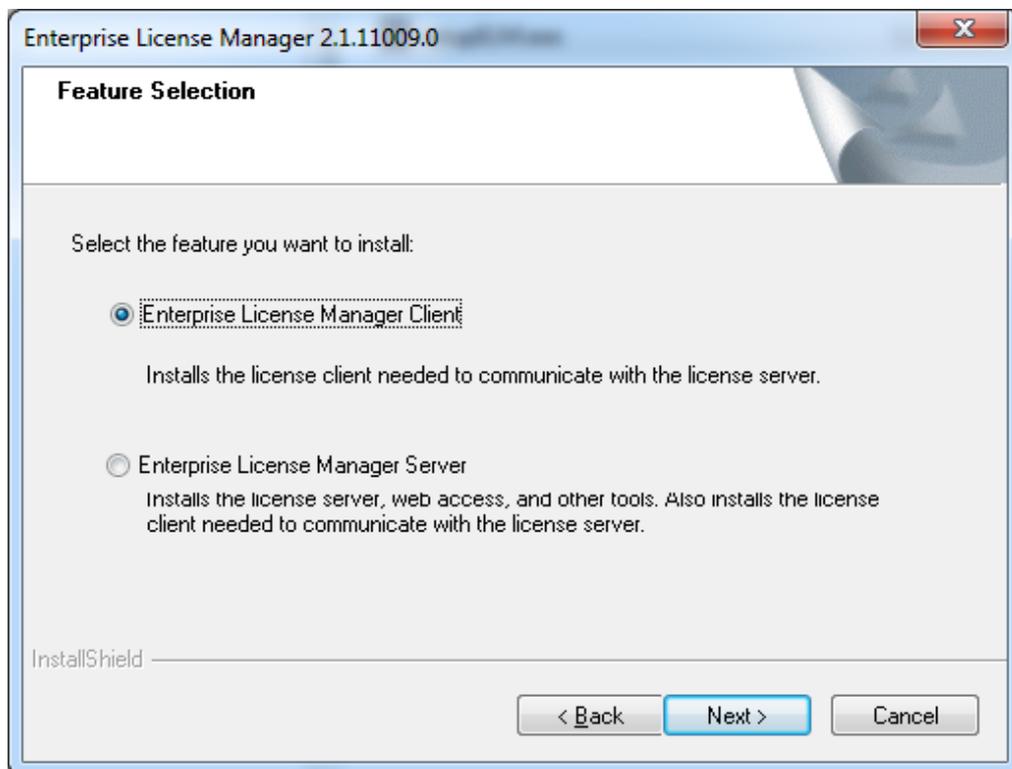
3. In the Choose Destination Location dialog box, specify where you want to install the Enterprise License Manager Client. To select a folder other than the default, click the **Browse** button. When done click **Next**.

4. In the Choose License Server dialog box, select the method for specifying the host:

- **Manually specify a host in the network, containing a license server**

  Allows you to specify a host name or IP address of a host where the Enterprise License Manager resides. The wizard does not verify the existence of the host or the presence of the Enterprise License Manager. This option is useful when an application is installed but the host where Enterprise License Manager resides is temporarily unavailable.

  The port is the socket port used by Enterprise License Manager Server.

- **Auto-discover license server(s) in your network**

  Searches your network for existing Enterprise License Manager Server hosts and displays the results.

  Click **Next**.

5. If you selected the Auto-discover option, the wizard opens the Auto-discovering License Servers dialog box with search results for Enterprise License Manager Server hosts.

Select an appropriate Enterprise License Manager Server host and click **Next**.

It is recommended that you choose a host that contains permanent licenses. If none of the discovered hosts have permanent licenses and you have no information about existing license server hosts, contact your network administrator for assistance.

If you want to view the licenses installed on any of the auto-discovered license servers, select the server in the list and click **View Licenses**. This launches the web interface to view installed licenses for the selected server.

6. In the Start Copying Files dialog box, review the installation settings information carefully and click **Next**.

7. In the Wizard Complete dialog box, click **Finish** to complete the installation of the Enterprise License Manager client.

4.5.2 RE-INSTALL THE CLIENT

Re-installing the Enterprise License Manager client allows you to refresh system settings on the local host.

To re-install the client, do the following:

1. Find and run the `setupELM.exe` file.

   Alternatively, click on **Start** -> **Settings** -> **Control Panel** -> **Add/Remove Programs**, select **Enterprise License Manager** from the list of installed programs, and click **Change/Remove**.

2. In the Maintenance Welcome dialog window, select the **Reinstall** option and click **Next**.

3. In the Start Copying Files dialog box, review the installation settings information carefully and click **Next**.

4. In the Maintenance Complete dialog box, click **Finish** to complete the reinstallation of the Enterprise License Manager client.

4.5.3   RE-CONFIGURE THE CLIENT

You can use the Reconfigure option in the Enterprise License Manager wizard to reconfigure applications to use a different license server.

Caution! Reconfiguring the Enterprise License Manager client changes the license server configuration for all applications installed on this host.

To re-configure the Enterprise License Manager client, do the following:

1. Find and run the `setupELM.exe` file. When the Installation Wizard dialog box appears, click **Next**.

2. In the Maintenance Welcome dialog window, select the **Reconfigure** option and click **Next**.

3. In the Choose License Server dialog box, select the method for specifying the host:

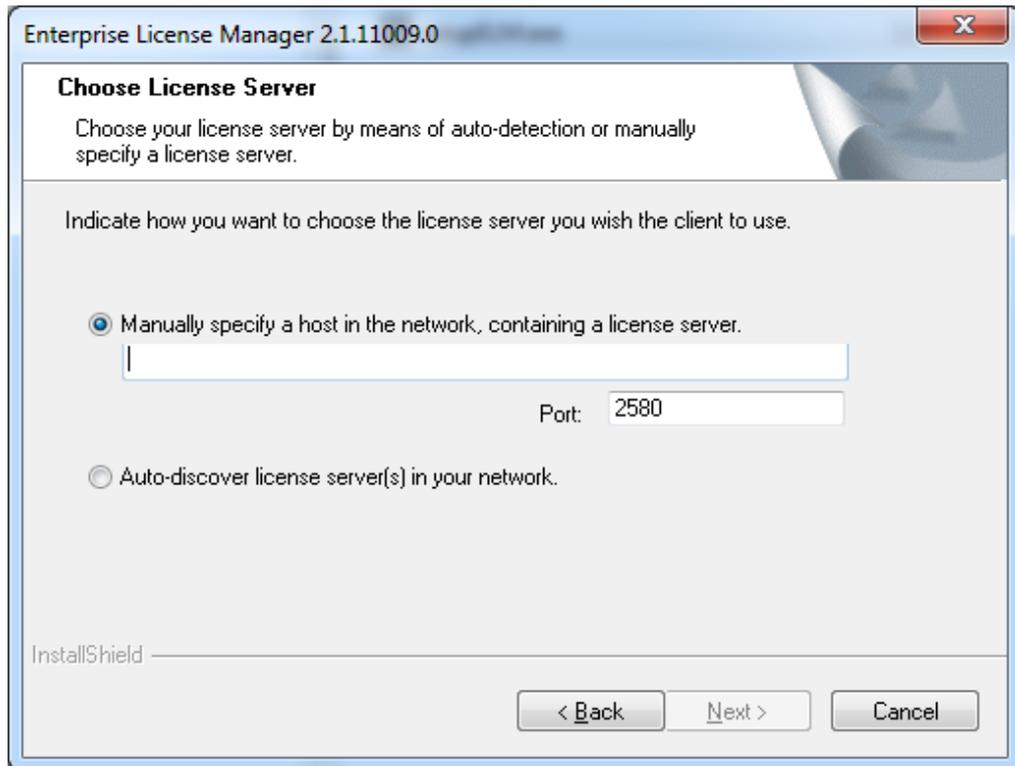- **Manually specify a host in the network, containing a license server**

  Allows you to specify a host name or IP address of a host where the Enterprise License Manager resides. The wizard does not verify the existence of the host or the presence of the Enterprise License Manager. This option is useful when an application is installed but the host where Enterprise License Manager resides is temporarily unavailable.

  The port is the socket port used by Enterprise License Manager Server.

- **Auto-discover license server(s) in your network**

  Searches your network for existing Enterprise License Manager Server hosts and displays the results.

  Click **Next**.

4. If you selected the Auto-discover option, the wizard opens the Auto-discovering License Servers dialog box with search results for Enterprise License Manager Server hosts.

   Select an appropriate Enterprise License Manager Server host and click **Next**.

   It is recommended that you choose a host that contains permanent licenses. If none of the discovered hosts have permanent licenses and you have no information about existing license server hosts, contact your network administrator for assistance.

   If you want to view the licenses installed on any of the auto-discovered license servers, select the server in the list and click **View Licenses**. This launches the web interface to view installed licenses for the selected server.

