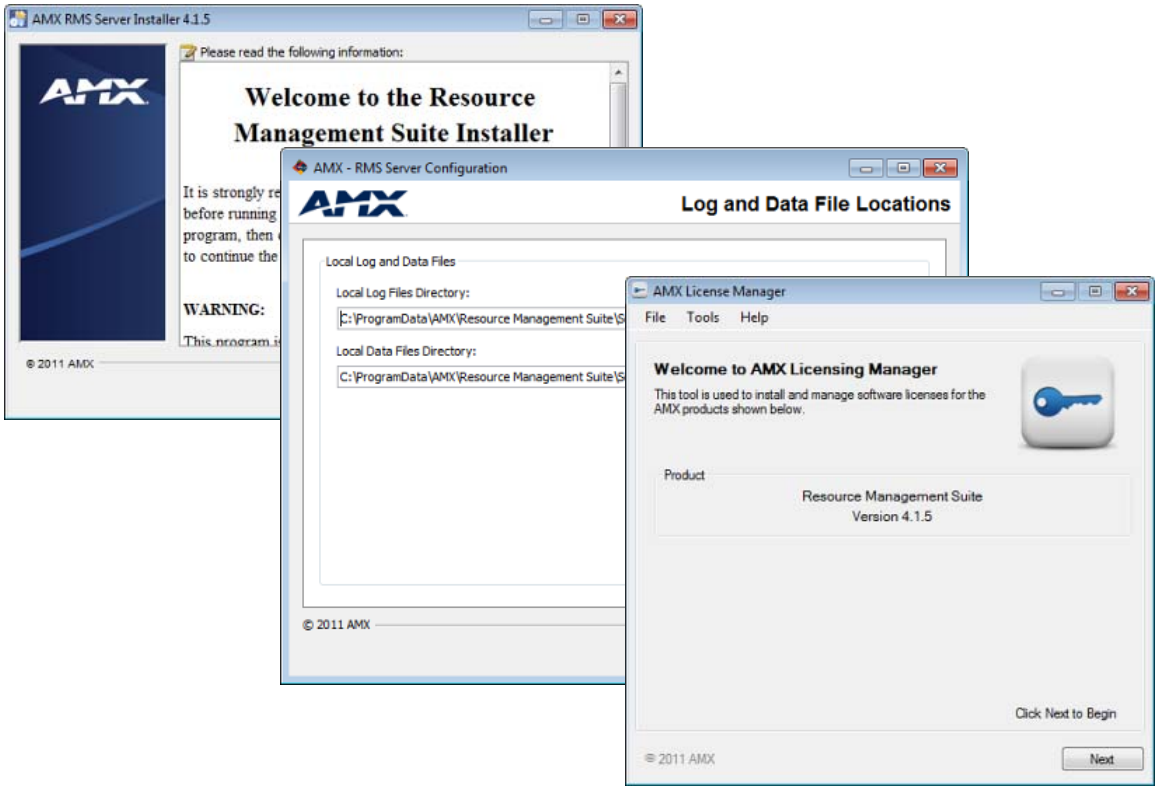
Installation Guide

RMS Enterprise

Resource Management Suite®



Enterprise Applications

Last Revised: 2/27/2013

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RMS Enterprise Installation Overview

Overview

RMS (Resource Management Suite®) *Enterprise* is an innovative meeting room management and equipment monitoring software package that provides centralized remote management of networked AV equipment and building systems. Use *RMS Enterprise* to:

- Simplify operation, support and security with enterprise scalable software
- Improve Help Desk performance to meet Service Level Agreements through proactive maintenance
- Reduce energy consumption and extend useful life of devices with enhanced reporting features

RMS Enterprise is a client/server application where the NetLinx system acts as the client and the RMS Enterprise application server listens for connections from NetLinx systems. NetLinx and the RMS Enterprise application server communicate using TCP/IP sockets.

In order to establish communication, each NetLinx system must be able to resolve and connect to the RMS Enterprise application server. This can be accomplished with a variety of Network configurations including local area networks (LAN), wide area networks (WAN), and the Internet.

This document describes the process of installing RMS Enterprise on a server machine.

It is highly recommended that you read this document in its entirety before commencing an installation of RMS Enterprise. *If, after reading this document you have specific questions about the requirements of your RMS system, please contact AMX Technical Support for assistance.*

The RMS Enterprise Installation Process

The installation process for RMS Enterprise consists of several steps, as described in this document:

1. Review the **RMS Enterprise Installation Checklist**. The *RMS Enterprise Installation Checklist* section on page 5 is provided to ensure all the necessary prerequisites are met and all the necessary configuration options are identified prior to the installation of the RMS server.
2. Install **Prerequisite Software** (as necessary). The *Installing Prerequisite Software* section on page 15 provides instructions for installing the two server software applications required by RMS Enterprise:
   - Java SE6 (JRE)
   - Tomcat (v6.x))
3. Complete the **RMS Server Installer**. The *AMX RMS Server Installer* section on page 25 provides instructions for installing the AMX RMS Enterprise Installer application.
4. Complete the **RMS Server Configuration**. The *RMS Server Configuration* section on page 29 provides instructions on running the *RMS Server Configuration* tool to register and enable your server, as well as configure your database connection.
5. Complete the **AMX License Manager**. The *AMX License Manager* section on page 43 provides instructions on installing the *AMX License Manager* application, which is required to install and manage software licenses for RMS Enterprise (as well as other AMX software applications).

Once you have installed a registered version of RMS Enterprise (see the Registering a Purchased License section on page 63 *for details), you can upgrade your RMS Entitlement with a Scheduling License. The Scheduling License enables support for various scheduling plug-ins for RMS Enterprise. See the Adding the Scheduling Interface and Plug-In* section on page 83 *for details.*

Upgrading From RMS v3.3 to RMS Enterprise

RMS Enterprise (SDK4) supports SDK3 legacy client connections without question and without making any changes to the code. In fact, many features will be available without any code changes (such as multi-stage and time delayed notifications and power use based on device type).

However, several advanced SDK features (including monitored power through PDU, Duet device native support, system modes, and web configured RMS clients) utilize SDK4 changes that will require registration of the room as new, with a corresponding loss of all history.

- If you migrate from RMS v3.3 to RMS Enterprise and change the code from 3.3 SDK to 4.0 SDK, you will have all locations with 3.x client gateways assigned but now OFFLINE and a completely new set of unassigned 4.0 client gateways.
- If you intend to upgrade your system (Server and SDK) completely from RMS 3.3 to RMS Enterprise, it is necessary to delete the 3.x Client Gateway from the location and assign the corresponding 4.x client gateway.

  Once the 3.x client gateway has been deleted, there will be a loss of all of the history associated with the 3.x masters and assets.

If you intend to install RMS Enterprise on a server that is currently running RMS v3.x, there are a few important steps to follow to ensure that RMS Enterprise will operate correctly, as well as to preserve the pre-existing RMS v3.x application. This provides a method of reverting back to the previous RMS v3.x, if necessary.

See the *Upgrading RMS v3.x to RMS Enterprise* section on page 23 for details.

If you intend to use an existing Legacy (v3.x) RMS Database with RMS Enterprise, the data must be migrated.

See the *Migrating a Legacy RMS Database To RMS Enterprise* section on page 38 for details.

Accessing the RMS Enterprise Web UI

Once the installation is complete, the RMS Enterprise Web UI (FIG. 1) is accessed via web browser (see *Supported Web Browsers* on page 8). To open the main RMS Enterprise Web UI, enter the following URL in your browser's address bar:

http://*servername*:8080/rms

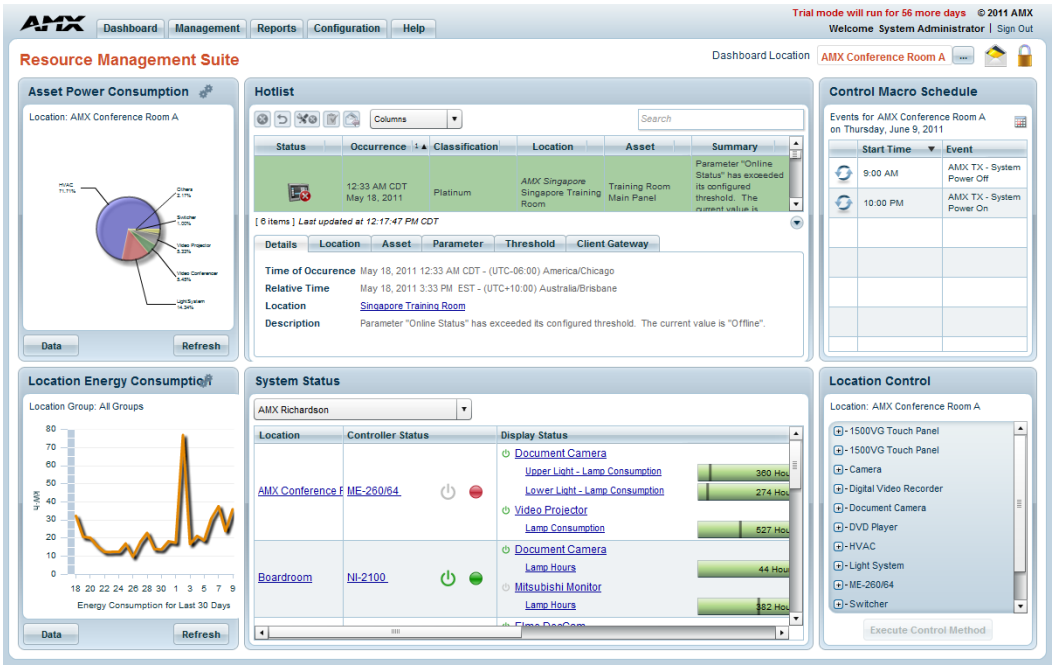

FIG. 1 Example RMS Enterprise Web UI

*Port **8080** is the default port for Tomcat (see Installing Apache Tomcat v6.0.x on page 17). However, when installing of Tomcat, this port can be assigned to another value if desired. The value assigned to Tomcat is the value that is used in the URL.*

Refer to the *RMS Enterprise System Administrator's Guide* for details on using the RMS Enterprise Web UI.

Definitions of Terms

Before you start, it is important to understand the terminology used in the installation of RMS Enterprise:

AMX License Server

The *AMX License Server* is an application that allows you to centrally manage all AMX Licenses for your installation. *AMX License Server* must be installed on the server before RMS Enterprise can be configured or licensed.

- *AMX License Server* is not exclusive to RMS Enterprise - other AMX server software licenses (such as ISXPress) are managed via this application as well.
- See the *AMX RMS Server Installer* section on page 25 for installation instructions.

Licenses and Entitlements

RMS Enterprise uses two types of licenses, one Server License and one or more Asset Licenses (see below). An *Entitlement* represents the top-level "wrapper" for the various licenses that are included in an initial purchase and installation of RMS Enterprise.

- You must have a valid *Entitlement ID* (provided by AMX at the point of purchase) in order to install a Server License or any Asset Licenses.
- See the *Register a new software license (Requires an Entitlement ID)* section on page 51 for details.

Server License

RMS Enterprise requires that a single Server License be installed on the server that will run the RMS application. One Server License is included with the Entitlement ID that is provided with the Software Maintenance Agreement (RMS-ENT-SMA, FG3004-K).

- Since the RMS Server License is included in the Entitlement, it is installed automatically. You will not be asked to provide a RMS Server License number, only the Entitlement ID number (see *Entitlement ID* below).
- To increase the number of supported Locations in your RMS Enterprise system, you can purchase additional *Asset Licenses* (see below), but only one RMS Server License is allowed on a given server.

Entitlement ID

After purchasing software from AMX, you will receive a *Entitlement ID*. The Entitlement ID is required to acquire and activate the initial license, and will also be required when requesting support services from AMX.

Some software packages may also allow for additional features and plug-ins to be licensed separately (such as additional Locations in an RMS system). If applicable, each feature will be identified uniquely using an Asset ID. Similar to the Entitlement ID, the Asset ID will be required when activating the license for the new feature.

- Entitlement IDs begin with the prefix "ENT-".
- See the *Register a new software license (Requires an Entitlement ID)* section on page 51 for details on using an Entitlement ID.

Asset License

In RMS Enterprise, *Asset Licenses* represent Locations in your RMS system. One Asset License is required for each Location in the system, and Asset Licenses are available to purchase in bundles of various sizes. For example, Asset Licenses can be purchased to provide 25, 100 or 300 additional Locations to your existing RMS Server. As your system grows, simply purchase additional Asset Licenses from AMX to accommodate the number of Locations that you intend to add to your RMS system.

- 1,000 Asset Licenses are included with a Trial License.
- See the *Register License by Asset ID* section on page 52 for installation instructions.

Asset ID

In RMS Enterprise, *Asset Licenses* (see below) represent Locations in your RMS system. One Asset License is required for each Location in the system. *Asset IDs* are used to activate additional Asset Licenses, in order to add Locations to your RMS System. Asset IDs are purchased from AMX, and are entered in the AMX License Manager to activate the associated Asset Licences.

- Asset IDs begin with the prefix "AMX-".
- See the *Register License by Asset ID* section on page 52 for details on using an Asset ID.

Additional RMS Enterprise Documentation

Refer to the following supplemental RMS Enterprise documents (available to view/download from www.amx.com):

- **RMS Enterprise NetLinx Programmers Guide** - Provides detailed NetLinx programming information for RMS systems.
- **RMS Enterprise System Administrator's Guide** - Describes the RMS user interface.

RMS Enterprise Installation Checklist

Overview

RMS Enterprise is a true enterprise-level application, and has specific minimum system requirements that must be met to ensure a successful deployment.

This section is provided to ensure that all the necessary prerequisites are met, and that the necessary configuration options are identified prior to the installation of the RMS Enterprise server and RMS Database server.

- The system requirements provided in this section represent the results of AMX testing. Follow these guidelines to ensure that RMS Enterprise will perform successfully.
- ***It is highly recommended that you read this document in its entirety before commencing an installation of RMS Enterprise.*** If, after reading this document you have specific questions about the requirements of your RMS system, please contact AMX Technical Support for assistance.

Understanding Minimum System Requirements

Note that the overall performance of RMS Enterprise is a result of the server hardware and operating system used, as well as it's configuration. Other factors include the number of Locations, Assets and Users in the system, as well as how the system is used.

For example, as stated under *Supported Database Platforms* (see page 8), the "Express Editions" of Microsoft SQL Server are appropriate to use for RMS Enterprise systems with less than 50 locations. While this is true in most cases, it is important to note that an installation with a small number of rooms could be configured in such a way that it will generate a large amount of traffic to and from the server. As an example, a system with 50 locations, each of which contains a large number of devices with many control and monitoring functions running constantly, would certainly require at least the Standard version (possibly the Enterprise version) of Microsoft SQL Server in order to perform adequately, due to the large amount of traffic that would be generated.

When considering the server hardware to use with RMS Enterprise, it is important to understand not only the current requirements of the installation, but to also account for any potential upwards scaling of the system in the future. For example, an installation initially configured to manage less than 50 locations can use an "Express Edition" of Microsoft SQL Server. However, the "Express Editions" will no longer be appropriate, if and when more locations are added.

It is crucial that RMS Enterprise is deployed on systems that meet or exceed all of the requirements outlined in this section. Installing RMS Enterprise on systems that do not meet these minimum requirements may result in poor performance or loss of functionality. Note that AMX Technical Support must assume that these requirements have been met in order to provide effective assistance.

Minimum Server Hardware Requirements

Verify that your server hardware meets or exceeds the following minimum requirements for RMS Enterprise (check the appropriate boxes below):

Server Hardware Requirements			
Does your server meet the following Minimum Server Hardware Requirements?		Yes	No
• **Processor**	Dual core Intel Xeon processor @ 2.67GHz (or equivalent)		
• **Memory**	4 GB		
• **Display**	1280 x 1024 resolution		
• **Hard Disk**	1 GB available space for RMS Enterprise application files. ***Note**: Database size varies depending on the installation.*		
Yes to all	*Please continue to the next step.*		
No to any	*You must obtain a server that meets these minimum requirements to install RMS Enterprise.*		

RMS Enterprise performs best when installed on a server that is exclusively dedicated to running the RMS Enterprise application.

- For optimal performance, it is strongly recommended that a dedicated RMS server is used to run the RMS Enterprise application - regardless of the size of the installation.
- ***For systems with more than 50 rooms, it is a system requirement that the server running the RMS Enterprise application be dedicated exclusively to RMS.*** In this case, it is crucial that no other applications are allowed to run on the RMS server.