5. In the Start Copying Files dialog box, review the installation settings information carefully and click **Next**.

6. In the Maintenance Complete dialog box, click **Finish** to complete the reconfiguration of the Enterprise License Manager client.
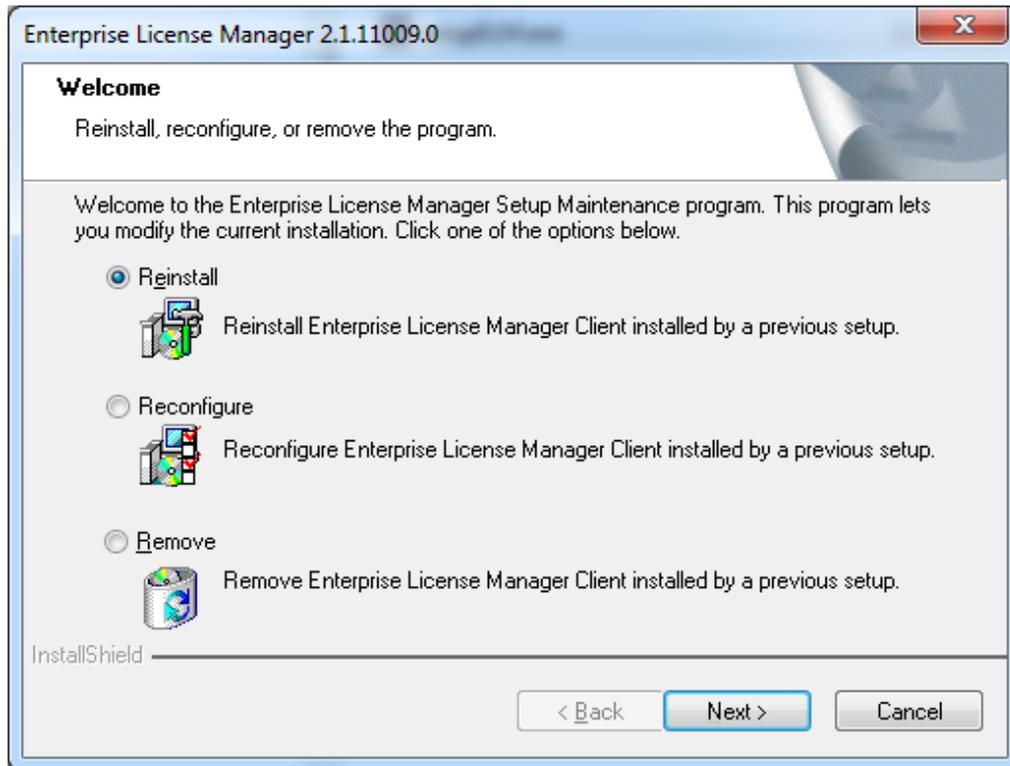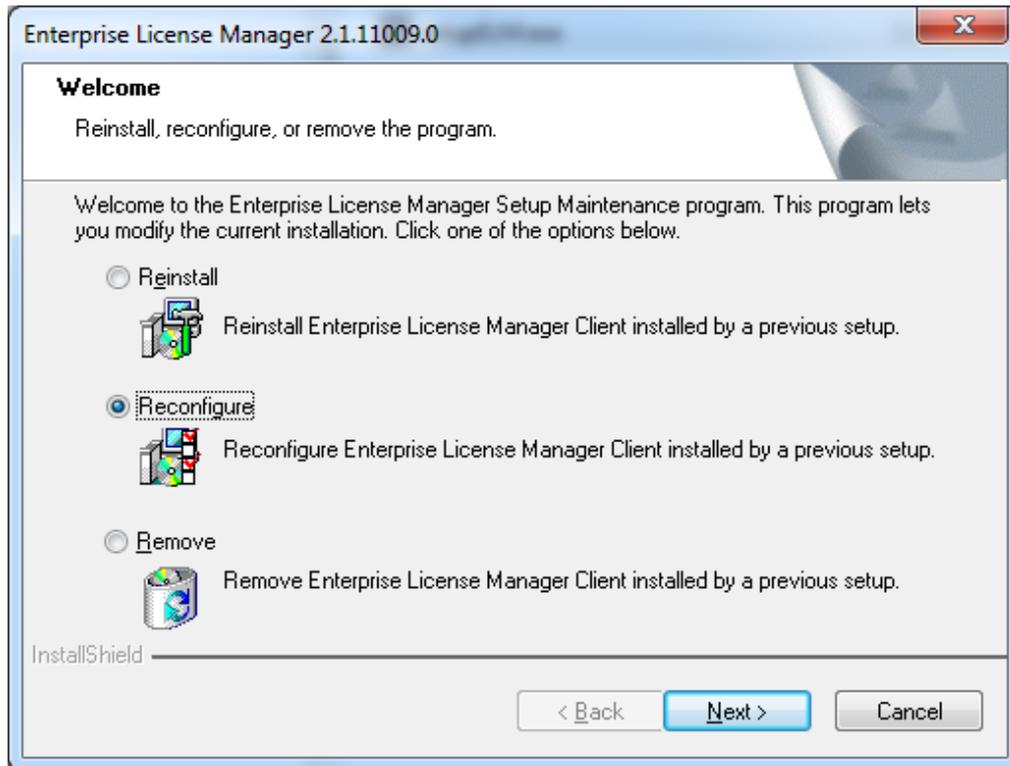
4.5.4   REMOVE THE CLIENT

The Remove option removes the Enterprise License Manager client from the system. To remove the Enterprise License Manager client, do the following:

1. Find and run the `setupELM.exe` file.

   Alternatively, click on **Start** -> **Settings** -> **Control Panel** -> **Add/Remove Programs**, select **Enterprise License Manager** from the list of installed programs, and click **Change/Remove**.

2. In the Maintenance Welcome dialog window, select the **Remove** option and click **Next**.
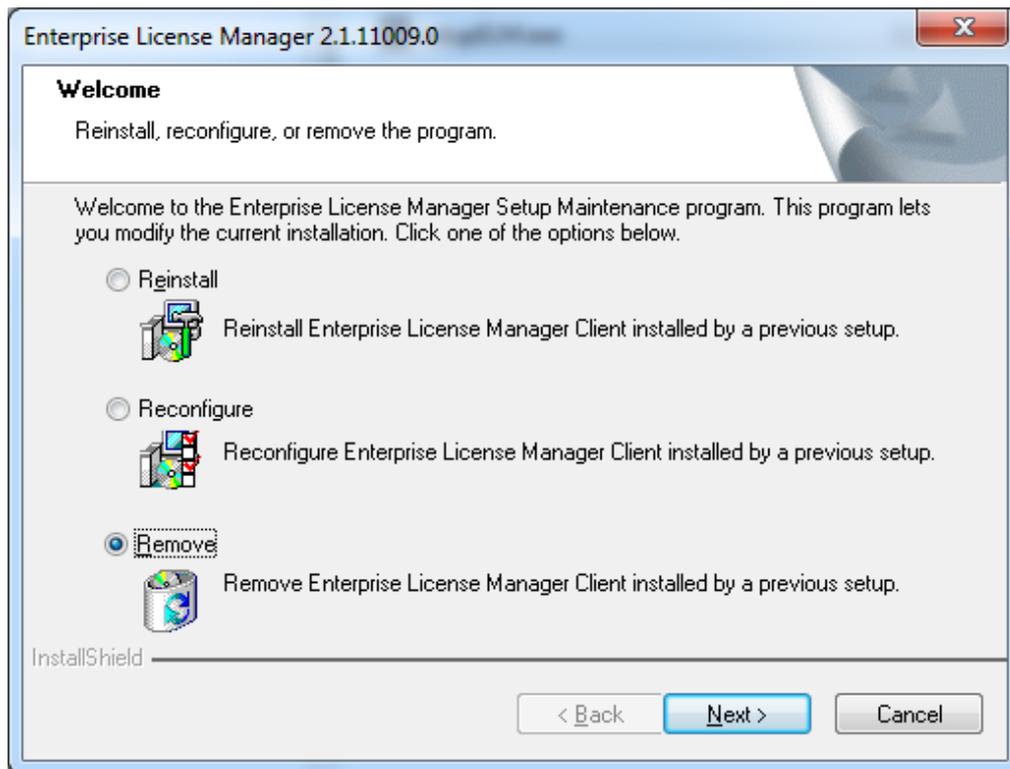
3. In the Start Removing Enterprise License Manager dialog box, review the information carefully and click **Next**.

4. Click **Yes** in the Confirmation dialog box to confirm removal.

5. In the Maintenance Complete dialog box, click **Finish** to complete the removal of the Enterprise License Manager client.

5 LICENSE ADMINISTRATION WEB INTERFACE

The Enterprise License Manager provides a web-based interface to view and administer licenses. The web interface allows administrators to view installed licenses and license usage, and to install and view license files.

The web interface to Enterprise License Manager is accessed by open URL (`http://<hostname>/elm`) in a web browser, where <hostname> is the web server address; "elm" is a virtual directory created by installation.

5.1 GENERAL MENU

To view general license information, click on the **General** menu. This page provides general information about the customer, distributor, and when the licenses were generated. Of particular interest is the Customer ID, which is required if purchasing additional or upgrade licenses, or if emergency licenses are needed.
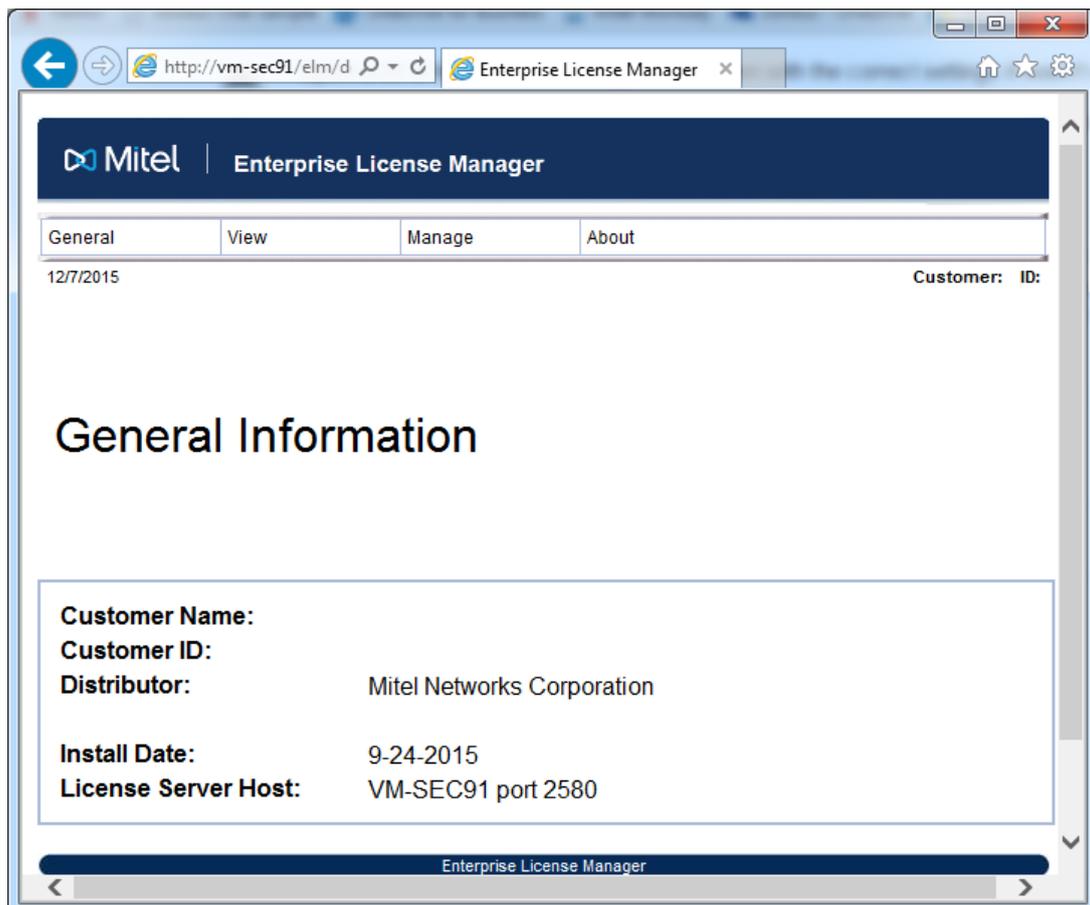
5.2 VIEW MENU

The **View** menu contains three sub-menu options: **Licenses**, **License Usage**, and **License File**.

5.2.1   LICENSES SUB-MENU

To view the installed license information, click on the **View** -> **Licenses** sub-menu. This page displays all licenses installed on the license server host. Details of each license are provided, including the license name, product number, license quantity, expiration, and a detailed explanation of the license.

Use the **Group Licenses by** link to filter the license list.
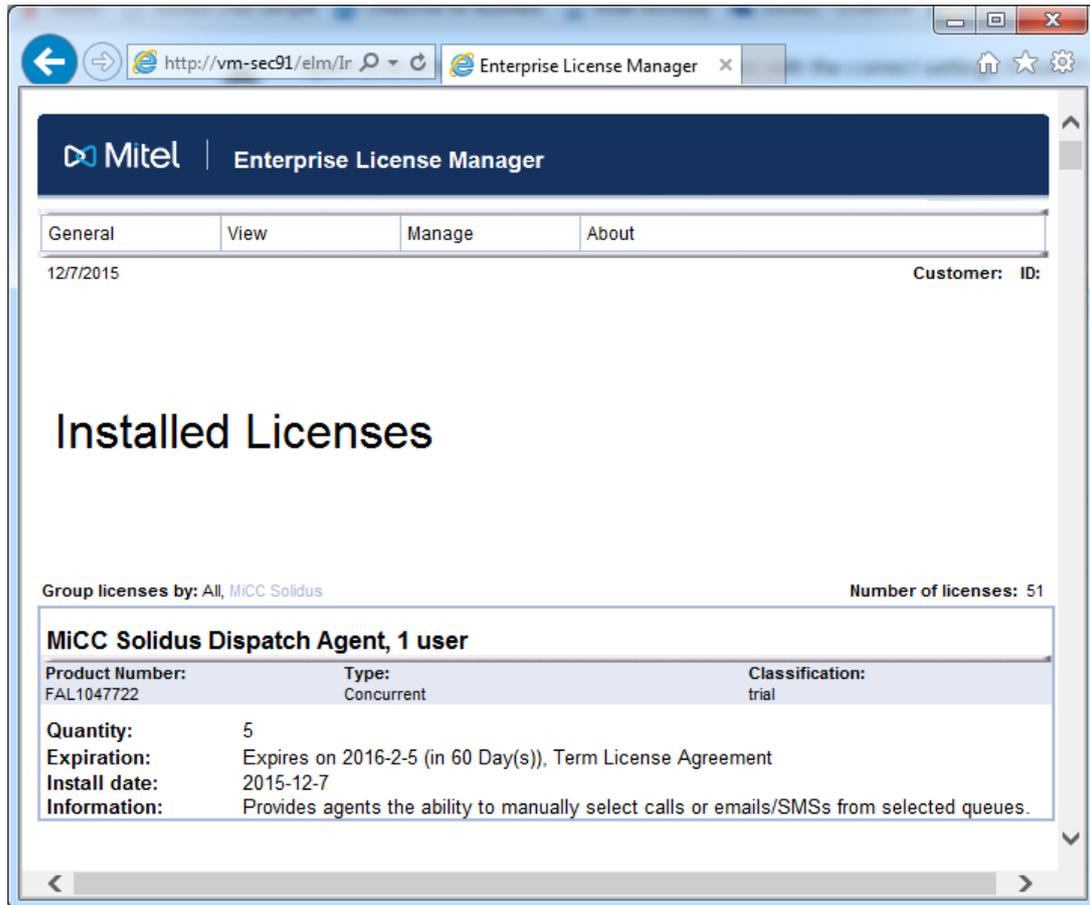
5.2.2   LICENSE USAGE SUB-MENU

To view license usage, click on the **View** -> **License Usage** sub-menu. This page displays the license usage at the time the page is viewed.

The following information is displayed:

- **Reserved:** the number of licenses reserved

- **Quantity:** the total number of licenses installed

- **Locks Configured:** the number of locks (or to whom) the licenses are assigned to. This data is only applicable to licenses of type "Locked".

Use the **Group Licenses by** link to filter the list of licenses.
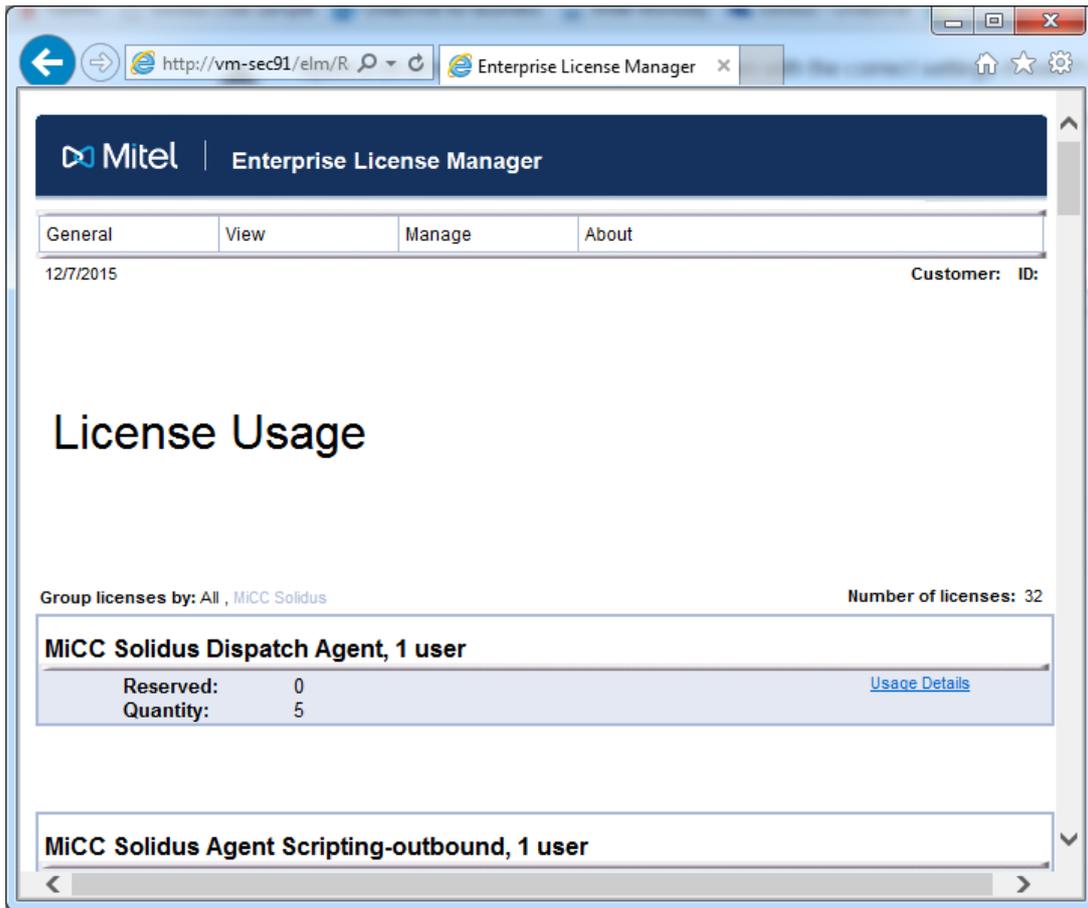
5.2.2.1   Usage Details

To view to whom the licenses are reserved, click the **Usage Details** link.

The License Usage page displays detailed information for the reserved licenses:

The following information is displayed:

- **Host**: the name of the host reserving the license

- **Process**: the process name of who reserved the license

- **Process ID**: the process ID assigned by the operating system

- **Reserved**: the number of licenses reserved for this session object

- **Session**: the identity assigned to the session object when the client application initially reserved the license

- **Start time**: when the session object was created (typically corresponds to when the license was reserved, but may not always be the case)

- **User**: the currently logged on Windows user on Host
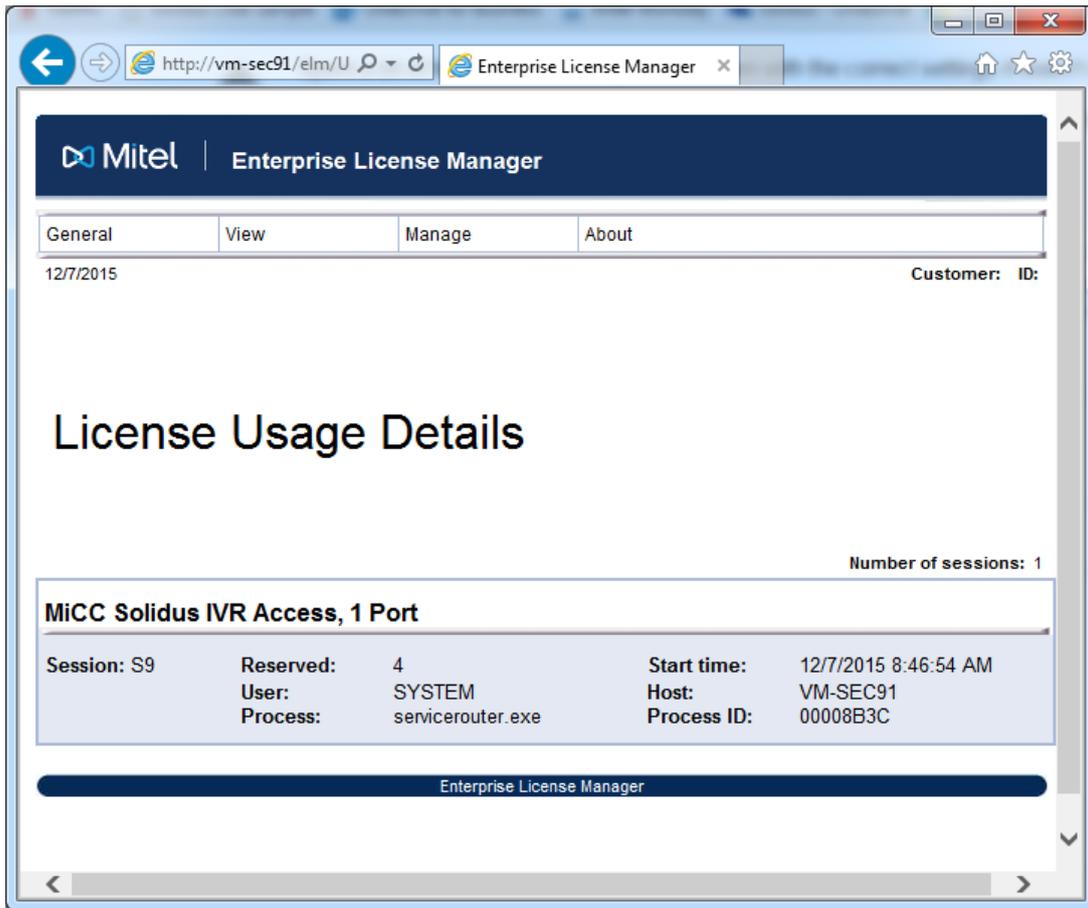
5.2.2.2 Lock Details

To view to whom the licenses are assigned, click the **Lock Details** link.

This page displays the detailed information for the configured locks:

- **Data**: the configured locks (or to whom) the licenses are assigned
- "**X**": a clickable icon to remove all configured license locks

Note! The installation sets the following access permissions:

- Granted access: Domain Admins and Builtin Administrators groups
- Denied access: Terminal Server users, Domain Users, Domain Guests, Users, Guests, and Power Users groups

For information on allowing specific users access to this function, see section 12 (Troubleshooting) and refer to the "Access denied" error message.

5.2.3 LICENSE FILE SUB-MENU

The View License File page allows you to view the contents of a license file without having to install the licenses.