Supported Virtual Servers

RMS Enterprise can also be hosted on a virtual server with either of the following virtualization systems:

- VMware ESXi (4.x or greater)
- Hyper-V

If RMS Enterprise is to be installed on a virtual server, verify that it has sufficient hardware resources to support these virtual hosts. The created virtual servers must meet the Minimum Server Hardware Requirements indicated above.

Supported Server Operating Systems

Verify that your server's operating system (OS) meets the minimum requirements for RMS Enterprise:

Server Operating System (OS)		
Do you have a compatible server OS installed?	**Yes**	**No**
Supported Microsoft Server Operating Systems: **Microsoft Windows Server 2012** • Standard Edition **Microsoft Windows Server 2008 R2 (x64):** • Web Edition / Standard Edition / Enterprise Edition **Microsoft Windows Server 2008 SP2 (x86 and x64):** • Web Edition / Standard Edition / Enterprise Edition		
Yes	Please continue to the next step.	
No	You must obtain a compatible server OS to install RMS.	
Do you have an administrative account to the server where RMS will be installed?	**Yes**	**No**
***Note**: RMS is a system level application and requires administrative access to install and configure RMS.*		
Yes	Please continue to the next step.	
No	You must obtain an administrative logon account, or logon to the server with a user account that has administrative access to the server.	

Additional Server Software Dependencies

The software versions mentioned below have been tested successfully by AMX. No assumptions should be made relative to other versions (earlier or later) in terms of their compatibility with RMS Enterprise.

Verify that your server has all required software installed (check the appropriate boxes below):

Additional Software Dependencies		
Does your server have all required software installed?	**Yes**	**No**
• **Java 6 Runtime Environment (SUN JRE 6.0)**		
• **Tomcat - version 6**		
***Note**: The following applications are not required on the server, but would be needed in order to view the RMS UI and help files directly on the server.* • *Web Browser (see Supported Web Browsers below)* • *Adobe Flash v10* • *Adobe Acrobat Reader*		
Yes to all	Please continue to the next step.	
No to any	Install any required software that is not present on the Server.	

Because RMS Enterprise requires a specific version of Java, it is important that Java's auto-update feature is disabled, to avoid compatibility issues in the future. See the Disabling Auto-Update For Java section on page 16 *for details.*

Supported Server Operating Systems Languages

Supported Server OS Languages		
Chinese (Simplified, PRC)	German	Portuguese (Portugal)
Chinese (Classic, HK)	Greek	Russian
English	Italian	Spanish
Flemish (Dutch)	Japanese	Turkish
French		

Supported Web Browsers

The RMS UI is supported on the following web browsers:

Supported Web Browsers	
Windows	Macintosh/Apple
Internet Explorer v8	Safari v4
Mozilla Firefox v3	Mozilla Firefox v3
Google Chrome v9	Google Chrome v9

Supported Database Platforms

Verify that you have a compatible 32-bit or 64-bit database platform for the RMS Enterprise database.

Supported Database Platforms	
• Microsoft SQL Server 2012 Enterprise Edition • Microsoft SQL Server 2012 Standard Edition • Microsoft SQL Server 2012 Express Edition	
• Microsoft SQL Server 2008 Enterprise Edition • Microsoft SQL Server 2008 Standard Edition • Microsoft SQL Server 2008 Express Edition	• Microsoft SQL Server 2008 R2 Enterprise Edition • Microsoft SQL Server 2008 R2 Standard Edition • Microsoft SQL Server 2008 R2 Express Edition

To ensure optimal performance, it is important to follow these guidelines:

- The "Express Editions" of SQL Server (free download available from Microsoft) are only appropriate for systems with *less than 50 locations*. See *Appendix A: Installing SQL Server 2008 Express Edition* on page 97 for installation and configuration instructions.
- The RMS database *must* be installed on an external database server (not on the same server machine as the RMS Enterprise application). This includes database servers using SQL Server Express.

Check the appropriate box below:

Database Platform			
		Yes	No
Do you have a supported Database platform?			
Yes	Please continue to the next step.		
No	Install or obtain access to a compatible database platform for the RMS Enterprise database.		

Database Access

If you will be using SQL database authentication instead of Windows Authentication to access the database server, check the appropriate box below, and fill in the remaining information.

If you are not using Windows Authentication, then enter the *Username* and *Password* that will allow access the database server.

Database Access			
		Yes	No
Using Windows Authentication?			
Yes	*If you are using Windows Authentication to access the database server, then no username or password is needed.* ***Note**: If you are using Windows Authentication for RMS database access, refer to the "Windows Authentication" section in the RMS Enterprise Database Administrator's Guide for additional configuration requirements.*		
No	***Username:***		
	Password:		
SQL Server IP address or Host name			
SQL Server Port			
SQL Server Instance (optional)			
SQL Server Catalog (Database Name)			

In order for the RMS installer to create a new database catalog instance, the database user account will require the "CREATE DATABASE" permissions. Alternatively if a new empty RMS database catalog is created outside of the RMS installer, then this database user account will only require "DB_OWNER" permissions to the newly created, empty RMS catalog.

Active Directory Services

RMS Enterprise supports "*LDAP*" and "*Window Active Directory*" directory services. If you intend for RMS Enterprise to utilize one of these directory services, it will be helpful to have the following information prepared:

Active Directory			
		Yes	No
Does your installation require active directory services?			
No	*Please continue to the next step.*		
Yes	**Which directory service will you will be using with RMS?**		
	LDAP		
	Window Active Directory		
Fill in the following information (required for initial connection to the Directory Services Server):			
Bind DN			
Bind DN password			
URL of Directory Services Server			
Base DN			
Group Base Name			
Group Attribute Name			

Legacy TCP/IP Communications

RMS Enterprise uses TCP/IP communications between Legacy (version 3.x or lower) clients and the RMS Enterprise server. Please complete the following information:

TCP/IP Communications			
TCP/IP Server Port Number **Default = 3839** (this is an IANA registered port number for Legacy RMS servers)			
		Yes	No
Does your server have a firewall that will block TCP/IP communication for this port?			
Yes	*Create an exception for TCP/IP communications on the specified TCP/IP port for RMS communications.*		
No	*Please continue to the next step.*		
		Yes	No
Does your network router restrict or block traffic on this TCP/IP port?			
Yes	*Create an exception for TCP/IP communications on the specified TCP/IP port for RMS communications.*		
No	*Please continue to the next step.*		

Pre-Authentication Settings

RMS Enterprise supports pre-authentication. Please complete the following information:

Pre-Authentication Settings			
		Yes	No
Does your installation require pre-authentication?			
No			
Yes	***Which pre-authentication method will you will be using with RMS?***		
	Windows authentication		
	SiteMinder		

Control System Requirements

RMS SDK Support

- Touch panel files for G4 panels
- NetLinx modules (*RFID* is supported only on Duet-enabled NetLinx hardware)
- Each RMS Server supports up to 3000 Locations with SDK4, or up to 1000 SDK3 Locations

Systems with more than 50 locations require Microsoft SQL Server 2008 Standard or Enterprise Editions. Microsoft SQL Server "Express Editions" are not appropriate for system with more than 50 locations. See Supported Database Platforms on page 8.

Supported Central Controllers

Supported Central Controllers	
RMS SDK v4.0 / v3.0	RMS SDK v3.0 only
***Note**: RMS Enterprise supports the following NI Central Controllers and Enova DVX/DGX Switchers with at least **64 MB RAM**:* • **NI-3101-SIG** • **NI-2100 / NI-3100 / NI-4100** • **NI-700 / NI-900** • **Enova DVX-2150HD / DVX-2155HD** • **Enova DVX-3150HD / DVX-3155HD** • **Enova DVX-2100HD** • **Enova DGX16 / 32** ***Note**: Version 4 Firmware is required for SDK v4.*	• *NI-2000 / 3000 / 4000* • *NI-700 and 900 (32 MB)* • *NXC-ME260* • *NXC-MPE* ***Note**: Support for RMS SDK v3.0 only Controllers is provided via the RMS Enterprise Backwards Compatibility service using the RMS 3.x SDK. These systems will continue to operate using the feature set of RMS 3.x. New features included in RMS Enterprise may not be available to these systems.*

RMS SDK v4 requires NetLinx Master version 4 firmware; connection instability and Master lockups may result if using version 3 NetLinx Firmware with SDK v4.

64MB Controllers - Duet Memory Allocation

By default, Duet memory is set to the lowest possible amount to keep all available memory open for running NetLinx code. This assures that if the Controller is loaded with a very large NetLinx program but doesn't have any Duet modules, then the NetLinx code will run efficiently.

However, when Duet modules are added to the program, they use some of the (SDRAM) memory required by the Controller's web interface to load.

In some cases, when a NI Controller or Enova DVX-2100HD All-In-One Presentation Switcher is connected to an RMS Server, the Controller (or Switcher) can eventually reach a point where the amount of available Duet memory gets too low to adequately support the Controller's web interface. If this occurs, the web interface will fail to load, and Telnet will report an out-of-memory error.

This issue can potentially affect any Controller with 64MB of SDRAM memory. Most NetLinx Integrated Controllers, as well as the Enova DVX-2100HD All-In-One Presentation Switcher feature 64 MB of SDRAM memory, with a default *Duet memory allocation* setting of 12MB.

NI Central Controllers and Enova All-In-One Presentation Switchers that come equipped with 64MB of RAM (and therefore could potentially experience this error) are listed in the following table:

NI Central Controllers and Enova All-In-One Presentation Switchers With 64MB of RAM			
NetLinx Integrated Controllers		Enova DVX All-In-One Presentation Switchers	
NI-700	FG2105-70	**DVX-2100HD**	FG1905-04, FG1905-05, FG1905-01, FG1905-02
NI-900	FG2105-90		
NI-2100	FG2105-04, FG2105-14		
NI-3100*	FG2105-05, FG2105-15		
NI-3101-SIG	FG2105-08		
NI-4100*	FG2105-06		
* The NI-3100 and NI-4100 are available with 256MB of SDRAM installed. Check the online catalog at www.amx.com for details.			

NOTE

Enova DVX-2150HD/2155HD and DVX-3150HD/3155HD All-In-One Presentation Switchers come equipped with 256MB of RAM. NI Controllers and Enova DVX Switchers with 256MB of RAM should not experience this issue, since their default Duet memory allocation setting is 36 MB.

To avoid this error, it may be necessary to increase the Duet memory allocation on the NI Controller or DVX-2100HD switcher. The Duet memory allocation setting can be viewed and adjusted via the telnet terminal commands described below:

DUET MEMORY Telnet Commands	
GET DUET MEMORY	Display the amount of memory allocated for Duet Java pool. This is the current Java memory heap size as measured in Megabytes. An example is a value of 12 = 12MB.
SET DUET MEMORY	Set the amount of memory allocated for Duet Java pool. This is the current Java memory heap size as measured in Megabytes. This feature is used so that if a NetLinx program requires a certain size of memory be allotted for its currently used Duet Modules, it can be reserved on the Central Controller. The default Duet memory allocation value for NI Central Controllers with 64MB of SDRAM (as well as the DVX-2100HD) is **12MB** ***Note**: This setting does not take effect until the next reboot.*

There are some considerations when doing this:

- The higher you increase the Duet memory, up to a maximum of 64Mb, the less memory there is for the NetLinx code to run. To find out how much Duet memory you need to run your program is by trial and error.
- We recommend increasing it by **2Mb**, then trying to run your program. Repeat this process until your code runs as expected.
- It is important to keep the amount of memory allocated to Duet as low as possible so there is maximum memory to run the NetLinx code.

Setting the Duet Memory Allocation Value

NOTE

Terminal commands can be sent directly to the NI Controller or DVX-2100HD via either a Program Port or a Telnet terminal session. In your terminal program, type "Help" or a question mark ("?") and <Enter> to access the Help Menu, and display the supported Program port commands.

Refer to the "NetLinx Integrated Controllers WebConsole and Programming Guide" for a full listing of supported telnet terminal commands.

1. Telnet into the Controller (refer to the relevant *Operation/Reference Guide* for details).
2. Type `SET DUET MEMORY`. You will be presented with how much the memory is currently set to and a prompt for the new setting.
3. Enter the new setting (such as 14 to set the Duet memory allocation to 14MB), then press ENTER.

4. Reboot the master and test your code.
5. Repeat if necessary.

Licensing Information (Entitlement ID)

If you have purchased RMS Enterprise, you will need the Entitlement ID obtained from AMX in order to install the software (see the *AMX License Manager* section on page 43 for details).

RMS Enterprise Scheduling Interface

Scheduling Server Requirements

Once you have installed a registered version of RMS Enterprise (see the *Registering a Purchased License* section on page 63 for details), you can upgrade your RMS Entitlement with a *Scheduling License*. The Scheduling License enables support for various scheduling plug-ins for RMS Enterprise. See the *Adding the Scheduling Interface and Plug-In* section on page 83 for instructions on installing the RMS Enterprise Scheduling Interface and Scheduling Configuration Tool.

Verify that each server that will run the RMS Enterprise Scheduling Interface meets or exceeds the following minimum requirements (check the appropriate boxes below):

Scheduling Server Hardware Requirements			
Does your Scheduling server meet the following Minimum Hardware Requirements?		**Yes**	**No**
• **Processor**	Dual core Intel Xeon processor @ 2.67GHz (or equivalent)		
• **Memory**	4 GB		
• **Display**	1280 x 1024 resolution		
• **Hard Disk**	1 GB available space for RMS Enterprise Scheduling application files.		
Yes to all	*Please continue to the next step.*		
No to any	*You must obtain a server that meets these minimum requirements to install RMS Enterprise.*		

For installations with more than 50 locations that use the Scheduling Interface, a separate server from the RMS Application is required.

Scheduling Interface Operating System (OS)			
Do you have a compatible server OS installed?		**Yes**	**No**
Supported Microsoft Server Operating Systems: **Microsoft Windows Server 2012** • Standard Edition **Microsoft Windows Server 2008 R2 (x64):** • Web Edition / Standard Edition / Enterprise Edition **Microsoft Windows Server 2008 SP2 (x86 and x64):** • Web Edition / Standard Edition / Enterprise Edition			
Yes	Please continue to the next step.		
No	You must obtain a compatible server OS to install RMS.		
Do you have an administrative account to the server where RMS will be installed?		**Yes**	**No**
***Note**: RMS is a system level application and requires administrative access to install and configure RMS, including the Scheduling Interface and Scheduling Configuration Tool .*			
Yes	Please continue to the next step.		
No	You must obtain an administrative logon account, or logon to the server with a user account that has administrative access to the server.		

Installing Prerequisite Software

Overview

As indicated in the *RMS Enterprise Installation Checklist*, RMS Enterprise requires two server software applications to be on the server before RMS is installed:

- Java SE6 (JRE)
- Tomcat (v6.x required - version 7 is not supported)

If both of these applications are not already loaded on the server, download and install both before launching the RMS enterprise Installation executable file.

NOTE

If Tomcat 6 is already installed on the server, please refer to the Configuring Apache Tomcat section on page 20 *before installing RMS Enterprise.*

Installing Java SE6

Java SE6 (Standard Edition version 6) installation files are available to download from www.oracle.com.

NOTE

The minimum requirement for Java SE6 is the JRE (Java Runtime Environment). RMS Enterprise will also work with the JDK (Java Development Kit), since it includes the JRE.

1. Download and launch the Java SE6 JRE installer. FIG. 2 shows the Java 6 JRE installer Welcome Screen.

FIG. 2 Java 6 JRE installer - Welcome screen

2. Click **Install**, and follow the instructions provided on-screen. In most cases, you should accept the defaults. When complete, close the Java SE6 JRE installer (FIG. 3).