1. To view the contents of a license file, click on the **View -> License File** sub-menu.
2. On the View License File page, click **Browse** to open the Choose file dialog window.
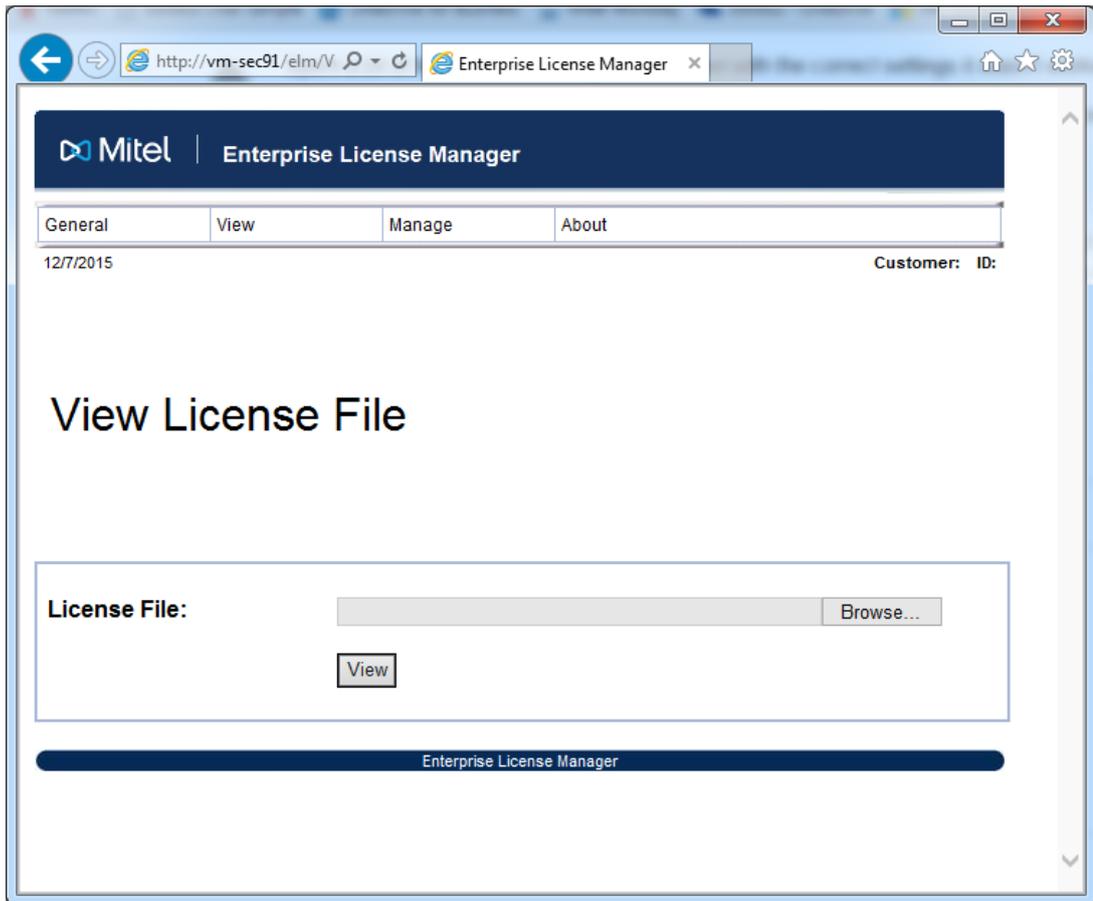
3. In the Choose file dialog window, navigate to and select the license file you want to view, and click **Open**.

4. On the View License File page, click the **View** button to view the contents of the selected license file.

Note! Customer and distributor specific information is only displayed if the fingerprint information matches the license server.

5.3 MANAGE MENU

The **Manage** menu contains three sub-menus: **Create Fingerprint**, **Install Licenses** and **Log Files**.

5.3.1 CREATE FINGERPRINT SUB-MENU

The Create Fingerprint page allows you to create a fingerprint file on the server (if it doesn't exist), and then download the same fingerprint file to the client. You can choose where to save the file.

1. To create the fingerprint file, click on the **Manage** -> **Create Fingerprint** sub-menu.

2. On the Create Fingerprint page, click the **Create Fingerprint** button.

3. In the File Download dialog window, choose a directory to save the file.

The fingerprint information can also be created using a command tool. See section 7.3 for rmore information.

5.3.2 INSTALL LICENSES SUB-MENU

The Install Licenses page installs the licenses from a user selected license file.

1. To install licenses, click on the **Manage** -> **Install Licenses** sub-menu.

2. On the Install Licenses page, click **Browse** to open the Choose file dialog window.
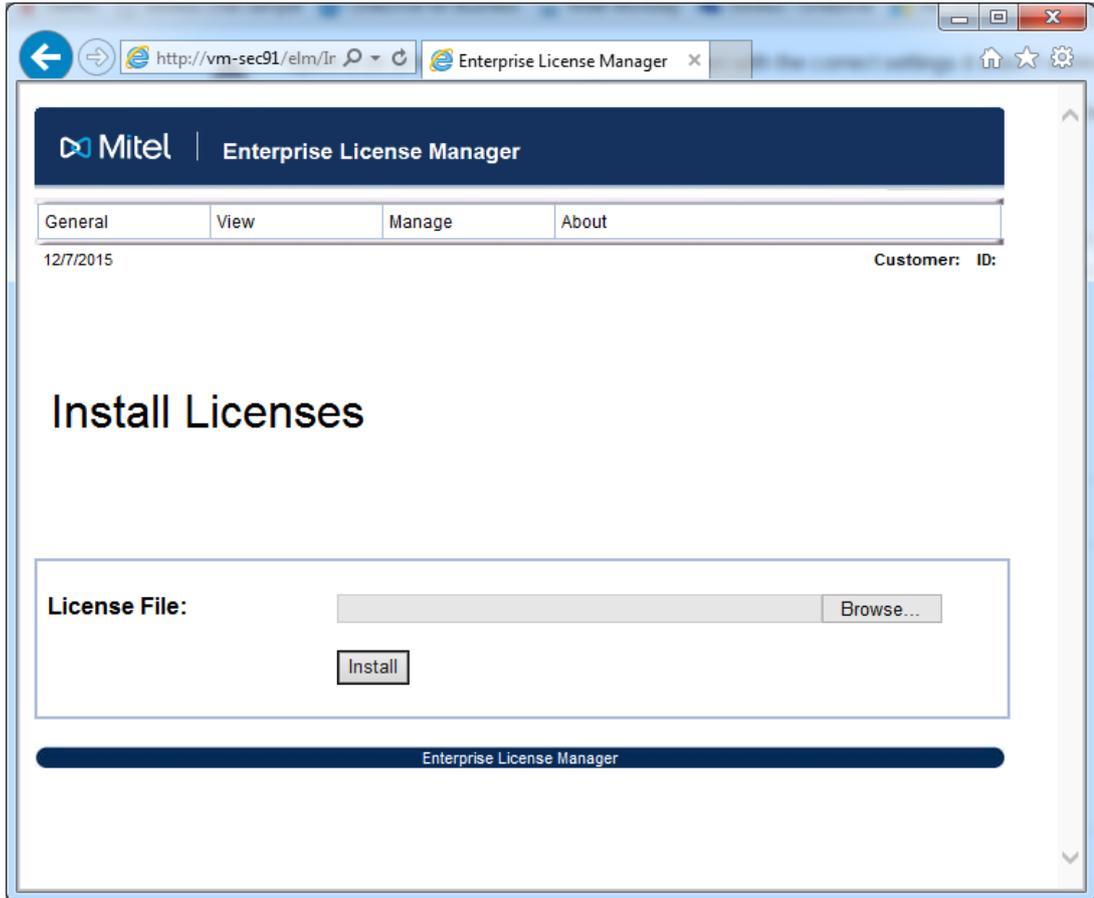
3. In the Choose file dialog window, navigate to and select the license file you want to view, and click **Open**.

4. On the Install License page, click the **Install** button to install the licenses.

5.3.3 REMOVE LICENSES SUB-MENU

The Remove Licenses page allows you to display installed licenses and remove one or more licenses permanently.

1. To remove a license permanently, click on the **Manage** -> **Remove Licenses** sub-menu.
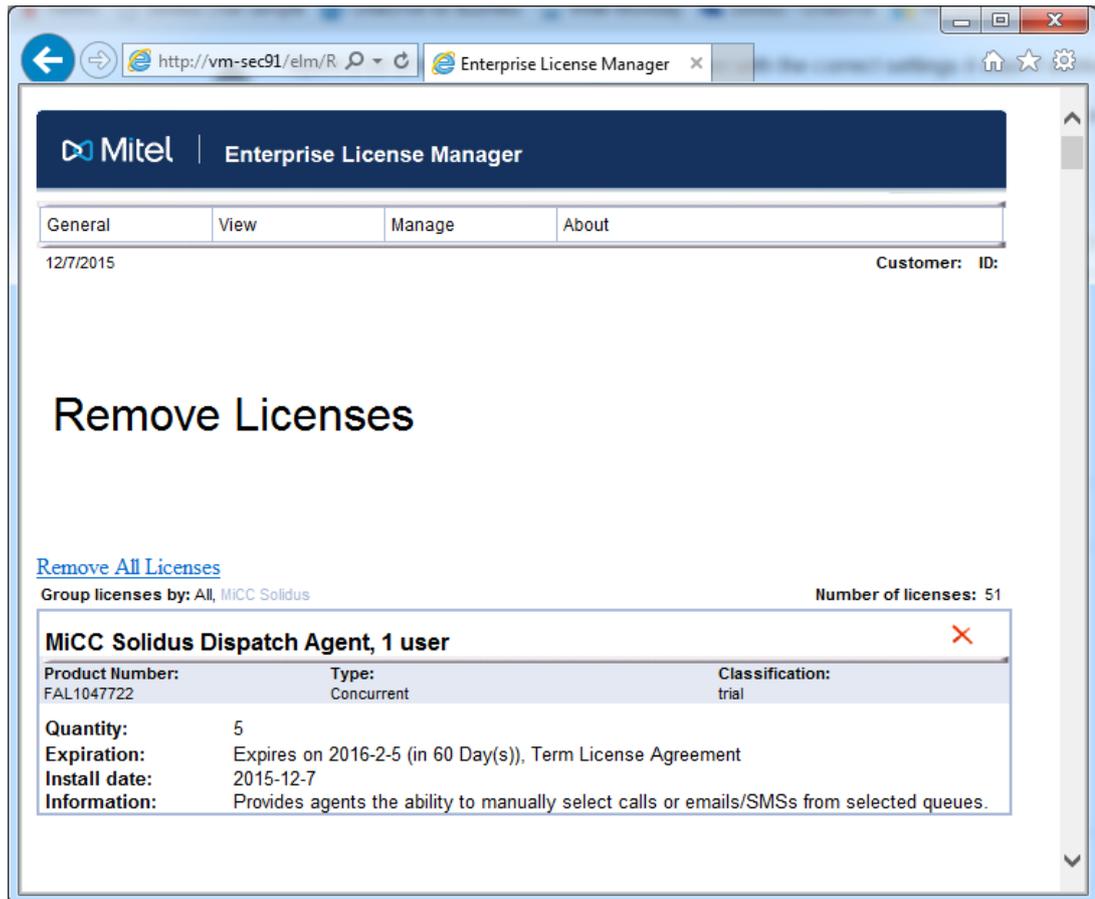
The Remove Licenses page displays information about installed licenses. You can use the **Group License By** lInk to filter the list.

2. Click the "X" hyperlink next to the license you want to remove.

3. In the Confirmation dialog window, click **OK**.

**Note!** The installation sets the following access permissions:

- Granted access: Domain Admins and Builtin Administrators groups

- Denied access: Terminal Server users, Domain Users, Domain Guests, Users, Guests, and Power Users groups

For information on allowing specific users access to this function, see section 12 (Troubleshooting) and refer to the "Access denied" error message,

5.3.4 LOG FILES SUB-MENU

The Log Files page allows you to view a file name summary of the log files stored on the license server.

1. To view the contents of the license server log files, click on the **Manage** -> **Log Files** sub-menu.
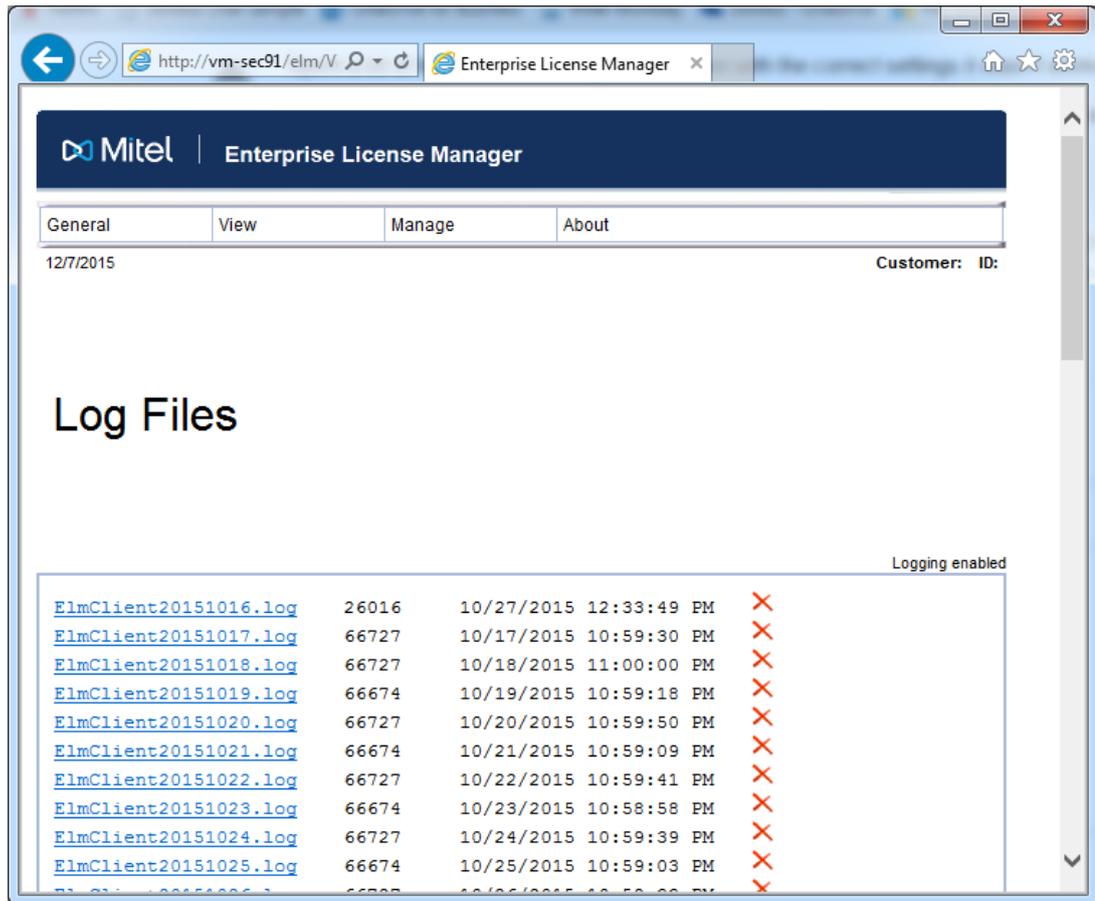
2. To see the contents of a log file, click on the file name. The content of the license file is displayed below the file name summary.

Note! The installation sets the following access permissions:

- Granted access: Domain Admins and Builtin Administrators groups

- Denied access: Terminal Server users, Domain Users, Domain Guests, Users, Guests, and Power Users groups

For information on allowing specific users access to this function, see section 12 (Troubleshooting) and refer to the "Access denied" error message.

5.4   ABOUT MENU

To view general information about the Enterprise License Manager, click on the **About** menu..

6 VIEW LICENSE INFORMATION USING SHELL SCRIPTS

6.1 GENERAL

This section explains how you can display license information using command shell scripts.

The command shell scripts allow you to view installed licenses, license usage, and corporate license information. The command shell scripts are installed on the disk drive where the operating system is installed (typically `c:\Program Files\Mitel\License Manager`).

Open a command shell and navigate to `c:\Program Files\Mitel\License Manager`. Windows provides two script engines, `wscript.exe` and `cscript.exe`.

- Script engine `wscript.exe` provides all display text in popup windows. This is also the default Windows script engine.

- Script engine `cscript.exe` provides all display text in the command shell. This is the preferred script engine.

To change the default script engine to `cscript.exe`, type `wscript //H:cscript` in the command shell.

6.2 VIEW INSTALLED LICENSES

To view installed licenses, type `ViewInstalledLicenses` in the command shell. Both Enterprise License Manager server and client install this script.

6.3   VIEW LICENSE USAGE

To view license usage, type `ViewReservedLicenses` in the command shell. Both Enterprise License Manager server and client install this script.
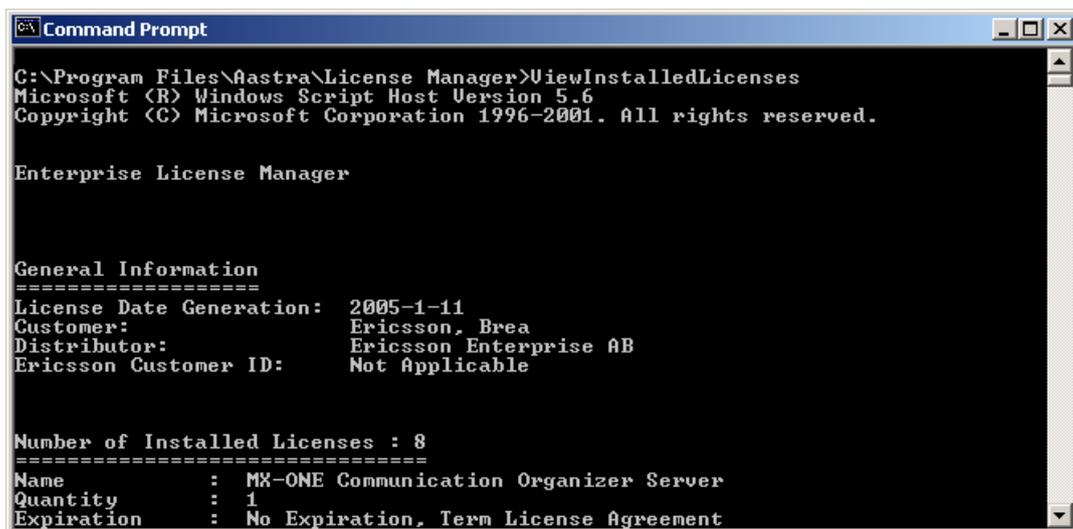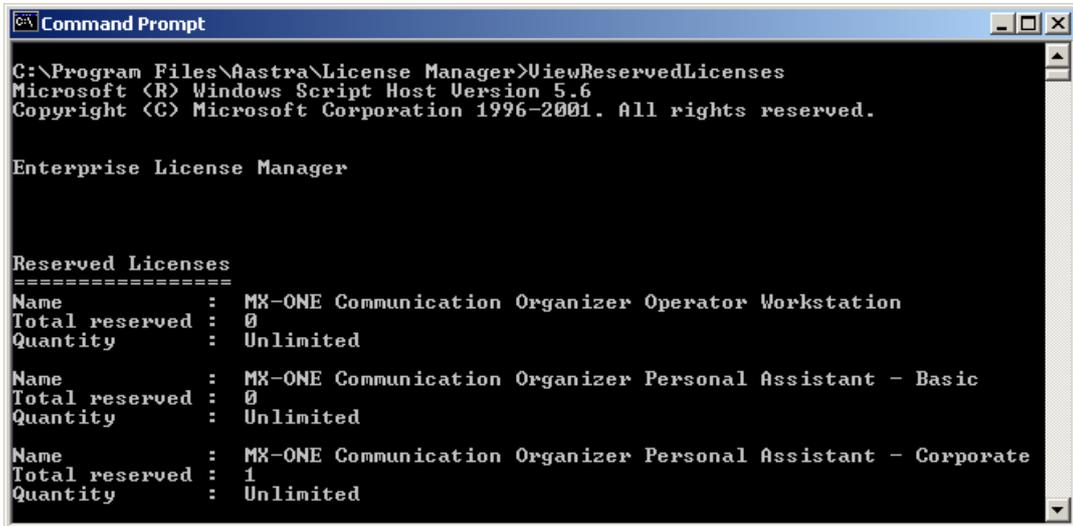
```
Command Prompt                                                          _ □ x

C:\Program Files\Aastra\License Manager>ViewReservedLicenses
Microsoft (R) Windows Script Host Version 5.6
Copyright (C) Microsoft Corporation 1996-2001. All rights reserved.


Enterprise License Manager



Reserved Licenses
=================
Name            : MX-ONE Communication Organizer Operator Workstation
Total reserved : 0
Quantity        : Unlimited

Name            : MX-ONE Communication Organizer Personal Assistant - Basic
Total reserved : 0
Quantity        : Unlimited

Name            : MX-ONE Communication Organizer Personal Assistant - Corporate
Total reserved : 1
Quantity        : Unlimited
```

6.4   VIEW LOCKED LICENSES

To view configured locked license information, type `ViewLockedInfo` in the command shell. Both Enterprise License Manager server and client install this script.
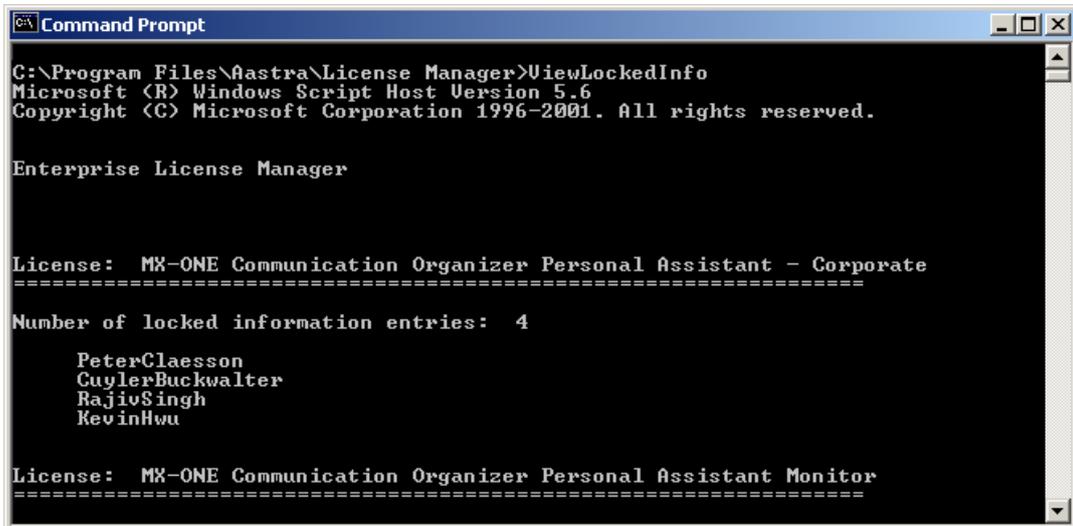
```
Command Prompt                                                          _ □ x

C:\Program Files\Aastra\License Manager>ViewLockedInfo
Microsoft (R) Windows Script Host Version 5.6
Copyright (C) Microsoft Corporation 1996-2001. All rights reserved.


Enterprise License Manager



License:  MX-ONE Communication Organizer Personal Assistant - Corporate
================================================================

Number of locked information entries:  4

      PeterClaesson
      CuylerBuckwalter
      RajivSingh
      KevinHwu


License:  MX-ONE Communication Organizer Personal Assistant Monitor
================================================================
```