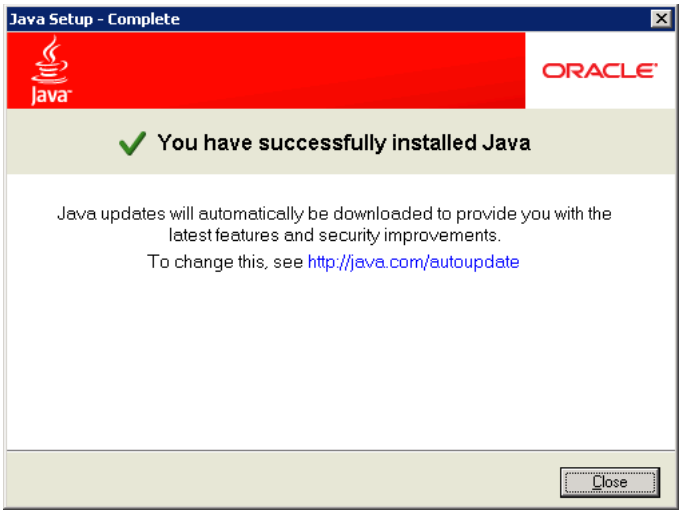

FIG. 3 Java SE6 JRE installer - Complete

Disabling Auto-Update For Java

Because RMS Enterprise requires a specific version of Java, it is important that Java's auto-update feature is disabled, to avoid compatibility issues in the future:

1. On the main *Control Panel Page*, select **Java**. This opens the *Java Control Panel* (FIG. 4):

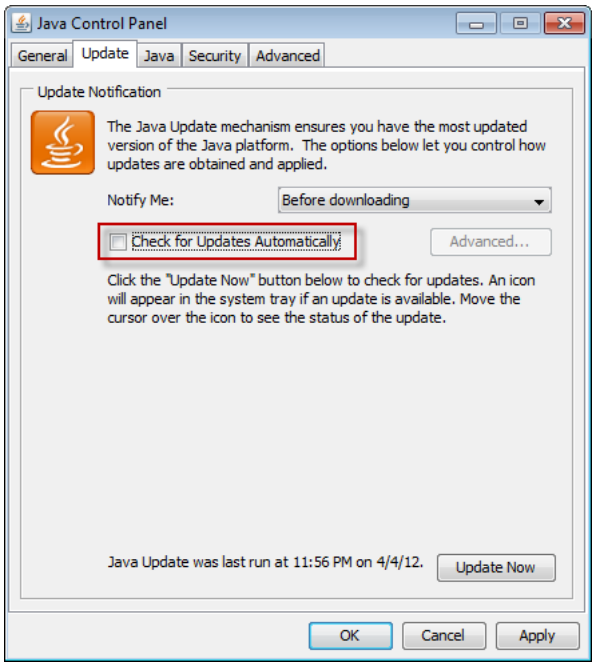

FIG. 4 Java Control Panel

2. Un-check the **Check for Updates Automatically** option.
3. Java will prompt you to verify this action - click **Never Check** to proceed.
4. Click **OK** to close this dialog.

Installing Apache Tomcat v6.0.x

Apache Tomcat 6 installation files are available to download from tomcat.apache.org.

NOTE

If Tomcat 6 is already installed on the server, please refer to the Configuring Apache Tomcat section on page 20 *before installing RMS Enterprise.*

1. Download and launch the Apache Tomcat 6 Windows Service. FIG. 5 shows the Welcome Screen for the Apache Tomcat 6 Setup Wizard:

FIG. 5 Apache Tomcat 6 Setup Wizard - Welcome Screen

2. Click **Next** to review the License Agreement. Click **I Agree** to proceed with the installation.
3. In the *Choose Components* screen, review the default component selections and read the on-screen instructions (FIG. 6):

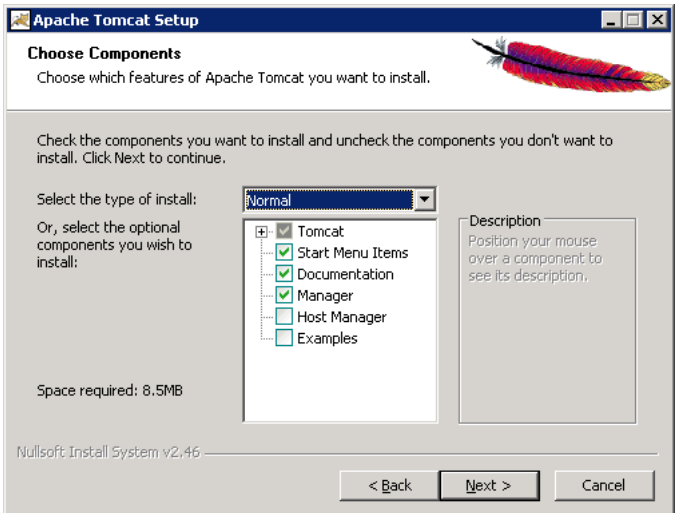

FIG. 6 Apache Tomcat 6 Setup Wizard - Choose Components

4. Click **Next** to accept the default settings and continue to the *Configuration* screen (FIG. 7):

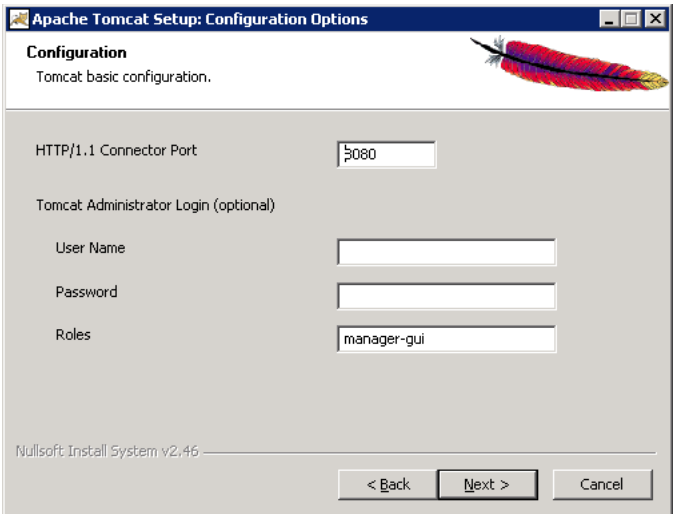

FIG. 7 Apache Tomcat 6 Setup Wizard - Configuration

5. Fill in this information as required. Using the default settings, Tomcat will serve the web page content on port **8080**. If you wish for RMS to be hosted on the standard HTTP port 80 and you are not using IIS for Windows Authentication purposes then you may enter port **80** in this field before proceeding.

   Click **Next** to proceed to the *Java Virtual Machine* screen (FIG. 8):

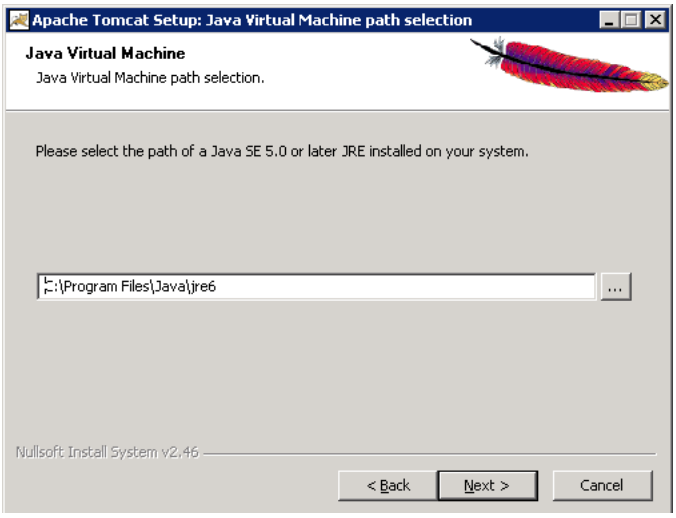

FIG. 8 Apache Tomcat 6 Setup Wizard - Java Virtual Machine

- It may be necessary to create a firewall rule to allow access to the port defined here (if other than 80).
- If you are installing Tomcat to run on port 80, then you must make sure that no other web servers are currently running (on port 80) on this server. It is not uncommon for Microsoft IIS server to already be installed on the server, you may need to disable the IIS server in order to run Tomcat on port 80. Tomcat will fail to start if another process is already listening on port 80.
- The Tomcat HTTP port can be changed at a later time after install, but it will require the manual editing of Tomcat configuration files. Please see the *RMS IT Administrator's Guide* for more information.

6. Again, in most cases you should accept the default setting, and click **Next** to proceed to the *Choose Install Location* screen (FIG. 9):

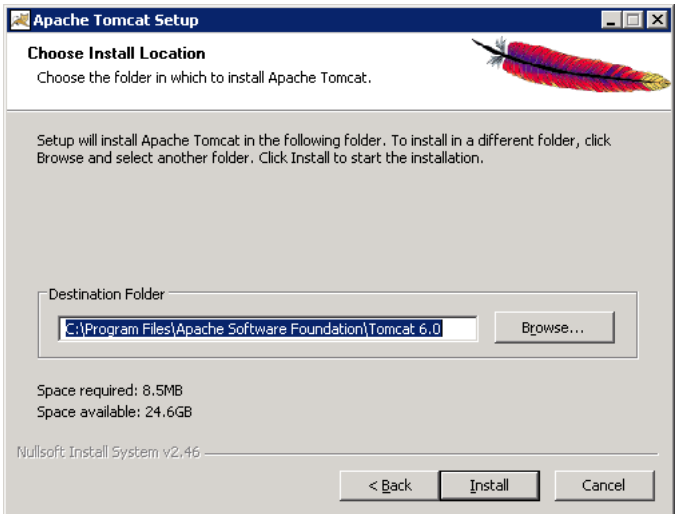

FIG. 9 Apache Tomcat 6 Setup Wizard - Choose Install Location

7. Again, in most cases you should accept the default setting,
8. Click **Install** to begin the installation.
9. When complete, click **Finish** to close the *Apache Tomcat 6 Setup Wizard* (FIG. 10).

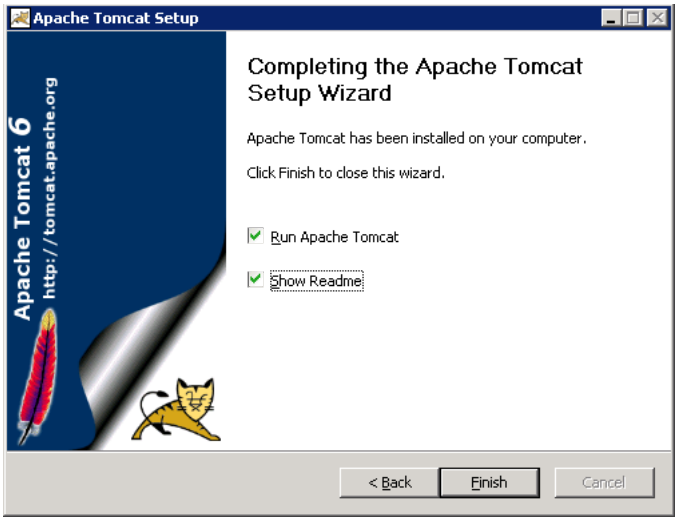

FIG. 10 Apache Tomcat 6 Setup Wizard - Complete

10. Continue to the *Configuring Apache Tomcat* section.

Configuring Apache Tomcat

In order for Tomcat to function properly with RMS Enterprise, the following configuration changes must be made via the *Apache Tomcat 6 Properties* dialog:

1. With Tomcat running, right-click on the Tomcat icon in the Windows task bar, and select **Configure** from the context menu (FIG. 11). This opens the *Apache Tomcat 6 Properties* dialog

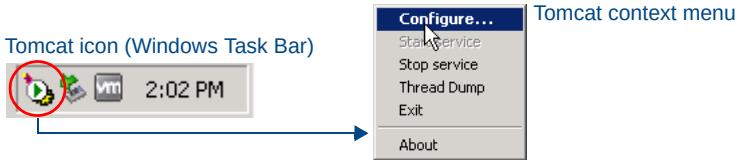

FIG. 11 Apache Tomcat 6 context menu - select Configure

2. In the *General* tab, change the **Startup Type** from Manual to Automatic (select *Automatic* from the drop-down menu (FIG. 12):

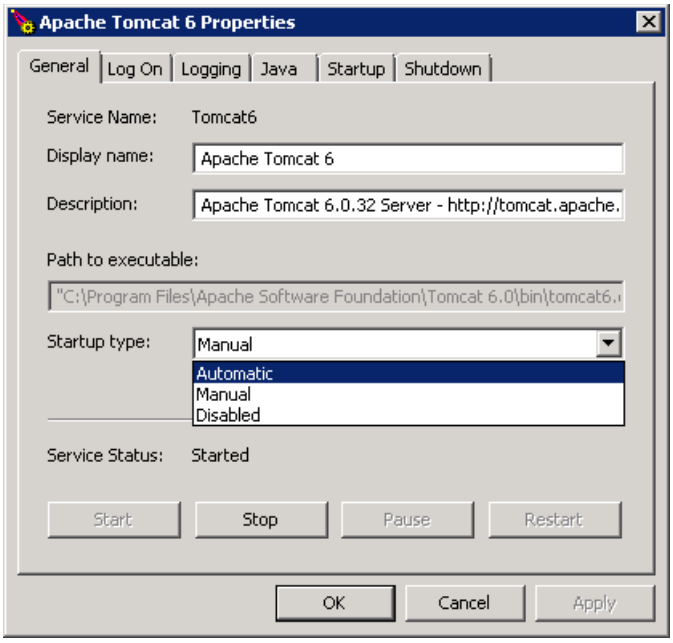

FIG. 12 Apache Tomcat 6 Properties dialog - General tab

3. In the *Java* tab, click inside the **Java Options** text box (FIG. 13), and scroll down to the last line. After the last line of code, enter the following line of code:

   -XX:MaxPermSize=150M

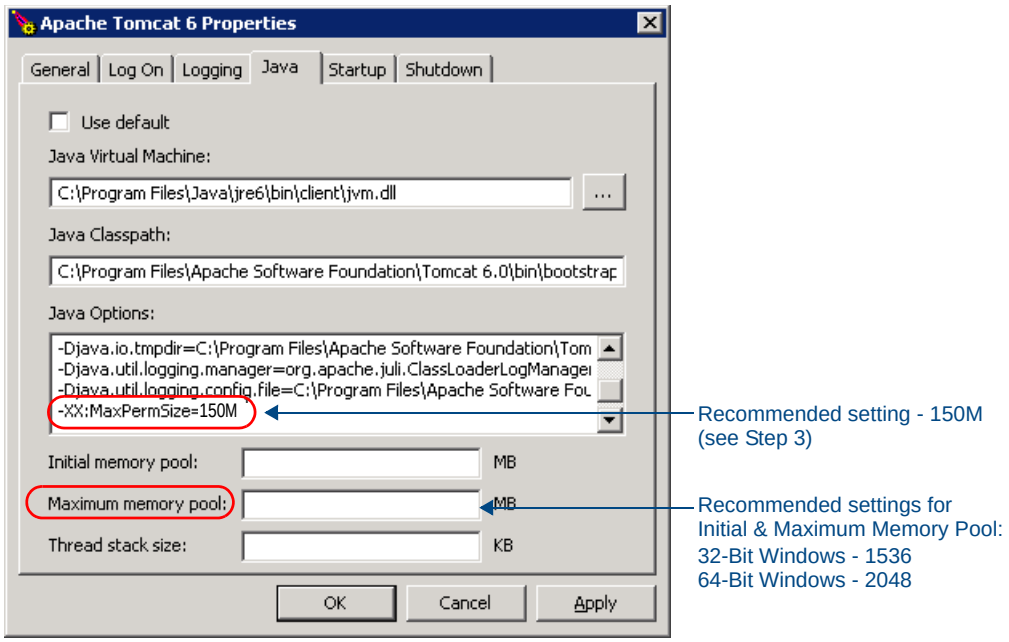

FIG. 13 Apache Tomcat 6 Properties dialog - Java tab (editing Java Options)

4. Enter values in the **Initial Memory Pool** and **Maximum Memory Pool** fields (FIG. 14).

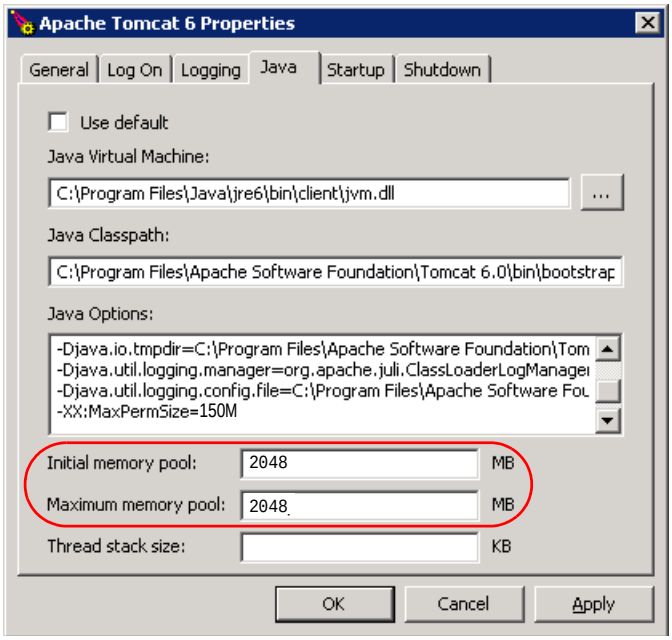

FIG. 14 Apache Tomcat 6 Properties dialog - Java tab (editing Memory allocation settings)

In most cases, the *Initial Memory Pool* and *Maximum Memory Pool* values should be equal.