6.5   INSTALL LICENSES

To install licenses, type `InstallLicenses <filename>`, where `<filename>` is a fully qualified path to the license file to be installed. Enterprise License Manager server installs this script.
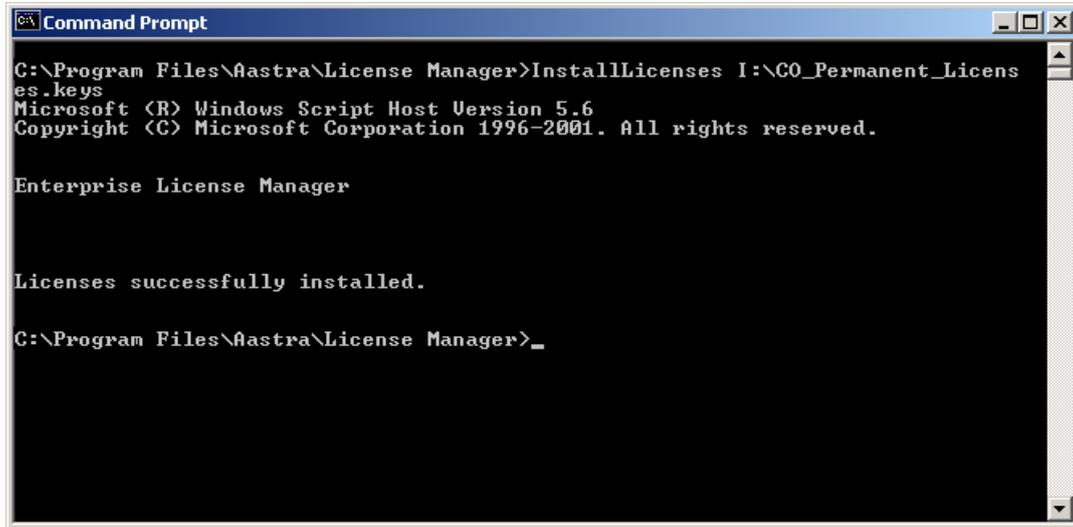
6.6   VIEW LICENSE FILE

To view the contents of a license file, type `ViewLicenseFile <filename>`, where `<filename>` is a fully qualified path to the license file to be viewed. Enterprise License Manager server installs this script.

7 FINGERPRINT CHARACTERISTICS

7.1 GENERAL

A fingerprint is a collection of distinct characteristics for a host computer. The fingerprint ensures that licenses can only be installed on a host with identical characteristics.

7.2 WHEN IS A NEW FINGERPRINT REQUIRED?

The most obvious scenario is when permanent licenses are purchased. A fingerprint file must be provided to create and download the license file. However, there are other circumstances that change the fingerprint characteristics. When that happens, a new license file must be created containing the changed fingerprint characteristics. See section 10 for contact information.

The following criteria cause the fingerprint characteristics to change:

- The Windows operating system is reinstalled.

- The registered Windows user and/or organization are changed.

- The name of the computer is changed.

- The computer has changed workgroup or domain membership.

- The motherboard in the computer is changed.

- The network interface MAC address has changed.

Note! In virtualized environments, actions such as moving or copying the virtual images may change the MAC address. It is recommended that fixed MAC addresses be used in virtualized environments. Refer to the documentation for your virtualized environment for details on setting up fixed MAC addresses.

Failing to take these criteria into account when performing network changes will result in loss of licenses.

7.3 HOW TO GENERATE THE FINGERPRINT FILE

An application is usually installed with trial licenses. The trial licenses are valid for a fixed time period after they are installed. These licenses must be upgraded to permanent licenses if the system is to be used after the trial period ends.

Permanent licenses contain fingerprint information, which allows the licenses to be installed on a single pre-selected host only. Therefore, it is important to follow these steps to generate the fingerprint information.

1. Select the host where Enterprise License Manger is/will be deployed.

   If the host contains an installed trial version of an application, navigate to the folder where the license manager is installed (typically `c:\Program Files\Mitel\License Manager`).

If the host does not contain an installed version of Enterprise License Manager, locate a host that has Enterprise License Manager installed. Navigate to the folder where the license manager is installed (typically `c:\Program Files\Mitel\License Manager`) and copy the `FingerPrinter.exe` file to a storage device that you can use to transfer the file to the selected host.

2. Double-click the `FingerPrinter.exe` file to generate the `FingerPrint.blob` file. This file contains encrypted fingerprint information, specific to the host.

3. Forward the `FingerPrint.blob` file together with your purchase request to your distributor.
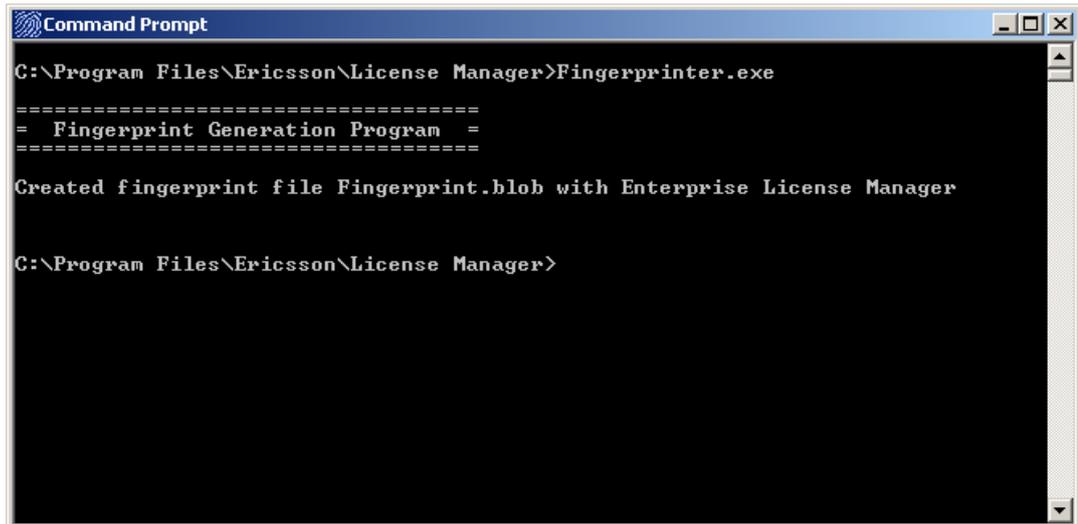
The fingerprint file can also be created using the web interface. See section 5 for more information.

8 OBTAIN PERMANENT LICENSES

8.1 GENERAL

This section describes the procedure for obtaining permanent licenses together with your distributor.

The license file is downloaded from a web interface on the Internet for smooth and fast administration. To access the web application, you need a user id and password for the Web application (see below).

The license file downloaded through the web must be installed in the Enterprise License Manager.

8.2 ORDER AND INFORMATION FLOW

The concept for delivering licenses is based on the requirement to handle each ordered product as an individual item, whether it is a physical item or not. When purchasing licenses the deliverable includes a unique identity (Unique Pick Number – UPN) for each license or license package ordered.

The Unique Pick Numbers (UPNs) are used in the License Web application described below to uniquely identify the purchased licenses. A user Id and password for the License Web application and the UPNs generated for each of the ordered licenses are required to access the ordered licenses.

The UPNs are delivered through e-mail to a pre-defined email address. The UPNs can then easily be re-distributed to the persons who need them to generate the license file for a specific system.

8.3 WEB APPLICATION

The License Administration application is accessible through the Mitel Connect Web page.

After authentication, you can:

* create a license
* download a license
* verify license information

To obtain a new license file for a system, you must select the **Create License** option.

At this point, you will be taken to a Wizard that will guide you through the step-by-step process.

The main steps are:

1. Select the UPN(s) to be assigned to the system.
2. Upload the fingerprint file from the system in question. The generated fingerprint file must be uploaded in order to create the new license file.
3. Provide Customer Information.
4. Verify that all are included before clicking on **Submit**.

5. Click **Submit** to generate a new license file. Submit initiates the creation of the new license file.

6. Download the new license file.

The new license file can now be installed in the Enterprise License Manager.

8.4 OBTAINING ACCESS TO THE APPLICATION

The partner sends the user data for the users (name, company and e-mail address) to the contact person at the Partner Unit. The Partner Unit forwards the information to Global Channel Operations for registration.

A partner can also let resellers get access to the applications in the same way.

The e-mail address for UPN distribution is supplied in the same way.

9 REQUEST EMERGENCY LICENSES

9.1 GENERAL

If some unforeseen event renders the license server out-of-service, emergency licenses can be obtained. Emergency licenses are time-limited, and are in addition to your existing licenses. Contact your distributor to work out an interim solution until a permanent solution can be put in place.

9.2 REQUESTING A NEW LICENSE FILE

There may be a need to move the Enterprise License Manager to another host. If so, an updated license file must be requested. Follow the procedure listed in section 8 to generate a new fingerprint information file.

Contact your distributor, explain the situation and provide the distributor with the new `FingerPrint.blob` file.

9.3 INSTALLING LICENSES

When a new license file is received, either for emergency reasons, a new purchase or addition of permanent licenses, or for any other reason, the licenses must be installed before use.

For more information on how to install licenses, see section 5

10 SUPPORT

If a partner has a problem with the license web application or a license file the Enterprise Partner Interface (EPI) can be used as the contact channel. EPI aims to answer all requests within 48 hours and can be accessed from Mitel Connect and aims to answer all requests within 48 hours.

11 CONFIGURATION

11.1 GENERAL

This section describes the registry configuration parameters for Enterprise License Manager. If certain format or value applies to a registry key, the condition is stated in the Description field. Otherwise, "Not applicable" is stated.

11.2 ENTERPRISE LICENSE MANAGER CLIENT

Key: HKEY_LOCAL_MACHINE\SOFTWARE\Ericsson\License Manager

NAME/TYPE	CREATED BY	DESCRIPTION
CurrentVersion [REG_SZ]	Installation	Specifies the product version. **Format:**: Not applicable **Value(s):** Not applicable
InstallDate [REG_SZ]	Installation	Specifies the last installation date. **Format:**: Not applicable **Value(s):** Not applicable
InstalledFeature [REG_SZ]	Installation	Specifies the ELM feature installed. **Format:**: Not applicable **Value(s):** Not applicable
InstallPath [REG_SZ]	Installation	Specifies the installation path. **Format:**: Not applicable **Value(s):** Not applicable
LogLevel [REG_DWORD]	Installation	Specifies the level of information to be written to log file. **Format:**: Not applicable **Value(s):** 0= Critical Messages Only 1= 0 + Errors 2= 1 + Warnings 3= 2 + Informational Messages
LogPath [REG_SZ]	Installation	Specifies the path to where the log file is stored. **Format:**: Not applicable **Value(s):** x:\Program Files\Mitel\License Manager\log Where x = the drive letter where the operating system is installed
MulticastEnabled [REG_DWORD]	Installation	Specifies whether multicast auto-discovery of license servers is enabled. **Format:**: Not applicable **Value(s):** 0= false 1= true
MulticastIPAddress [REG_DWORD]	Installation	Specifies the IP address used for sending the multicast auto-discovery. **Format:**: IP address = xxx.xxx.xxx.xxx **Value(s):** 236.7.3.1

NAME/TYPE	CREATED BY	DESCRIPTION
MulticastPort [REG_DWORD]	Installation	Specifies the port number used in the multicast auto-discovery. **Format::** Not applicable **Value(s)**: 1024 – 65535 (default = 11740)
MulticastTTL [REG_DWORD]	Installation	Specifies the Time-To-Live property of the multicast. This determines how many routers the message goes through before being discarded. **Format::** Not applicable **Value(s):** 0= Restrict to same host 1= Restrict to same subnet 2 – 31 = Restrict to same site 32 – 63 = Restrict to same region 64– 127 = Restrict to same continent 128– 255 = Unrestricted (default = 31)
Server [REG_SZ]	Installation	The host name or IP address of the license server host. **Format::** IP address = xxx.xxx.xxx.xxx hostname = N/A **Value(s):** Not applicable
ServerPort [REG_DWORD]	Installation	The IP port number used for communicating between license clients and the license server host. **Format::** Not applicable **Value(s)**: 1024 – 65535 (default = 2580)
WriteToLog [REG_DWORD]	Installation	Specifies whether writing to log file shall be done. **Format:** Not applicable **Value(s):** 0= false 1= true

11.3 ENTERPRISE LICENSE MANAGER SERVER

Key:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\EricssonLicenseManager\Parameters

NAME/TYPE	CREATED BY	DESCRIPTION
Alert [REG_SZ]	Installation	Specifies the name of the computer to send alerts to. **Format:** Not applicable **Value(s)**: default: Local Computer
LogLevel [REG_DWORD]	Installation	Specifies the level of information to be written to log file. **Format:** Not applicable **Value(s):** 0 = Critical Messages Only 1 = 0 + Errors 2 = 1 + Warnings 3 = 2 + Informational Messages
LogPath [REG_SZ]	Installation	Specifies the path to where the log file is stored. **Format:** Not applicable **Value(s):** x:\Program Files\Mitel\License Manager\log where x = the drive where the operating system is installed
MulticastIPAddress [REG_DWORD]	Installation	Specifies the IP address used for listening to muticast IP packets. **Format:** IP address = xxx.xxx.xxx.xxx

NAME/TYPE	CREATED BY	DESCRIPTION
		Value(s): 236.7.3.1
MulticastPort [REG_DWORD]	Installation	Specifies the port number used for listening to multicast IP packets. **Format:** Not applicable **Value(s):** 1024 – 65535 (default: 11740)
MulticastTTL [REG_DWORD]	Installation	Specifies the Time-To-Live property of the multicast. This determines how many routers the message will go through before being discarded. **Format:** Not applicable **Value(s):** 0= Restrict to same host 1= Restrict to same subnet 2 – 31 = Restrict to same site 32 – 63 = Restrict to same region 64– 127 = Restrict to same continent 128– 255 = Unrestricted (default = 31)
ServerPort [REG_DWORD]	Installation	The IP port number used for communicating between license clients and the license server host. **Format:** Not applicable **Value(s):** 1024 – 65535 (default: 2580)
WriteToLog [REG_DWORD]	Installation	Specifies whether writing to log file shall be done. **Format:** Not applicable **Value(s):** 0= false 1= true

11.4 AUTO-DISCOVERY

The license client is able to discover where the license server resides on the network. Auto-discovery uses multicast to detect license servers. For auto-discovery to work, multicast must be enabled on the network.

This capability is useful in the case where the Enterprise License Manager server is moved to a new host. Auto-discovery means that no manual updates on the client hosts are required. The client only enters auto-discovery mode if the registry entry `HKEY_LOCAL_MACHINE\SOFTWARE\Ericsson\License Manager\Server` is blank and `HKEY_LOCAL_MACHINE\SOFTWARE\Ericsson\License Manager\MulticastEnabled` is set to "true".

An organization may need to turn off the auto-discovery capability for a client, but doing so means that the client cannot discover if the license server is moved.

11.5 SECURING THE WEB INTERFACE

There may be a need to restrict access to certain functions in the Web interface to certain individuals (e.g., restricting installation of licenses to administrators only).

This can be achieved through integrated Windows authentication. Turning this IIS setting on and combining this with NTFS file permission security for each individual web page, the access can be controlled.

11.6   SNMP ALARM REPORTING

The Enterprise License Manager server can generate SNMP traps for certain predefined conditions. The SNMP reporting works in conjunction with mapping Windows Event Log events to SNMP traps. This relies on native Windows Event Log as well as the Windows SNMP Master Agent. For more information about either the Windows Event Log or the Windows SNMP Master Agent, see Windows documentation.

Enterprise License Manager provides mapping files that map predefined Enterprise License Manager Event Log events to predefined SNMP traps. To enable this functionality, the Windows SNMP Master Agent must be installed and the mapping files must be configured.

11.6.1   MAPPED EVENT LOG EVENTS

The mapped events to SNMP traps are summarized in the table below.

The [type] attribute indicates that one of the enclosed types is used when reporting the failure condition. The component has the option to choose which one to use.

If type "Success audit" is listed, two events must be sent. The first event is sent when the failure condition occurs and "Success audit" is sent when the condition ceases to exist. Note that all the information in the events must be identical except for the type. Any discrepancy results in the SNMP manager not being able to correlate the two events.

EVENT ID	TYPE	SOURCE	MESSAGE
10004	Information	EnterpriseLicenseManager	Service started. **Description**: Normally happens when a service is started.
10005	Information	EnterpriseLicenseManager	Service stopped. **Description**: Normally happens when a service is stopped.

11.6.2   INSTALLING THE WINDOWS SNMP MASTER AGENT

To install the Windows SNMP Master Agent, do the following:

1. Open the Windows Component Wizard by clicking on **Start** -> **Settings** -> **Control Panel** -> **Add/Remove Programs** -> **Add/Remove Windows Components**.

2. In the Windows Components Wizard window, select the **Management and Monitoring Tools** item and click **Details**.
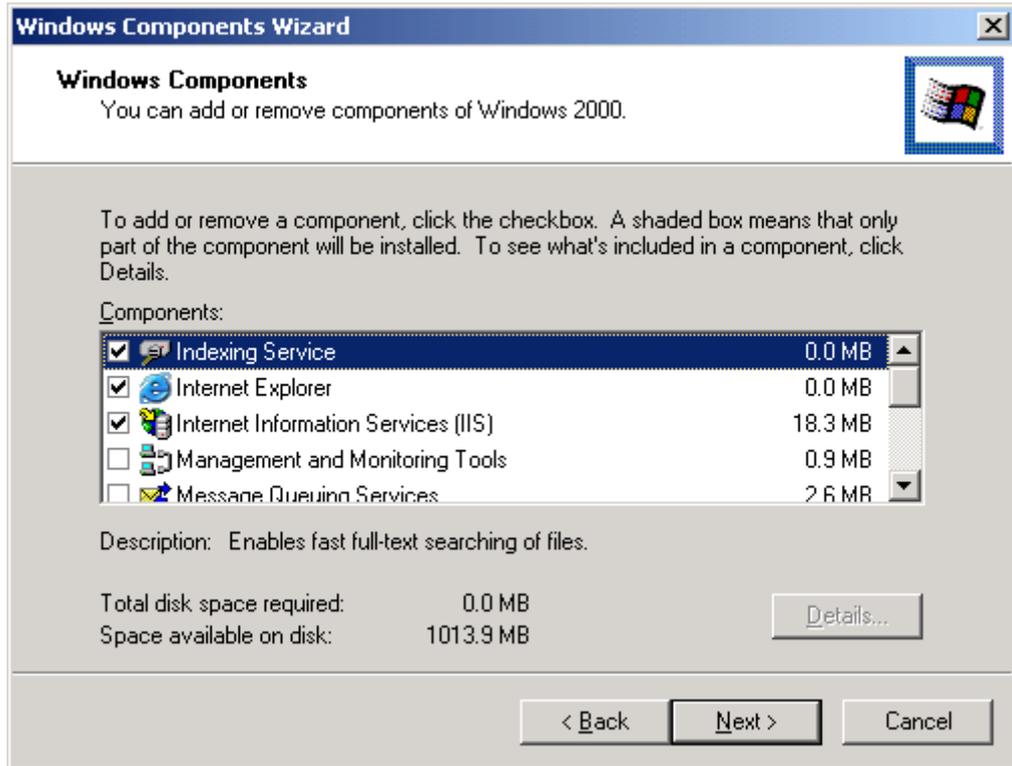
3. In the Management and Monitoring Tools window, check the box for Simple Network Management Protocol and click **OK**.
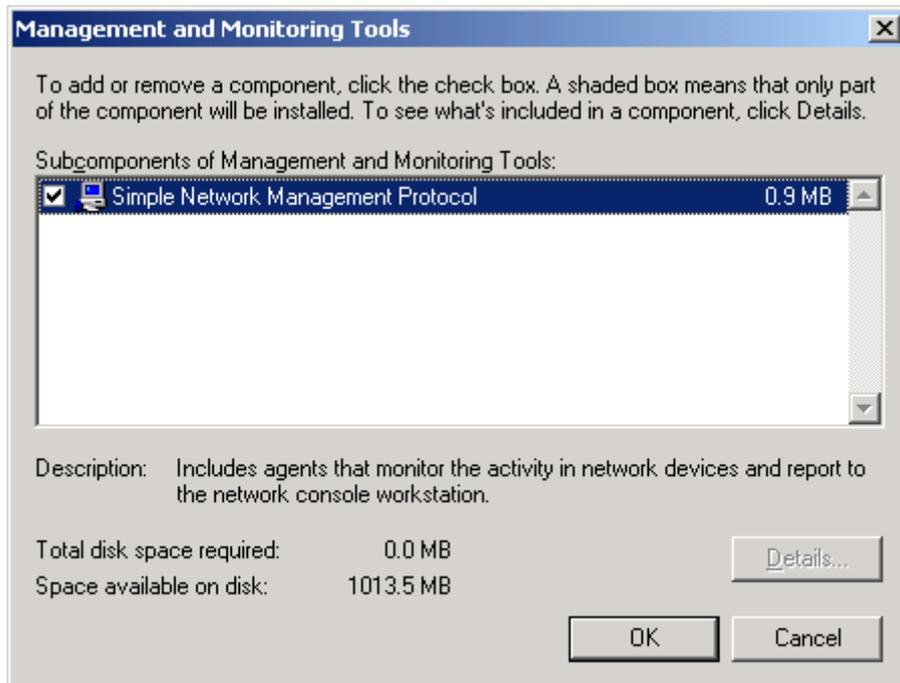
4. Click **Next** to proceed through the Windows Component Wizard installation of the SNMP Master Agent.

Note! There is an acknowledged fault in Windows 2000 that sometimes incorrectly defines the `BaseEnterpriseOID` value in the registry. See Microsoft MSDN articles 318464 and 296672 for more information.

The `BaseEnterpriseOID` can be found at `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\SNMP_EVENTS\EventLog\Parameters`. The correct default value for Microsoft `BaseEnterpriseOID` is `1.3.6.1.4.1.311.1.13.1`.

11.6.3   CONFIGURING THE MAPPING FILES

The mapping files are used to configure which events trigger an SNMP trap. To configure the mapping, do the following:

1. Navigate to folder `\Program Files\Mitel\License Manager\SNMP`.

2. Double-click the `ConfigureSNMPTraps.bat` to configure the event mapping.

    The `ConfigureSNMPTraps.bat` file executes the `evntcmd.exe` command for each of the configuration files in the folder.