The ideal values for these settings will depend on the number of clients connected to your RMS server. As a rule of thumb, consider allocating half of the server's available memory to Tomcat for use with RMS.

The following recommendations apply for the *Maximum Memory Pool* value, according to the version of Windows (32-bit or 64-bit) that is installed on your server PC:

- 32-bit Windows - **1500**MB (1.5GB)
- 64-bit Windows - **2048**MB (2GB)

The example shown in FIG. 14 represents values that would be appropriate for a 64-bit server with 4GB of RAM.

5. Click **OK** to save your changes.
6. At this point, stop the Tomcat service before proceeding (select **Stop Service** from the Tomcat context menu).

Tomcat must be stopped before installing and configuring RMS Enterprise.

Once RMS Enterprise has been installed and configured, Tomcat must be restarted in order to run RMS Enterprise.

If Tomcat fails to restart, please refer to the Appendix B: Tomcat Configuration section on page 105 *to troubleshoot the Java memory allocation settings.*

Upgrading RMS v3.x to RMS Enterprise

IF YOU INTEND TO INSTALL RMS ENTERPRISE ON A SERVER THAT IS CURRENTLY RUNNING RMS V3.x, READ AND FOLLOW THESE INSTRUCTIONS FIRST!

Overview

If you intend to install RMS Enterprise on a server that is currently running RMS v3.3, there are a few important steps to follow to ensure that RMS Enterprise will operate correctly, and to preserve the pre-existing RMS application. This provides a method of reverting back to the previously installed version of RMS, if necessary.

- ***Upgrading an existing installation of RMS to RMS Enterprise requires a base line of RMS v3.3, with a database version of 3.0.9 or greater. Older versions of RMS (v3.2 or lower) must be migrated to v3.3 prior to upgrading the system to RMS Enterprise as described in this section. Refer to RMS v3.x documentation for instructions.***
- It is not necessary or recommended to un-install an existing version of RMS v3.3 in order to install RMS Enterprise on the same machine. These instructions describe stopping and then disabling RMS v3.3 services. If for any reason it is necessary to revert to the previous RMS v3.3 system, these services can be restarted.

1) Verify System Requirements for RMS Enterprise

Since the minimum system requirements for RMS Enterprise are different than those for RMS v3.3, it is important to verify that the current system does in fact meet these newer requirements.

Before proceeding with these instructions, verify that the current server meets the minimum system requirements for RMS Enterprise.

Refer to the *RMS Enterprise Installation Checklist* section on page 5 for a detailed listing of Hardware System Requirements, supported Server Operating Systems, Additional Software Dependencies, and more.

If your system meets these requirements, proceed with the instructions below.

2) Stop RMS v3.3 Services

In the *AMX Resource Manager Suite Service Manager* (FIG. 15), stop all RMS Services (select each of the four services, and click the **Stop** button):

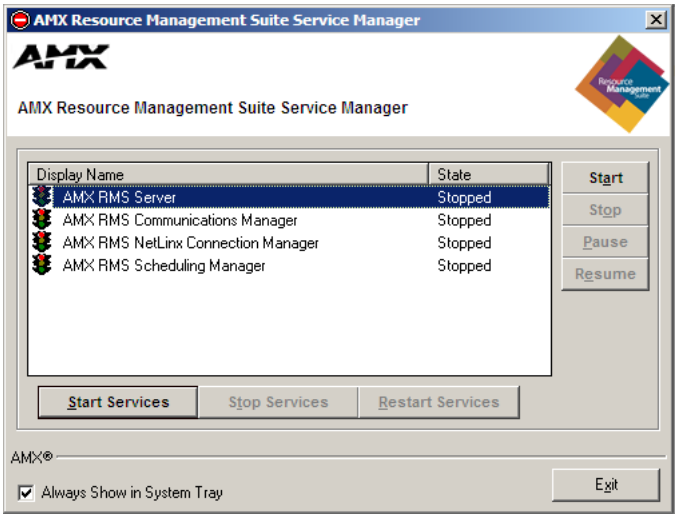

FIG. 15 RMS Service Manager - Stop RMS Services

This stops the RMS v3.3 services, until they are restarted manually, or the server is restarted.

3) Disable RMS v3.3 Services

Once the RMS v3.3 services are stopped, it is necessary to disable them in order to prevent them from restarting when the server is restarted.

1. Go to **My Computer > Manage > Server Manager** to access the Server Manager.
2. Select **Configuration > Services** to access the *Services* window. Note that the four RMS services are stopped (FIG. 16):

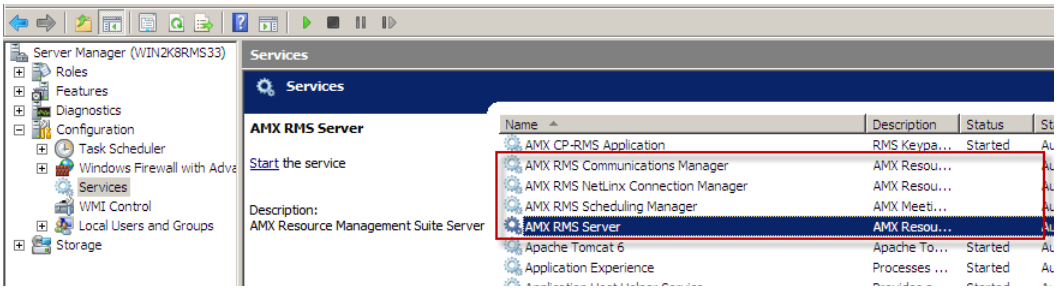

FIG. 16 Server Manager window

3. Right-click on the first RMS service listed, and select **Properties** to access a *Service Properties* dialog similar to the one shown in FIG. 17:

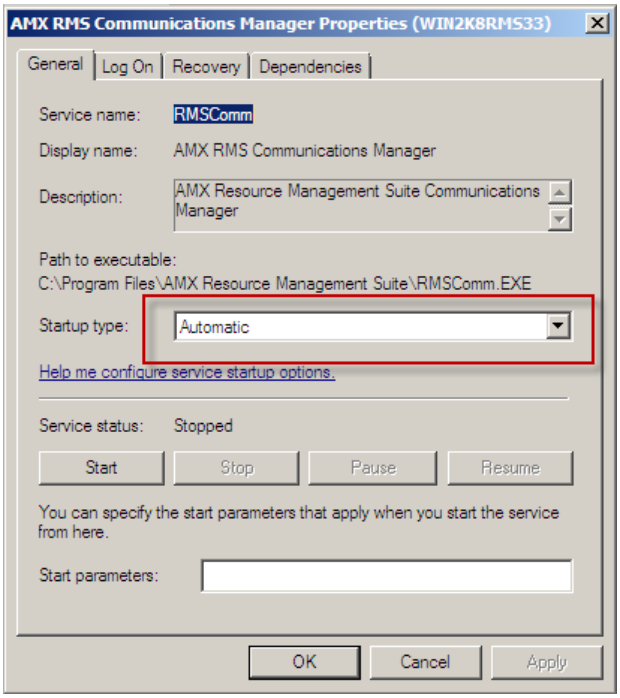

FIG. 17 Service Properties dialog

4. Change the *Startup Type* setting to **Disabled**.
5. Click **OK** to save changes and close the *Service Properties* dialog.
6. Repeat steps 3-5 for the remaining three RMS services.

Once all four RMS v3.3 services are disabled, you are ready to install RMS Enterprise.

Using a RMS v3.3 Database with RMS Enterprise

If you intend to use an existing Legacy (v3.3) RMS Database with RMS Enterprise, the data must be migrated. See the *Migrating a Legacy RMS Database To RMS Enterprise* section on page 38 for details.

AMX RMS Server Installer

Overview

The AMX RMS Enterprise Installer application is available for AMX dealers to download from www.amx.com/rms/.

NOTE

Tomcat must be stopped during the process of installing RMS Enterprise. If Tomcat is running, stop the service before continuing with the RMS Enterprise installation.

1. Download the RMS Enterprise installation file (i.e. **ResourceManagementSuite.exe**) from www.amx.com/rms/.
2. On the server that will run RMS, double-click the file to launch the *AMX RMS Server Installer.* The initial dialog is the **Welcome** dialog (FIG. 18):

FIG. 18 AMX RMS Server Installer - Welcome dialog

3. Review the notes and copyright information, and click **Next** to proceed to the *License Agreement* dialog (FIG. 19):

FIG. 19 AMX RMS Server Installer - License Agreement dialog

4. Read the license agreement, and select **I accept the terms of this license agreement**.

5. Click **Next** to proceed to the next dialog, where you can specify installation directories for both the RMS and Tomcat installations (FIG. 20). Enter specific file path information for each if necessary (click the *Browse* buttons to navigate to the desired directories in the *Choose Your Directory* dialog). However, in most cases, the default directory settings can be used.

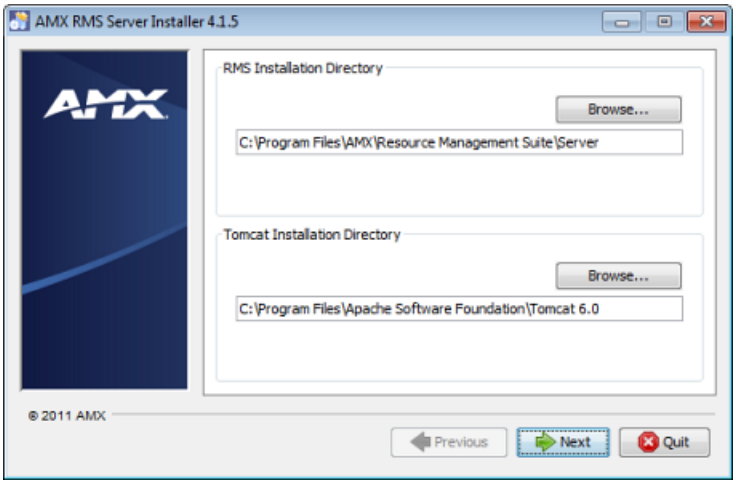

FIG. 20 AMX RMS Server Installer - Installation Directories

NOTE

The Tomcat installation procedure is described in the previous section. At this point, Tomcat should have already been installed.
The Tomcat Installation Directory path should only be changed if Tomcat was installed to a directory other than the default, as described in the Installing Apache Tomcat v6.0.x section on page 17*.*

6. Click **Next** to proceed. This action initiates the installation, as indicated in the *Installation Progress* dialog (FIG. 21):

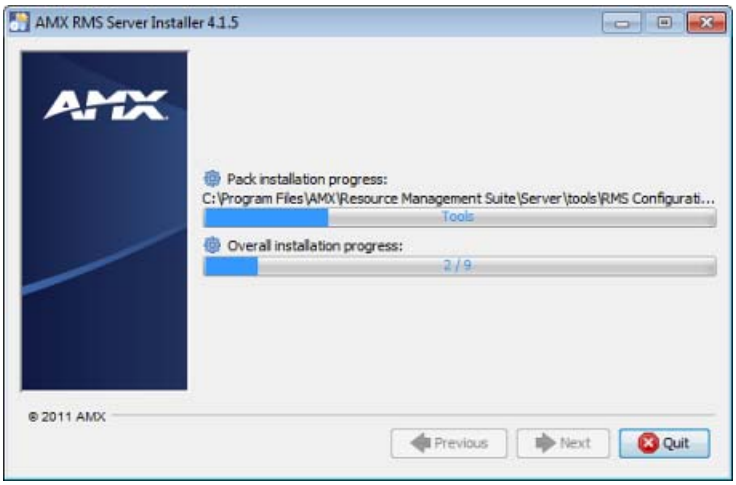

FIG. 21 AMX RMS Server Installer - Installation Progress

7. When the installation is complete, the *Next* button is enabled. Click **Next** to proceed to the *Setup Shortcuts* dialog (FIG. 22). This dialog allows you to specify where to install RMS program shortcuts:
   - By default, the **Create shortcuts in the Start-Menu** option is selected. De-select this option to prevent shortcuts from being added to the Start menu.
   - By default, shortcuts are created for **all users** that access this server (as indicated under *create shortcut for:*). Select **current user** to limit shortcut creation to the current user's UI only.
   - By default, shortcuts are created in the **AMX Resource Management Suite/Server** directory. To change the target directory for shortcuts, enter a different file path in the text field provided. Click the **Default** button to reset the path to the default.

FIG. 22 AMX RMS Server Installer - Setup Shortcuts

Click **Next** to proceed.

8. Once the *Installation Progress* dialog indicates *Finished*, click **Next** to proceed to the *Installation Complete* dialog (FIG. 23):

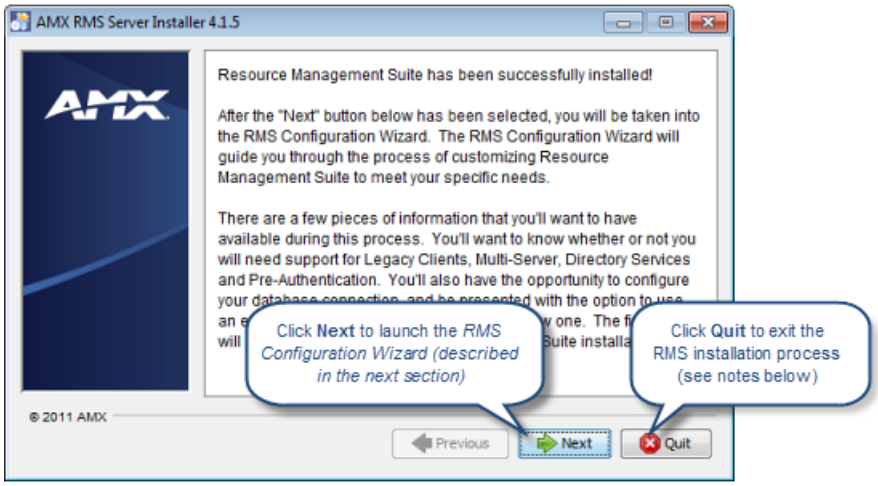

FIG. 23 AMX RMS Server Installer - Installation Complete

As indicated in this dialog, RMS Server has been successfully installed at this point.

9. Click **Next** to launch the *RMS Server Configuration* tool (described in the next section - see page 29).

The *Installation Complete* dialog (FIG. 23) also provides the option to **Quit**, in which case the RMS Server Installer will close. Note that at this point, the RMS Server has been *installed*, but not *configured*.

The *RMS Configuration Wizard* must be completed before RMS Enterprise can be used, therefore the installation process is not yet complete.

- It is highly recommended to click **Next** and continue to the *RMS Configuration Wizard* to complete the installation process. However, if it is necessary for any reason to stop at this point, Tomcat can be restarted if desired.
- Remember that Tomcat must be stopped again before running the RMS Configuration Wizard.

RMS Server Configuration

Overview

After installing the RMS Server application (see the *AMX RMS Server Installer* section on page 25) you must complete the *RMS Server Configuration* tool to register and enable your server.

The *RMS Server Configuration* tool also provides an opportunity to configure your database connection, and whether to use an existing database catalog or create a new one.

There are a few pieces of information that you'll want to have available during this process. Specifically, whether or not you will need support for:

- Legacy Clients
- Multi-Server
- Directory Services
- Pre-Authentication

1. Launch the *RMS Server Configuration* tool:
   - The *RMS Server Configuration* tool described in this section is how the Server Configuration dialogs are presented when accessed via the **Next** button in the final dialog of the AMX RMS Server Installer (see FIG. 23 on page 27).
   - You can also access the *RMS Server Configuration* options at any time to modify system settings or diagnose system related problems.

     To manually launch the *RMS Server Configuration* application, select:
     C:\Program Files\ AMX\Resource Management Suite\Server\RMS Configuration
     Note that when the application is launched manually, the options are presented as tabs rather than the serial dialogs presented in the Wizard.
2. The first dialog in the wizard is the *Log and Data Files Locations* dialog. The options in this dialog allow you to specify directories on the server for both Log Files and Data Files (FIG. 24).

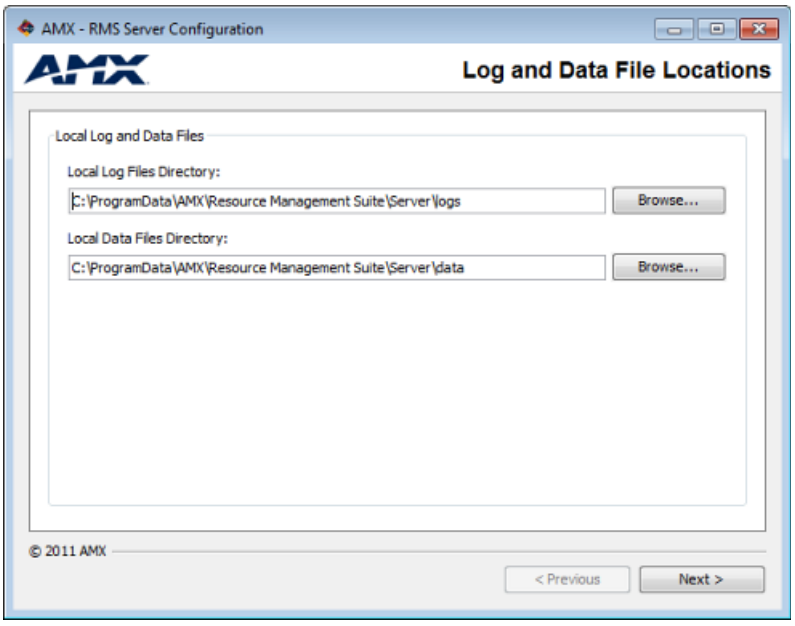

FIG. 24 RMS Server Configuration tool - Log and Data Files Locations dialog

Note that these options are presented in the *File Location* tab (if the *RMS Server Configuration* application was launched manually).

3. Enter specific file path information for each file type if necessary (click the *Browse* buttons to navigate to the desired directories in the *Choose Your Directory* dialog). However, in most cases, the default directory settings should be used.
4. Click **Next** to proceed to the *Legacy Configuration* dialog (FIG. 25).

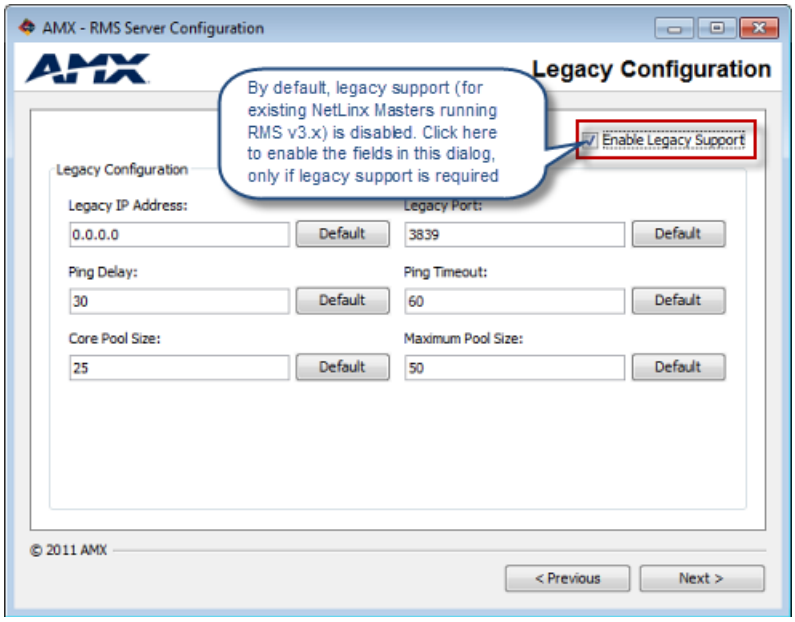

FIG. 25 RMS Server Configuration tool - Legacy Configuration dialog

NOTE

Throughout the dialogs in the RMS Server Configuration tool, any required fields that are not filled in are indicated with red shading.

Legacy Configuration refers to the process of configuring existing NetLinx Masters running RMS v3.x (or earlier) code for use with RMS Enterprise servers.

Note that by default, Legacy Support is disabled (as indicated by the un-checked *Enable Legacy Support* option in the upper-right corner of the dialog). The options in this dialog are only available if the *Enable Legacy Support* option is selected (as shown above).

If you are not planning to use NetLinx Masters running RMS v3.x (or earlier) code with RMS Enterprise servers, leave this option de-selected, and click **Next** to proceed.

If you are migrating to RMS Enterprise from a previous version of the RMS SDK, either fill in these fields, or accept the default values:

Legacy Configuration Options	
• Legacy IP Address	This field identifies the IP address of the RMS Enterprise server. ***Note**: This value should only be changed if there are multiple NIC cards in the RMS Enterprise Server (as in a multi-server installation).* Default = **0.0.0.0**
• Legacy Port	This field identifies the IP port on which the Legacy (v3.x) RMS server accepts connections from legacy NetLinx masters. Default = **3839** (this is an IANA registered port for Legacy (v3.x) RMS communications).
• Ping Delay	The Ping Delay setting is used to ensure that NetLinx clients are connected to the RMS server. On this configured time interval, the RMS server broadcasts request messages to the NetLinx clients. If the NetLinx clients do not respond within a specified amount of time, the RMS server assumes the connection has been lost and the NetLinx system is offline. Default = **30** (seconds)

Legacy Configuration Options (Cont.)	
• Ping Timeout	This value sets the maximum amount of time that the RMS server allows between NetLinx client ping responses. If the NetLinx client does not return a ping response within this amount of time, the RMS server assumes the connection has been lost and the NetLinx system is offline. Default = **60** (seconds)
• Core Pool Size	This value specifies the minimum number of threads allocated by the RMS Enterprise Server to talk to Legacy (v3.x) RMS Servers. Default = **25**
• Maximum Pool Size	This value specifies the maximum number of threads allocated by the RMS Enterprise Server to talk to Legacy (v3.x) RMS Servers. Default = **50**

Note that these options are presented in the *Legacy* tab (if the *RMS Server Configuration* application was launched manually).

5. Click **Next** to proceed to the *Multi-Server Configuration* dialog.
   The options in this dialog allow you to configure RMS systems that use multiple servers (FIG. 26).

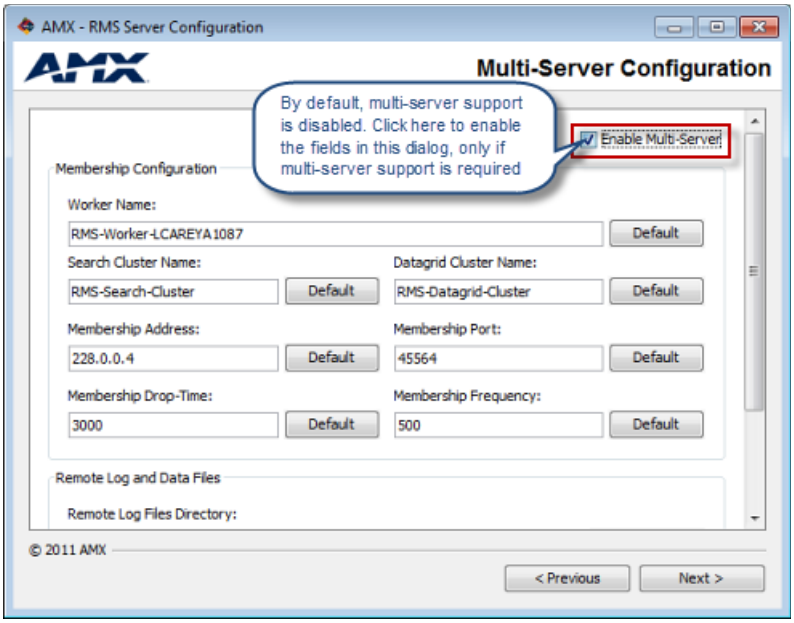

FIG. 26 RMS Server Configuration tool - Multi-Server Configuration dialog

NOTE

For multi-server installations, each server must be configured individually via this portion of the wizard.

- Note that Multi-Server Support is disabled by default. The options in this dialog are only available if the *Enable Multi-Server* option is selected. If you are not installing RMS in a multi-server environment, leave this option de-selected, and click **Next** to proceed.
- If you are installing RMS in a multi-server environment, either fill in these fields, or accept the default values:

Multi-Server Configuration Options	
Membership Configuration	
• Worker Name	Enter the host name or IP Address of this server as it exists in the load balancing server's Worker List. The Worker Name must be unique and must match the name that identifies this server on the Load Balancing Server.

Multi-Server Configuration Options (Cont.)	
• Search Cluster Name	Enter the name of the Search Cluster to which this server will be added. The Search Cluster Name must be identical for all servers in the multi-server farm.
• Datagrid Cluster Name	Enter the name of the Datagrid Cluster in which this server will participate. The Datagrid Cluster Name must be identical for all servers in the multi-server farm.
***Note**: Search Cluster Name and Datagrid Cluster Name only need to be changed from their default values in cases where two distinct RMS multi-server farms are being installed.*	
• Membership Address	Enter the multicast address on which the servers will broadcast their presence and listen for other membership broadcasts. ***Note**: Verify that your network is enabled for multicast traffic.* The multicast address, in conjunction with the port is what creates a cluster group. To divide up your farm into several different groups, change the port or the address. Default = **228.0.0.4**
• Membership Port	Enter the multicast port address. The multicast port, in conjunction with the address is what creates a cluster group. To divide up your farm into several different groups, change the port or the address. Default = **45564**
• Membership Drop-Time	The membership component will time out members and notify the Channel if a member fails to send a membership broadcast within the time-frame specified here. If a membership broadcast is not received from a member in the specified time-frame, the cluster will be notified. ***Note**: On a high latency network you may wish to increase this value, to protect against false negatives (premature drops).* Default = **3000 (ms)**
• Membership Frequency	Enter the frequency in milliseconds in which membership broadcasts are sent out. Changing this value simply changes the interval in between membership broadcasts. Default = **500 (ms)**
Remote Log and Data Files	
• Remote Log Files Directory	Remote Log Files represent a compilation of log files for all servers in the RMS installation. ***Note**: Log file names are prepended with the Worker Name to distinguish them from each other.* Enter specific path information for the target directory to be used for Remote Log Files (click the Browse buttons to navigate to the desired directory in the *Choose Your Directory* dialog). • The remote log file path should be a common shared network path that is accessible by all RMS servers. • This same directory path should be configured the same on each RMS server participating in the RMS web server farm.
• Remote Data Files Directory	All servers in the RMS installation utilize the same search index. Remote Data Files represent a compilation of data files for all servers in the RMS installation. Enter specific path information for the target directory to be used for Remote Data Files (click the Browse buttons to navigate to the desired directory in the *Choose Your Directory* dialog). • The remote data file path should be a common shared network path that is accessible by all RMS servers. • This same directory path should be configured identically on each RMS server participating in the RMS web server farm. ***Note**: If the search index is lost (due to hardware failure or file corruption), it can be rebuilt via the Rebuild Search Index option in the RMS Enterprise UI.*

Note that these options are presented in the *Multi-Server* tab (if the *RMS Server Configuration* application was launched manually).

Refer to *Appendix C: Clustered Deployment* on page 109 for more information.

NOTE

It is strongly recommended that the Windows firewall be disabled on all servers in a multi-server installation, to avoid having communications required by RMS being blocked.

6. Click **Next** to proceed to the *Directory Services Configuration* dialog. The options in this dialog allow you to configure RMS to use directory services (*LDAP* or *Windows Active Directory*) for authentication and user management (FIG. 27):

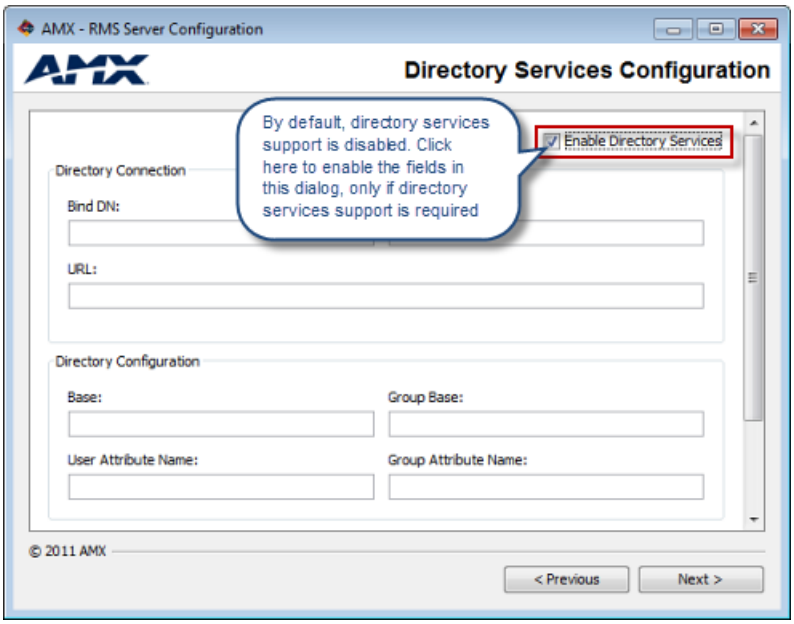

FIG. 27 RMS Server Configuration tool - Directory Services Configuration dialog

NOTE

The Directory Services supported by RMS Enterprise are "LDAP" and "Windows Active Directory".

Note that by default, Directory Services Support is disabled (as indicated by the un-checked *Enable Directory Services* option in the upper-right corner of the dialog). The options in this dialog are only available if the *Enable Directory Services* option is selected (as shown above).

- If you are not installing RMS in a directory-enabled environment, leave this option de-selected, and click **Next** to proceed.
- If you are installing RMS in a directory-enabled environment, either fill in these fields, or accept the default values:

Directory Services Configuration Options	
Directory Connection	
• Bind DN	Enter the Distinguished Name (DN) of the Active Directory user account that RMS will use for connecting to the Active Directory server and searching for / reading directory information. • This field is required and cannot be left blank. • Refer to the RMS Enterprise System Administrator's Guide (Appendix: Using Directory Services) for more information.
• Bind DN Password	Enter the password corresponding to the Bind DN in this field. After being input, it will be encrypted.
• URL	Enter the URL of the of the Directory Services server in this field.

Directory Services Configuration Options (Cont.)	
Directory Configuration	
• Base	Enter the base DN used to search for users.
• Group Base	Enter the base DN used to search for groups.
• User Attribute Name	Enter the name of the attribute on the Directory Services server that specifies the names of group members for a group entry.
• Group Attribute Name	Enter the name of the attribute on the Directory Services server that specifies the group name for a group entry.
Missing User Cleanup Thresholds	
RMS provides an automatic User Cleanup process that periodically compares User records in the RMS database to User records in the Directory Services server database. This is to avoid situations where a User is removed from the Directory Services server database, but still exists in the RMS database. Prior to any accounts being removed as a result of this comparison, a basic check is performed to ensure the count of users to remove is below a fixed total and percentage of existing users. If the number of users scheduled for removal exceeds either of these values, no accounts will be removed. This is simply to prevent the accidental removal of RMS user account in specific cases. Missing User Cleanup thresholds are controlled by these two entries: • **Max Number Users** - If during account verification the total number of user accounts to be eliminated exceeds this value, no accounts will be removed from RMS. • **Max Percent Users** - The value assigned here is defined as a percentage of total RMS accounts. If the number of accounts to be purged exceeds this percentage, no accounts will be removed from RMS. ***Note**: In most cases, these numbers can be set at high thresholds, which effectively disables this function.*	

Note that these options are presented in the *Directory Services* tab (if the *RMS Server Configuration* application was launched manually).

NOTE

Refer to the RMS Enterprise System Administrator's Guide (Appendix: Using Directory Services) for details on the RMS Enterprise support of service directories.

7. Click **Next** to proceed to the *Pre-Authentication Configuration* dialog. Pre-authentication allows Users that have already successfully logged in to the network to access RMS without having to provide additional login credentials specifically for RMS. The options in this dialog allow you to select between *Windows* or *SiteMinder* as the Pre-Authentication Filter type (FIG. 28).