11.6.4   ALERT MESSAGE

In the case of corrupted licenses or fingerprint information, the Enterprise License Manager sends a Windows message to alert the user. Depending on what kind of corruption has occurred, the licenses may have to be reinstalled.

The alert message is sent using the Windows Messenger service. The installation adds the hostname of the local host as the default destination. To change destination, change the value for `Alert` under `HKEY_LOCAL_MACHINE/SYSTEM/CurrentControlSet/Services/EnterpriseLicenseManager/Parameters`. Enter a valid hostname as the destination. There is no validation of the hostname entered. An empty string disables the notification. Note that a destination set to 127.0.0.1 does not work, due to limitations in the Windows Messenger service.

12 TROUBLESHOOTING

12.1 GENERAL

Logging capabilities are useful to determine, when a situation occurs, what happened prior. For this purpose Enterprise License Manager provides logs; one log for the client side and one log for the server.

12.2 LOG FILES

Both the client and server side logs uses the registry key to determine the location of the log files.

The client log file `ElmClientYYYMMDD.log`, (where DDDD = year, MM = month, and DD= day), storage location is determined by

`HKEY_LOCAL_MACHINE\SOFTWARE\Ericsson\License Manager\LogPath`

The server log file `ElmServerYYYMMDD.log`, (where DDDD = year, MM = month, and DD= day), storage location is determined by

`HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\EricssonLicenseManager\Parameters\LogPath`

During installation, the Enterprise License Manager stores log files `ELMSetup.log` and `SetupELM_MsiExec.log` in the `temp` directory configured on the system. `ELMSetup.log` is a proprietary log format used by Mitel.

`SetupELM_MsiExec.log` is a Windows Installer format log file. Both files can aid Mitel Product Support with installation issues. The `temp` directory is set through the operating system via the TEMP environment variable.

12.3 SCRIPT MESSAGES

The following table summarizes script error messages.

ERROR MESSAGE	CORRECTIVE ACTION
Cannot connect to Enterprise License Manager.	The Enterprise License Manager client tries to establish a connection with Enterprise License Manager server but failed. Please verify the following and try again:
	• Verify that Enterprise License Manager service is running on the server host. Use Windows Service Control Manager for verification.
	• Verify that server host can be reached from the client host. Use `ping <host address>` for verification.
	If the above verifications were successful, restart Enterprise License Manager service. Use Windows Service Control Manager to restart the service.

ERROR MESSAGE	CORRECTIVE ACTION
Cannot communicate with Enterprise License Manager.	The Enterprise License Manager client has successfully established a connect\ion to Enterprise License Manager server. Enterprise License Manager server does not respond to send events. Please verify the following and try again: • Verify that Enterprise License Manager service is running on the server host. Use Windows Service Control Manager for verification. • Verify that server host can be reached from the client host. Use `ping <host address>` for verification. If the above verifications were successful, restart Enterprise License Manager service. Use Windows Service Control Manager to restart the service.
Cannot parse the content of the license file.	The specified license file is read but the content is not understood. Please verify the following and try again. • Verify that the path and file name points to a valid license file. If not pointing to a Mitel-provided license file, correct the path or file name. • Verify that the path and file name points to a valid license file. If pointing to a Mitel-provided license file, then the license file has been corrupted. Contact your distributor to receive a new license file.
File does not exist.	The file path and/or file name specified does not exist. Please verify the following and try again. • Verify if the path contains a space. If so, the full path, including the file name, must be enclosed with double quotes. • Verify if the path or file name is misspelled. If so, correct the misspelling. • If the license file is stored on a network or removable device, verify that the device is reachable.
File does not exist.	The file path and/or file name specified does not exist. Please verify the following and try again. • Verify if the path contains a space. If so, the full path, including the file name, must be enclosed with double quotes. • Verify if the path or file name is misspelled. If so, correct the misspelling. • If the license file is stored on a network or removable device, verify that the device is reachable.
Fingerprint information is incorrect.	The fingerprint information in the license file does not match the fingerprint of the Enterprise License Manager server. Unless the fingerprint information matches, the licenses cannot be installed. If more than one Enterprise License Manager is used, verify that the license file was intended for this server. Contact your distributor to request a new license file due to incorrect fingerprint. You will need to provide a new fingerprint file. See section 7.3 for information on how to generate the fingerprint file.
Too many arguments specified or path needs to be quoted.	The script has detected two or more input parameters when only one parameter is expected. Please verify the following and try again: • Verify if more than one parameter is specified. Make sure only the path, including file name, to the license file is specified. • Verify if the path contains a space. If so, the full path, including the file name, must be enclosed with double quotes.

ERROR MESSAGE	CORRECTIVE ACTION

Unable to communicate with Enterprise License Manager client. It appears not being registered.	One of the ELM COM objects is not registered, preventing communication with ELM server.
	
	• Open a command window.
	
	• Register `Elicense.dll` by typing in the command window: `regsvr32 <full path>\Elicense.dll` where `<full path>` typically is `c:\Program Files\Mitel\License Manager`
	
	  The `Elicense.dll` is applicable to both server and client installations.
	
	• Register `ElicenseAdmin.dll` by typing in the command window: `regsvr32 <full path>\ElicenseAdmin.dll` where `<full path>` typically is `c:\Program Files\Mitel\License Manager`
	
	  The `ElicenseAdmin.dll` is applicable to the server installation only.
	
	• Click OK on the successful registration confirmation.

12.4 WEB ADMINISTRATION MESSAGES

The following table summarizes Web administration error messages.

ERROR MESSAGE	CORRECTIVE ACTION
Cannot connect to Enterprise License Manager.	The Enterprise License Manager client tries to establish a connection with Enterprise License Manager server but failed. Please verify the following and try again: • Verify that Enterprise License Manager service is running on the server host. Use Windows Service Control Manager for verification. • Verify that server host can be reached from the client host. Use `ping <host address>` for verification. If the above verifications were successful, restart Enterprise License Manager service. Use Windows Service Control Manager to restart the service.
Cannot communicate with Enterprise License Manager.	The Enterprise License Manager client has successfully established a connect\ion to Enterprise License Manager server. Enterprise License Manager server does not respond to send events. Please verify the following and try again: • Verify that Enterprise License Manager service is running on the server host. Use Windows Service Control Manager for verification. • Verify that server host can be reached from the client host. Use `ping <host address>` for verification. If the above verifications were successful, restart Enterprise License Manager service. Use Windows Service Control Manager to restart the service.
Cannot parse the content of the license file.	The specified license file is read but the content is not understood. Please verify the following and try again. • Verify that the path and file name points to a valid license file. If not pointing to a Mitel-provided license file, correct the path or file name. • Verify that the path and file name points to a valid license file. If pointing to a Mitel-provided license file, then the license file has been corrupted. Contact your distributor to receive a new license file.

ERROR MESSAGE	CORRECTIVE ACTION
File does not exist.	The file path and/or file name specified does not exist. Please verify the following and try again. • Verify if the path contains a space. If so, the full path, including the file name, must be enclosed with double quotes. • Verify if the path or file name is misspelled. If so, correct the misspelling. • If the license file is stored on a network or removable device, verify that the device is reachable.
File does not exist.	The file path and/or file name specified does not exist. Please verify the following and try again. • Verify if the path contains a space. If so, the full path, including the file name, must be enclosed with double quotes. • Verify if the path or file name is misspelled. If so, correct the misspelling. • If the license file is stored on a network or removable device, verify that the device is reachable.
License file is not loaded.	Some technical issue occurred preventing the Enterprise License Manager from loading the license file. Please try again. If the problem persists, contact your administrator.
The http request has incorrect encoding.	To view or install a license file, it must first be uploaded to the web server. Uploading the file uses multipart/form-data encoding. Verify that the web server has not been configured to reject this encoding type. If the problem persists, contact your administrator.
Unable to cache uploaded license file.	When using NTFS file system, IIS must be give permission to write to disk in order to view the uploaded license file. 1. Using Windows Explorer, find folder `License Manager/www`. This is typically found under c:`\Program Files\Mitel`. 2. Bring up the Properties dialog for `www` folder. 3. Open the Security tab. 4. If missing, add Internet Guest Account from the local computer. The Internet Guest Account typically is named IUSR_<machine name>. 5. If missing, configure Internet Guest Account to have write permission. 6. Save the changes.
Unable to communicate with Enterprise License Manager client. It appears not being registered.	One of the ELM COM objects is not registered, preventing communication with ELM server. 1. Open a command window. 2. Register Elicense.dll by typing in the command window: regsvr32 <full path>\Elicense.dll where <full path> typically is c:\Program Files\Mitel\License Manager 3. The `Elicense.dll` is applicable to both server and client installations. 4. Register ElicenseAdmin.dll by typing in the command window: regsvr32 <full path>\ElicenseAdmin.dll where <full path> typically is c:\Program Files\Mitel\License Manager 5. The `ElicenseAdmin.dll` is applicable to the server installation only. 6. Click OK on the successful registration confirmation.

ERROR MESSAGE	CORRECTIVE ACTION
Access denied	This occurs when trying to delete a log file, remove a license, or remove configured license locks. The installation sets the following access permissions:

- Granted access: Builtin Administrators group. (This group by default contains Domain Admins).
- Denied access: The Built-in IIS account (IUSR_<machine name>).
- All other non-listed groups and accounts are denied access by not being explicitly listed.

Important! It is critical that the Administrator groups have access to the files and is allowed to modify and delete the files. Otherwise this may jeopardize future installation upgrades or uninstalls.

To grant access to delete log files, do the following.

1. Using Windows Explorer, locate file `SecureRemoveLogFile.asp`. It is typically found at `c:\Program Files\Mitel\LicenseManager\www`. Bring up the File Properties of this file.

2. Navigate to the **Security** tab.

3. Add new user groups or accounts that will be granted access. These accounts/groups must have the `Read` and `Read & Execute` permissions set to `Allow`. Remember that if a user belongs to two or more entries in the list, "deny access" takes precedence. Alternatively, access permission may be granted in IIS based on IP address of the user. See IIS on-line help for more information.

To grant access to remove licenses, do the following.

1. Using Windows Explorer, locate file `SecureRemoveLicense.asp`. It is typically found at `c:\Program Files\Mitel\LicenseManager\www`. Bring up the File Properties of this file.

2. Navigate to the **Security** tab.

3. Add new user groups or accounts that will be granted access. These accounts/groups must have the `Read` and `Read & Execute` permissions set to `Allow`. Remember that if a user belongs to two or more entries in the list, deny access takes precedence. Alternatively, access permission may be granted in IIS based on IP address of the user. See IIS on-line help for more information.

To grant access to remove configured locks, do the following.

1. Using Windows Explorer, locate file `SecureRemoveLocks.asp`. It is typically found at `c:\Program Files\Mitel\LicenseManager\www`. Bring up the File Properties of this file.

2. Navigate to the **Security** tab.

3. Add new user groups or accounts that will be granted access. These accounts/groups must have the `Read` and `Read & Execute` permissions set to `Allow`. Remember that if a user belongs to two or more entries in the list, "deny access" takes precedence. Alternatively, access permission may be granted in IIS based on IP address of the user. See IIS on-line help for more information.