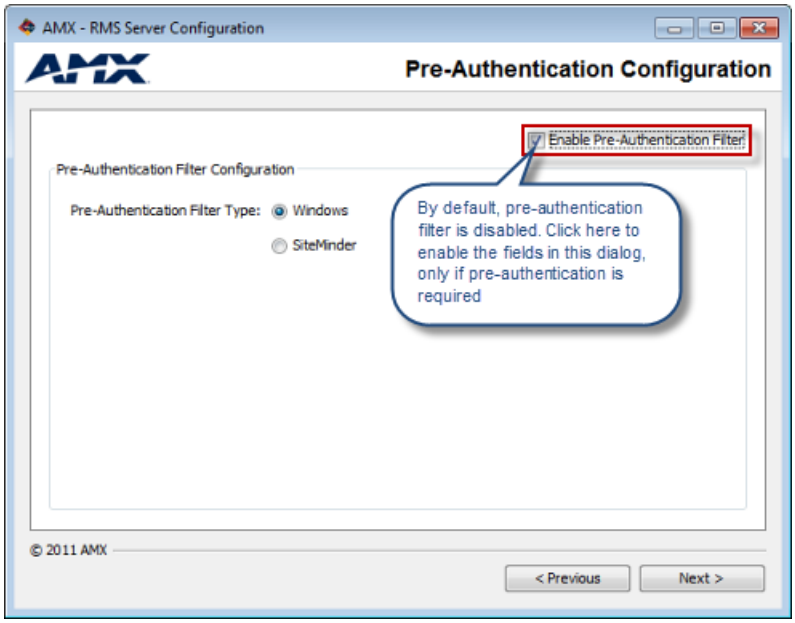

FIG. 28 RMS Server Configuration tool - Pre-Authentication Configuration dialog

Note that these options are presented in the *Pre-Authentication* tab (if the *RMS Server Configuration* application was launched manually).

Note that **Windows** is selected by default.

NOTE

The Pre-Authentication information entered here allows end-users to access the RMS user-interface, and is separate from Database Authentication requirements (defined in the Database Configuration dialog (see below).

8. Click **Next** to proceed to the *Database Configuration* dialog. Use the options in this dialog to configure the RMS database or connect to an existing RMS database (FIG. 29):

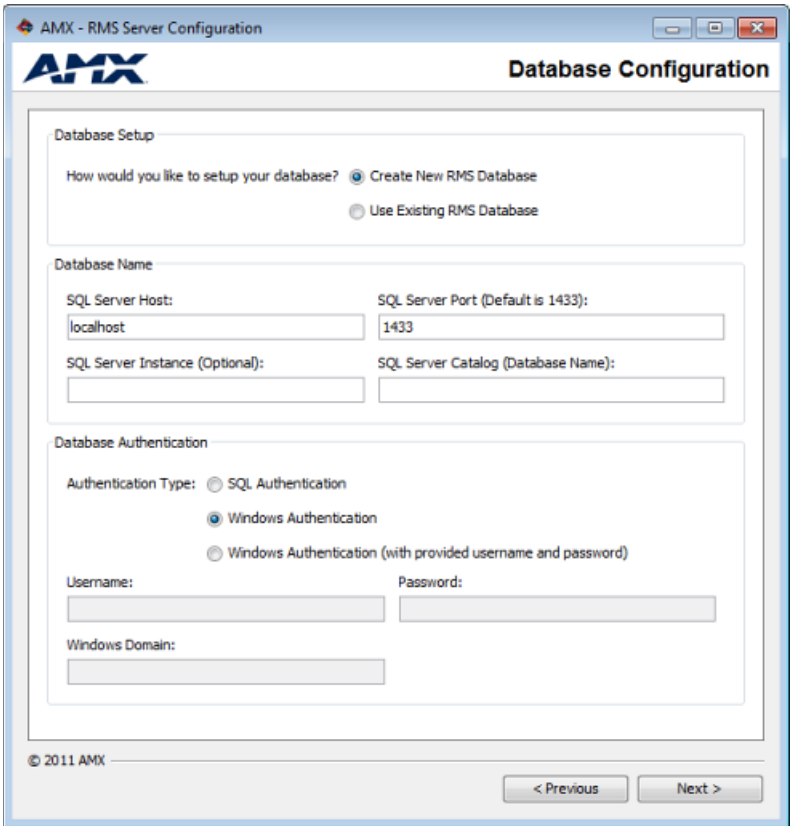

FIG. 29 RMS Server Configuration tool - Database Configuration dialog

Database Configuration Options	
Database Setup	
Create New RMS Database	Select this option to create a new RMS Enterprise database. ***Note**: This option should be used anytime you are installing a new RMS Enterprise system. This option will create a new RMS database catalog, install the RMS database schema, and populate the RMS default data records.* *If a new empty database catalog was created externally, then the database installer will skip the create catalog step and proceed with installing schema and data.* • *An empty database catalog means that no tables, views, or stored procedures exist in the catalog.* • *RMS will not install schema or default data to an existing catalog that is not empty.* ***Note for Multi-Server Installations:** The first server in a multi-server installation should use the **Create New Database** option. The remaining servers should use the **Use Existing Database** option, and utilize the same database as the first configured server.*

Database Configuration Options (Cont.)	
Use Existing RMS Database	Select this option to use an existing RMS database. ***Note**: This option should only be used when migrating data from an existing RMS 3.x (Legacy) database or when upgrading the RMS Enterprise server and you want to continue using an existing RMS Enterprise database.* • *If you will be specifying an existing RMS 3.x ("Legacy") database, the database must be migrated to become compatible with RMS Enterprise.* • *See the Migrating a Legacy RMS Database To RMS Enterprise* section on page 38 *for details.* • *See the Note above for multi-server installations.*
Database Name	
SQL Server Host	Enter the SQL Server Host name or IP address required to connect to the server. Default = **localhost**
SQL Server Port	Enter the SQL Server port number required to connect to the server. Default = **1433**
SQL Server Instance	If applicable to your installation, enter the instance name of the SQL server used by RMS.
SQL Server Catalog	Enter the name of the SQL Server Catalog (Database) used by RMS.
Database Authentication	
Authentication Type	Select an Authentication Type: • **SQL Authentication** - this option requires that you specify a *username* and *password* in the text fields below. • **Windows Authentication** • **Windows Authentication with provided username and password** - this option requires that you specify a *username* and *password* as well as a *Windows Domain* name in the text fields below. ***Note**: In order for the RMS installer to create a new database catalog instance, the database user account will require the "CREATE DATABASE" permissions.* *Alternatively, if a new empty RMS database catalog is created by any means outside of the RMS installer and configuration tools, then this database user account will only require "DB_OWNER" permissions to the externally created, empty RMS catalog.*

Note that these options are presented in the *Database* tab (if the *RMS Server Configuration* application was launched manually).

a. If **Create New RMS Database** is selected (under *Database Setup*), click **Next** to proceed to the *RMS Admin and User Passwords* dialog. Use the options in this dialog to specify the password that will be applied to the RMS administrator account after your RMS database has been created (FIG. 30).

FIG. 30 RMS Server Configuration tool - RMS Admin and User Passwords dialog

Enter the password in both text fields and click **Next**. This launches the database updates procedure, as indicated in the *Database Updates* dialog (FIG. 31).

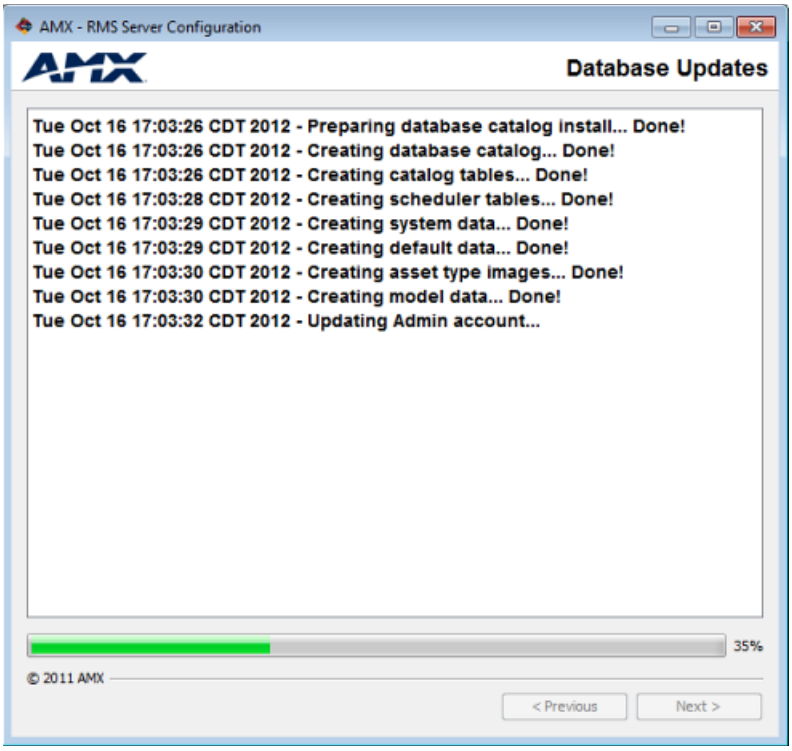

FIG. 31 RMS Server Configuration tool - Database Updates dialog

When this dialog indicates that the process is complete (as shown above), click **Next** to proceed:

b. If **Use Existing RMS Database** is selected (under *Database Setup*), and the existing database is an *RMS Enterprise* database, then click **Next** to proceed to the *License Configuration* dialog, described in **Step #9** (below).

c. If **Use Existing RMS Database** is selected (under *Database Setup*), and the existing database is a *Legacy (RMS v3.x or earlier)* database, then follow the instructions provided in the *Migrating a Legacy RMS Database To RMS Enterprise* section on page 38.

9. The options in the *License Configuration* dialog allow you to configure RMS Enterprise licenses (FIG. 32).

a. To complete the configuration, a valid RMS Enterprise license must be provided at this point.

b. Select **Configure RMS Licenses** to launch the *AMX License Manager* application. The *AMX License Manager* steps you through the process of licensing RMS (described in the next section).

Note that these options are presented in the *Licensing* tab (if the *RMS Server Configuration* application was launched manually).

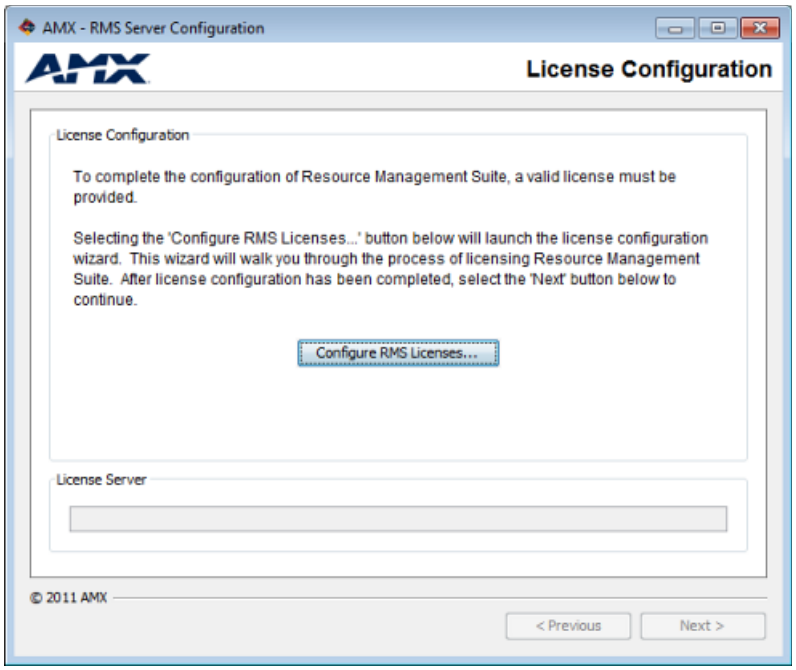

FIG. 32 RMS Server Configuration tool - License Configuration dialog

Migrating a Legacy RMS Database To RMS Enterprise

If you will be using an existing Legacy (RMS 3.x) database (as specified in the *Database Configuration* dialog in the RMS Server Configuration tool), the database must be migrated to become compatible with RMS Enterprise, as described below:

1. Launch the *RMS Server Configuration* application by selecting:
   C:\Program Files\ AMX\Resource Management Suite\Server\RMS Configuration
2. Select the *Legacy* tab (FIG. 33):

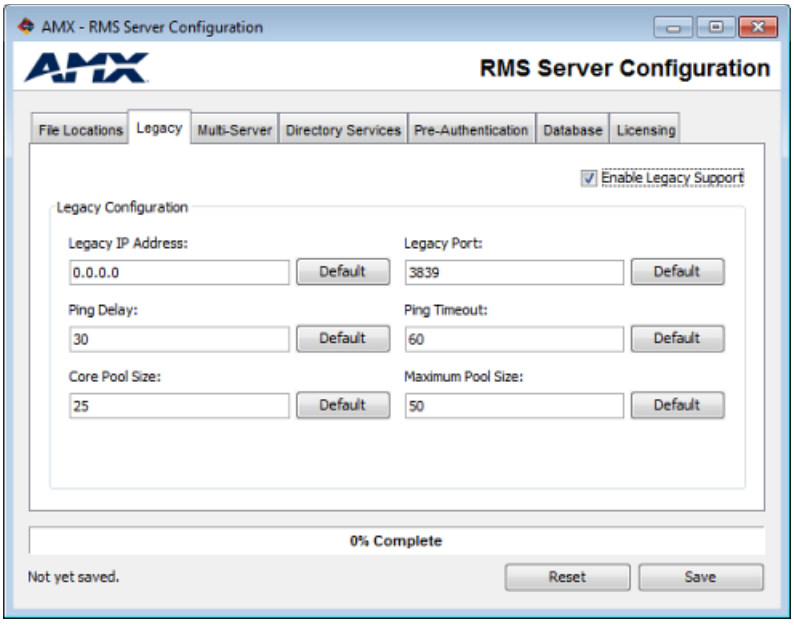

FIG. 33 RMS Server Configuration - Legacy tab

3. In the *Database Configuration* dialog, enter the IP Address or hostname of the Legacy Database Server in the **SQL Server Host** field.

4. Enter the v3.x database name in the **SQL Server Catalog** field.
5. Enter **Database Authentication** information as required by the specified server.
6. Click **Next** to proceed. At this point the application will prompt you to verify the action of migrating the data from the Legacy database (FIG. 34):

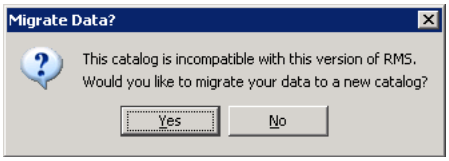

FIG. 34 Migrate Data? dialog

7. Click **Yes** to proceed to the *Where would you like to create your new catalog?* dialog (FIG. 35):

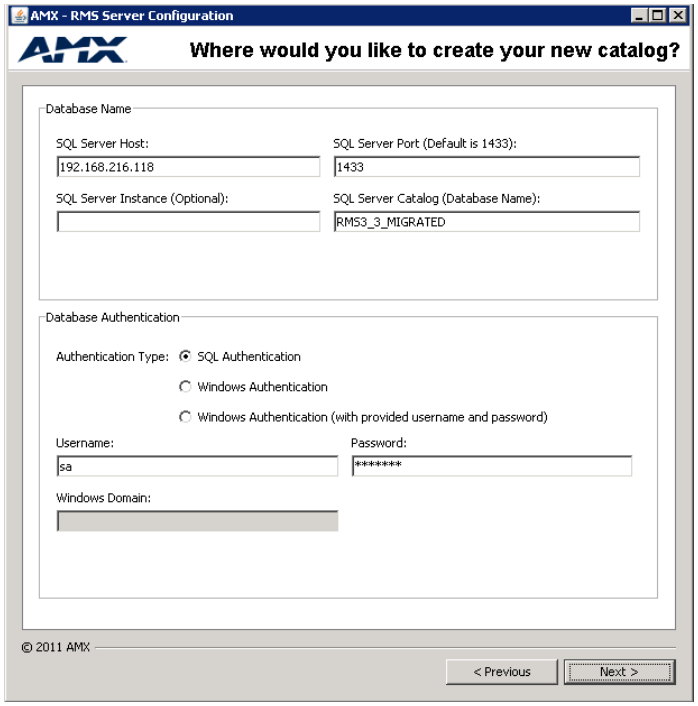

FIG. 35 RMS Server Configuration tool - Where would you like to create your new catalog? dialog

Note that by default, the new catalog is created on the same Server, with the same *SQL Server Catalog* name, with "*_MIGRATED*" appended to it (for example "RMS3_3" becomes "RMS3_3_MIGRATED").

8. Review this information and make any necessary changes, then click **Next** to proceed to the *RMS Admin and User Passwords* dialog (FIG. 36).

FIG. 36 RMS Server Configuration tool - RMS Admin and User Passwords dialog

a. Under *RMS Administrator's Password*, enter an **RMS Admin Password**, and re-enter it in the next field. This password will be applied to the RMS administrator account after your RMS database has been created.

b. Under *RMS User Password*, enter an **RMS Admin Password**, and re-enter it in the next field. This password will be applied to all regular RMS user accounts after your RMS database has been created. For security reasons, after the user of each account has successfully logged in for the first time, he or she will be requested to enter a new password.

9. Click **Next** to proceed to the *Database Updates* dialog, which indicates the progress of the migration procedure (FIG. 37).

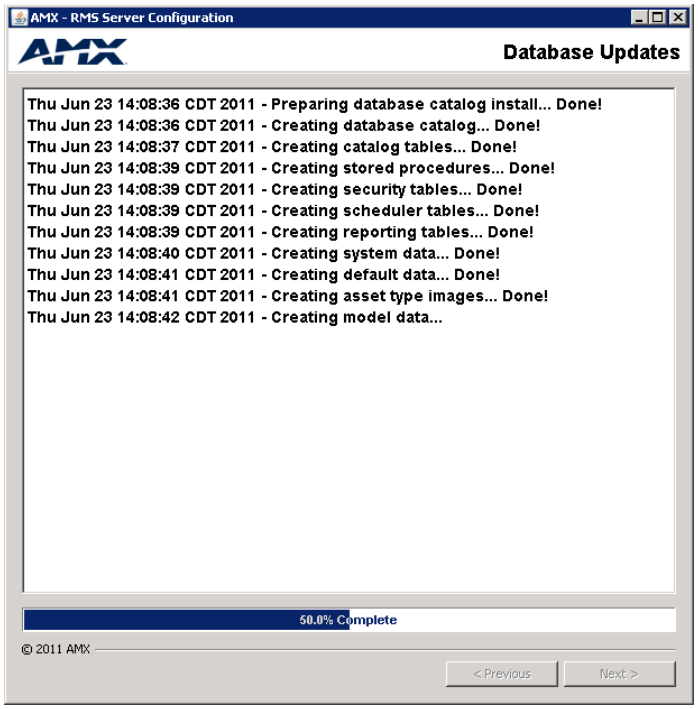

FIG. 37 RMS Server Configuration tool - Database Updates dialog

10. When the process is complete, click **Next** to proceed to the *License Configuration* dialog (see FIG. 32 on page 38). The options in the *License Configuration* dialog allow you to configure RMS Enterprise licenses.
11. Proceed to the next section - *AMX License Manager* on page 43.

AMX License Manager

Overview

The *AMX License Manager* is used to install and manage software licenses for RMS Enterprise (as well as other AMX software applications). The *AMX License Manager* handles two distinct aspects of the RMS Enterprise installation:

1. Installation of the *AMX License Server* application, which identifies existing licenses of AMX software products (including RMS Enterprise) present on the server. See *Installing the AMX License Server* below for details.
2. Entry of the RMS Entitlement information required to install and activate your RMS Enterprise Server and Client Licenses. See the *Licensing Options Menu dialog* section on page 51 for details.

Licensing in Multi-Server Installations

Multi-server installations require a single instance of *AMX License Server* that can be accessed by the other servers in the installation. Therefore, *AMX License Server* is only installed on the Primary RMS Enterprise server (the first server configured), and shared among all of the subsequent servers.

Note that RMS Enterprise does not support clustering of the *AMX License Server*. The diagram in FIG. 38 indicates the basic relationship between the AMX License Server and the server nodes in a multi-server installation:

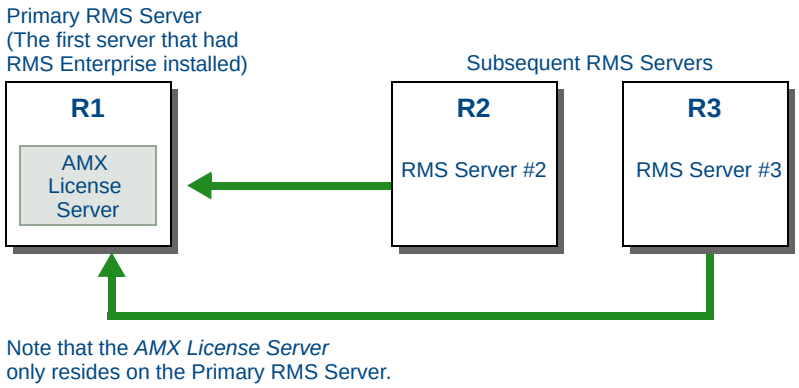

FIG. 38 Licensing in Multi-Server Installations

As indicated in FIG. 38, if in the unlikely case that the Primary RMS Server were to fail, then subsequent servers (R2 and R3) will not have access to the *AMX License Server*.

This situation will lead to a fault condition in which the RMS system will cease to function after a fault period of *24 hours*.

NOTE

Note that this fault condition will not generate an error message from RMS Enterprise; check the cluster to see if the Primary RMS Server has failed.

In order to avoid a loss of RMS functionality, the AMX License Server must be restored to an operational state. All of the RMS Servers will expect the AMX License Server to be hosted at the same hostname / IP address

Installing the AMX License Server

RMS Enterprise uses a network license server to store and manage the product licenses. This is the "*AMX License Server"* application referred to in the AMX License Manager dialogs below.

1. Select **Configure RMS Licenses** in the *License Configuration* dialog (the last dialog in the RMS Server Configuration tool - see FIG. 32 on page 38) to launch the *AMX License Manager.*

   The initial view is the *Welcome to AMX Licensing Manager* dialog (FIG. 39).

FIG. 39 AMX License Manager Wizard - Welcome dialog

2. Click **Next** to proceed to the *Select License Server* dialog. Use the options in this dialog to install the *AMX License Server* application on this machine, or select an existing network license server (FIG. 40).

FIG. 40 AMX License Manager Wizard - Select License Server

3. Choose one of the *Select License Server* options:
   - **Install the AMX License Server on this machine -** Use this (default) option if the *AMX License Server* application is not currently installed on this machine**.** This option is also appropriate for configuring the first server in a multi-server installation (see page 45).

- **Search the network for available license servers -** Use this option if the *AMX License Server* application is on the network. This option can be used to locate and select the AMX License Server in multi-server installations (see page 47).
- **Manually enter the license server hostname or IP address -** Use this option to manually enter the hostname or IP address of the *AMX License Server* that you will connect to. This option can be used to specify the AMX License Server in multi-server installations (see page 48).

  Each of these options are described in the following sections.

Install the AMX License Server on this machine

If the *AMX License Server* application has not previously been installed on this server, then the first option (selected by default) is to install the *AMX License Server* on this machine.

1. Select the **Install the AMX License Server on this machine** option in the *Select License Server* dialog (see FIG. 40).
2. Click **Next** to install the *AMX License Server* application (FIG. 41):

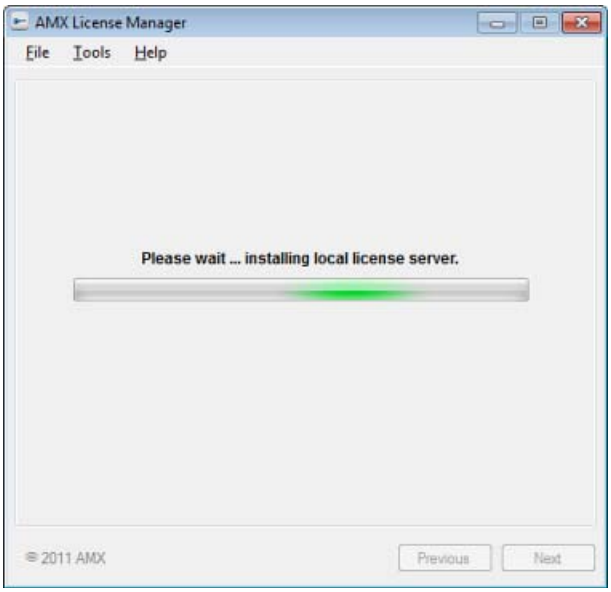

FIG. 41 AMX License Manager Wizard - Select Licensing Option dialog

3. Once the installation is complete, the AMX License Manager searches for product licenses.
4. When no licenses are found on the server, the *Select Licensing Option* dialog is presented (FIG. 42):

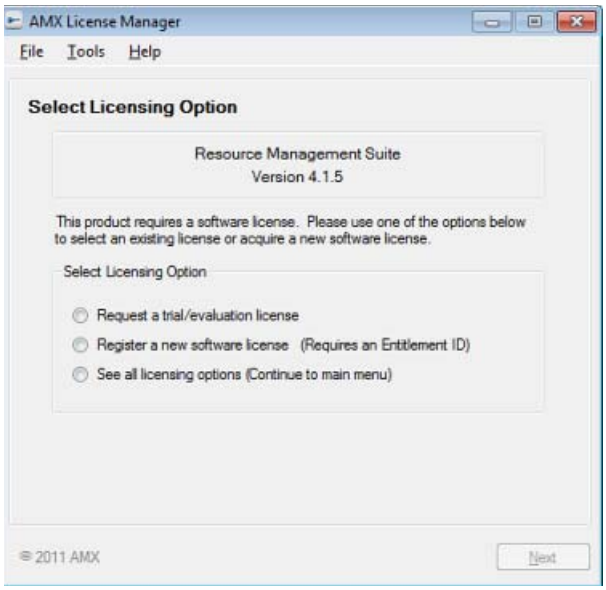

FIG. 42 AMX License Manager Wizard - Select Licensing Option dialog

5. Select one of the licensing options listed and then click **Next**.

- If **Request a trial/evaluation license** is selected, the next dialog presented is the *Contact Information* dialog. Refer to the *Requesting a Trial/Evaluation License* section on page 53 for instructions.
- If **Register a new software license (Requires an Entitlement ID)** is selected, the next dialog presented is the *Contact Information* dialog. Refer to the *Registering a Purchased License* section on page 63 for instructions.
- If **See all licensing options (Continue to main menu)** is selected, the next dialog presented is the *Licensing Options Menu* dialog. Refer to the *Selecting a Licensing Option* section on page 50 for instructions.

Use the local license server installed and running on this machine

Once the *AMX License Server* application has been installed locally (as described in the previous section), the first option in the *Select License Server* dialog changes to "*Use the previously configured license server"* (FIG. 43).

FIG. 43 Select License Server - Use the previously configured license server

1. With this option selected, click **Next** to proceed to the *Licensing Status* dialog (FIG. 44):

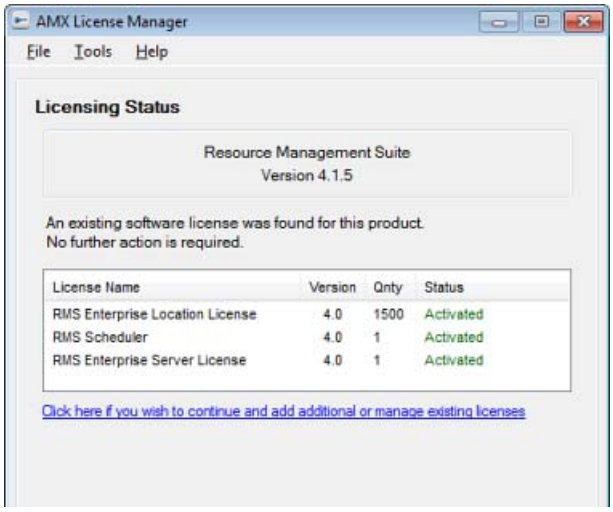

FIG. 44 AMX License Manager Wizard - Licensing Status dialog

2. Click **Finished** to close the AMX License Manager.

Click on the link **Click here if you wish to continue and add additional or manage existing licenses** to jump to the *Licensing Options Menu* dialog (see the *Selecting a Licensing Option* section on page 50).

Search the network for available license servers

1. In the initial *Select License Server* dialog, select the **Select a different license server** option (FIG. 45):

FIG. 45 AMX License Manager - Select a Different License Server

2. Click **Next** to proceed to the next *Select License Server* dialog. This dialog provides a listing of all AMX License Servers detected on the LAN (FIG. 46):

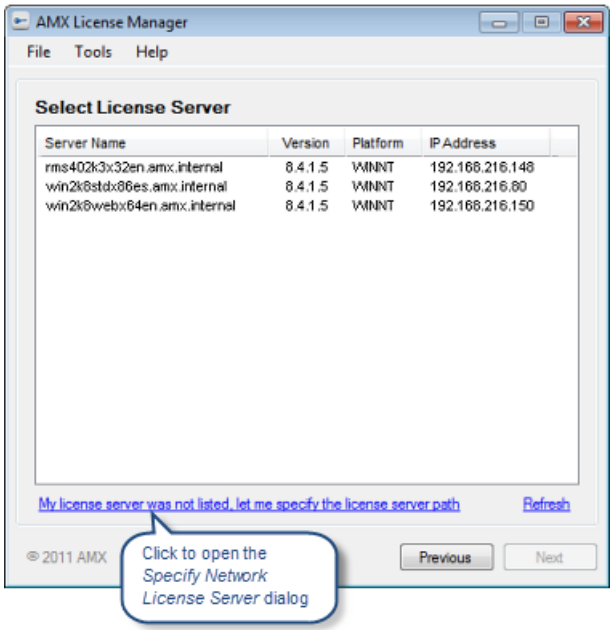

FIG. 46 AMX License Manager - Select License Server

3. Select the desired AMX License Server and click **Next** to proceed to the *Select Licensing Option* dialog (see the *Selecting a Licensing Option* section on page 50).
   - If your server does not appear in the list, click **Refresh**.
   - If after refreshing the server list, you still do not see your server, click on **My License server was not listed, let me specify the license server path** to open the *Specify Network License Server* dialog - see FIG. 48 on page 49.
4. Click **Next** to proceed to the *Licensing Options Menu* dialog (see the *Selecting a Licensing Option* section on page 50).

Manually enter the license server hostname or IP address

FIG. 47 Select License Server - Manually enter the license server hostname or IP address

1. With this option selected, click **Next** to proceed to the *Specify Network License Server* dialog (FIG. 48):

FIG. 48 AMX License Manager Wizard - Specify Network License Server

2. Enter either the hostname or IP address of the Network License Server that you will connect to in the **License Server** field.
3. Click **Next** to attempt to connect to the specified server.
4. Once a connection is established with the Network License Server, click **Next** to proceed to the *Select Licensing Option* dialog (see the *Selecting a Licensing Option* section on page 50).

Additional License Server Options

When the AMX License Manager application is launched on a machine that has previously been used to connect to a license server, the first two options under *Select License Server* are updated to:

- **Use the previously configured license server**
- **Select a different license server**

NOTE

The AMX License Manager application can be launched via the Configure RMS Licenses option in the License Configuration dialog of the RMS Server Configuration tool (see FIG. 32 on page 38).

Use a previously configured license server

The **Use the previously configured license server** option is followed by an indication of the currently configured License Server. Select this option to use pre-defined settings based on the indicated server (FIG. 49):

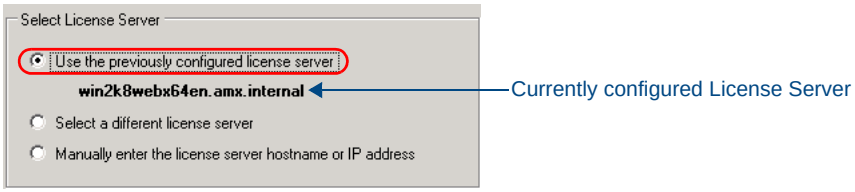

FIG. 49 AMX License Manager Wizard - Use the previously configured license server

1. Select **Use the previously configured license server**.
2. Click **Next** to proceed:
   - If the RMS server is already licensed, the next dialog presented is the *Licensing Status* dialog (see FIG. 44 on page 47).

     Click **Finish** to close the *AMX License Manager* tool.

Click on the link **Click here if you wish to continue and add additional or manage existing licenses** to jump to the *Licensing Options Menu* dialog (see the *Selecting a Licensing Option* section on page 50).

- If the RMS server is *not* currently licensed, the next dialog presented is the *Select Licensing Option* dialog. See the *Selecting a Licensing Option* section on page 50 for instructions.

Select a different license server

Select this option to select a different license server from a listing of all AMX License Servers detected on the LAN (FIG. 50):

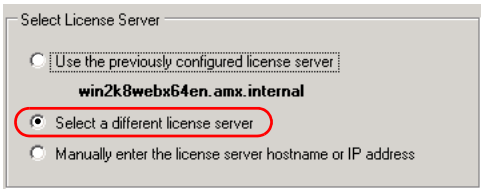

FIG. 50 AMX License Manager Wizard - Select a different license server

1. Select the **Select a different license server** option.
2. Click **Next** to invoke a listing of all AMX License Servers detected on the LAN.
   See the *Search the network for available license servers* section on page 47 for details.
3. Select the desired AMX License Server and click **Next** to proceed to the *Select Licensing Option* dialog (see below).

Selecting a Licensing Option

Once you have connected to the AMX License Server, the *Select Licensing Option* dialog prompts you to select a licensing option for RMS Enterprise (FIG. 51):

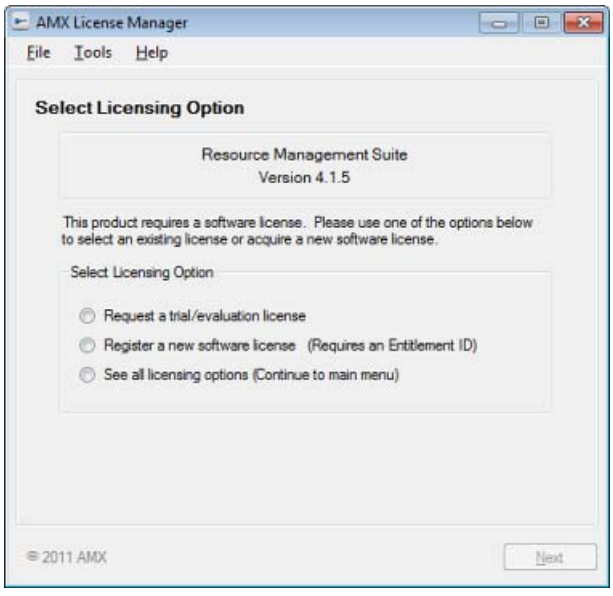

FIG. 51 AMX License Manager Wizard - Select Licensing Option dialog

Request a trial/evaluation license

Select this option if you want to request a free 90-day Trial License. Trial Licenses provide 1 RMS Server License and 1000 RMS Enterprise Client Licenses.

This option requires that you have Internet access (in order to contact the AMX Licensing Server). Refer to the *Installing the AMX License Server* section on page 44 for instructions on installing and running the Licensing Server.

- A trial license for RMS Enterprise can only be obtained one time for a server. When the trial license expires after 90 days, another trial license cannot be obtained. A registered license must be activated to continue using RMS Enterprise.
- Refer to the *Requesting a Trial/Evaluation License* section on page 53 for instructions.

Register a new software license (Requires an Entitlement ID)

Select this option if you are installing a new license for RMS Enterprise. This requires a valid RMS Enterprise *Entitlement ID* (obtained from AMX).

This option requires that you have a valid RMS Enterprise Entitlement ID (obtained from AMX).

- Entitlement IDs begin with the prefix "**ENT-**".
- Refer to the *Registering a Purchased License* section on page 63 for instructions.
- If your network configuration precludes the ability to reach the Internet, then your product license will have to be activated manually as described in the *Manually Activating the Product License* section on page 67.

See all licensing options (Continue to main menu)

Select this option if you have already installed your RMS Enterprise Server License and want to register additional licenses, update an existing license, or view your current licenses. See the *Licensing Options Menu dialog* section on page 51 for details.

This option invokes the *Licensing Options Menu* dialog (see below).

Note that the Licensing Options that are available when you select this option depend on the type of license (Trial or Purchased) already installed:

- If a *Trial License* has been installed, the available options are **Register License By: Entitlement ID** and **View Existing Licenses**. See the *Request a trial/evaluation license* section on page 50.
- If a *Purchased License* has been installed, the available options are **Register License By: Asset ID** and **View Existing Licenses**. See the *Register a new software license (Requires an Entitlement ID)* section on page 51.

Licensing Options Menu dialog

The options in this dialog allow you to select a licensing option for RMS Enterprise (FIG. 52):

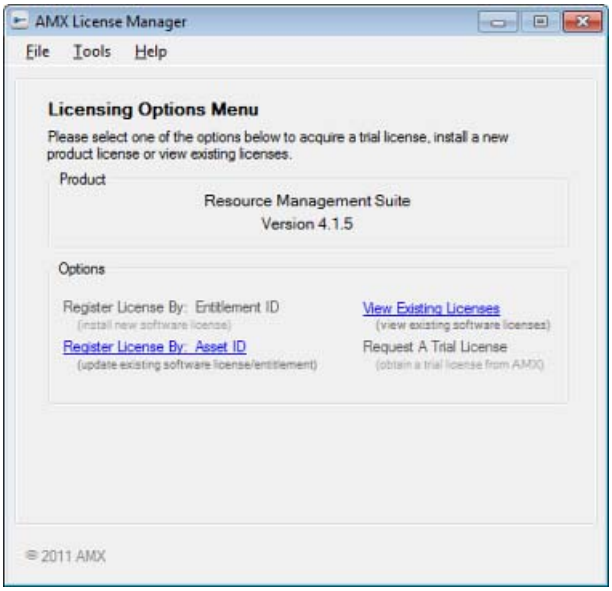

FIG. 52 AMX License Manager Wizard - Licensing Options Menu dialog

NOTE

*Note that once a License has been activated, the **Register License By: Entitlement ID** and **Request a Trial License** options are disabled (as shown above).*

Select the licensing option that corresponds with the desired goal:

Register License By: Entitlement ID

This option requires that you have a valid RMS Enterprise *Entitlement ID* (obtained from AMX). After purchasing software from AMX, you will receive a Entitlement ID. The Entitlement ID is required to acquire and activate the initial license, and will also be required when requesting support services from AMX.

*This option is the same as the **Register a new software license (Requires Entitlement ID)** option in the Select Licensing Option dialog (see FIG. 42 on page 46).*

Select this option if:

- This server is not licensed at all.
- This server already has a trial license that you want to upgrade to a permanent license. See the *Upgrading From a Trial License To a Registered License* section on page 58.
- See the *Registering a Purchased License* section on page 63 for instructions.

Register License by Asset ID

This option requires that you have already installed and activated a license for a purchased version of RMS Enterprise, and you have obtained additional Asset Licenses from AMX.

- Asset IDs are used to activate additional Asset Licenses, in order to add Locations to your RMS System.
- See the *Adding Asset IDs (Locations)* section on page 71 for instructions.

View Existing Licenses

This option allows you to view all existing RMS software licenses detected by the AMX License Manager.

See the *Viewing Existing Licenses* section on page 93 for details.

Request a Trial License

This option allows you to download and install a Trial/Evaluation license of RMS Enterprise.

This option is only available if a purchased license has not already been activated.

- This option is identical to the **Request a Trial/Evaluation License** option presented in the *Select Licensing Option* dialog (see FIG. 51 on page 50). The only difference is that the *Licensing Options Menu* dialog can be accessed at any time via the *Licensing* tab of the RMS Server Configuration application (**Start > Programs > Resource Management Suite >Server > RMS Configuration**).

  The process of installing a Trial License is identical, regardless of which method of access is used.
- See the *Request a trial/evaluation license* section on page 50 for details.

Requesting a Trial/Evaluation License

Overview

Once you have access to the AMX License Server, you can request a Trial/Evaluation license of RMS Enterprise.

- See the *Installing the AMX License Server* section on page 44 for instructions on installing and connecting to the AMX License Server application.
- See the *Upgrading From a Trial License To a Registered License* section on page 58 for instructions on upgrading a Trial License to a purchased License.

NOTE

A trial license of RMS Enterprise can only be obtained one time for a server. When the trial license expires after 90 days, another trial license cannot be obtained. A registered license must be activated to continue using RMS Enterprise. See the Upgrading From a Trial License To a Registered License section on page 58 *for details.*

1. When the AMX License Server is launched, assuming that it detects no licenses on the server, the *Select Licensing Option* dialog is presented (FIG. 53):

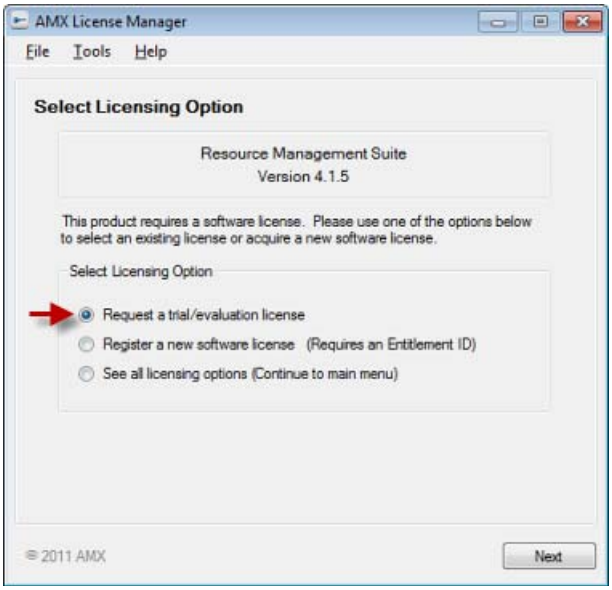

FIG. 53 Select Licensing Option dialog

2. Click the **Request a trial/evaluation license** option.
3. Click **Next** to proceed to the *Contact Information* dialog (FIG. 54):

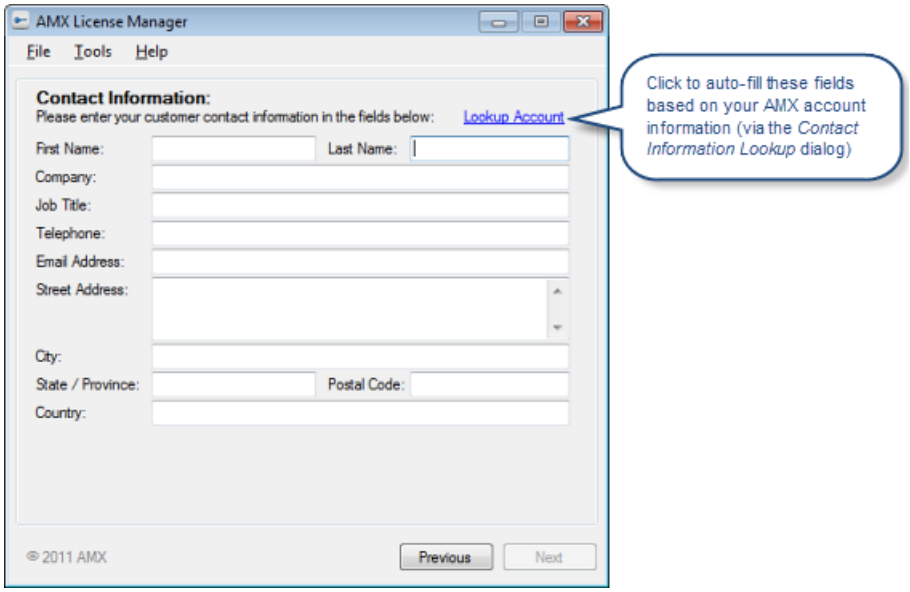

FIG. 54 AMX License Manager Wizard - Contact Information

If you already have an AMX.COM account, click on **Lookup Account** to provide your credentials (email address and password) to automatically populate the contact information for this license based on your existing AMX account information, in the *Contact Information Lookup* dialog (FIG. 55):

FIG. 55 AMX License Manager Wizard - Contact Information Lookup dialog

a. Enter the *Email Address* and *Password* associated with your **www.amx.com** User Account.

b. Click **Next** to proceed to the *Requesting Contact Information* dialog (FIG. 56):

c. Once the information has been successfully retrieved, it is populated into the *Contact Information* dialog.

FIG. 56 AMX License Manager Wizard - Requesting Contact Information

4. Once the contact information has been entered, click **Next** to proceed to the *Customer Information* dialog. The drop-down menu on this dialog allows you to select the market that most applies to your application (FIG. 57).

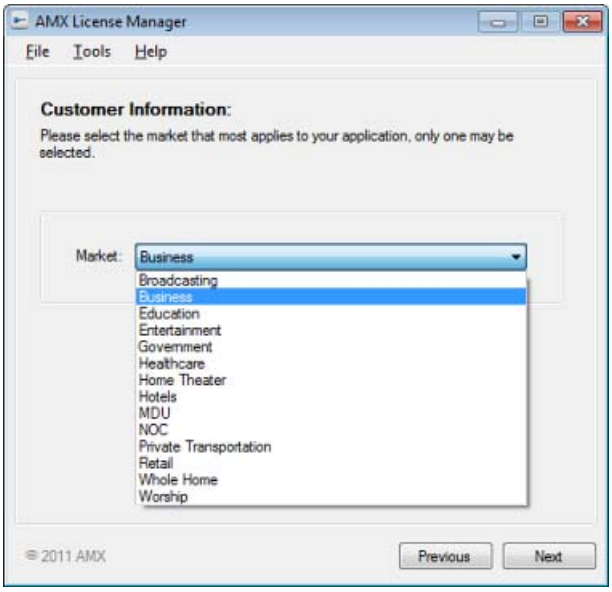

FIG. 57 AMX License Manager Wizard - Customer Information

5. Select from the drop-down menu and click **Next** to contact the AMX Licensing Server to obtain a trial license.

   Progress is indicated in the *Requesting Trial License* dialog (FIG. 58), as the AMX License Server is contacted and the trial license is requested.

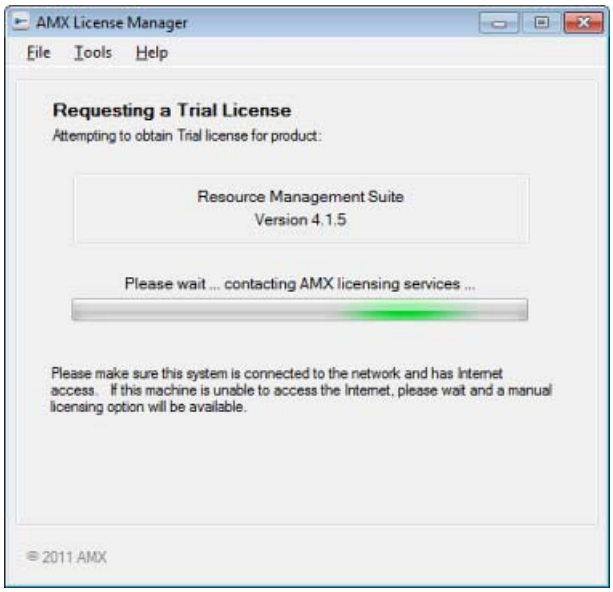

FIG. 58 AMX License Manager Wizard - Requesting Trial License dialog

6. Once the trial license has been obtained, it is automatically activated (FIG. 59):

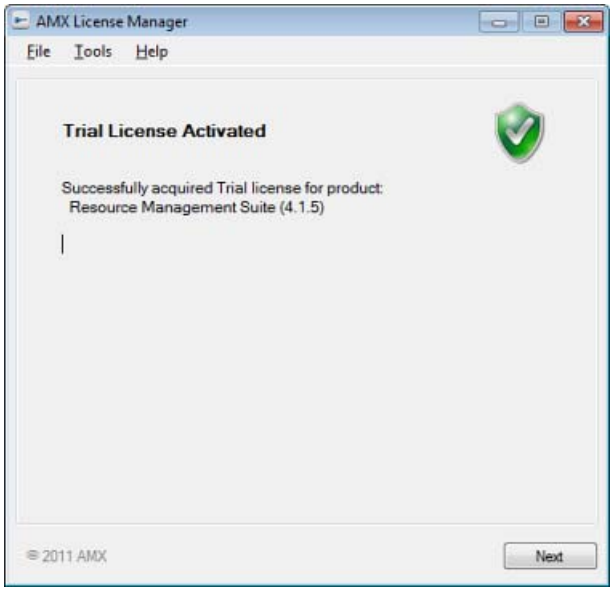

FIG. 59 AMX License Manager Wizard - Trial License Activated

7. Click **Next** to proceed to the *Licensing Status* dialog (FIG. 60). Note that the Trial Licenses are indicated as: *1 RMS Enterprise Server License (Trial)* and *1000 RMS Location Asset Licenses (Trial)*:

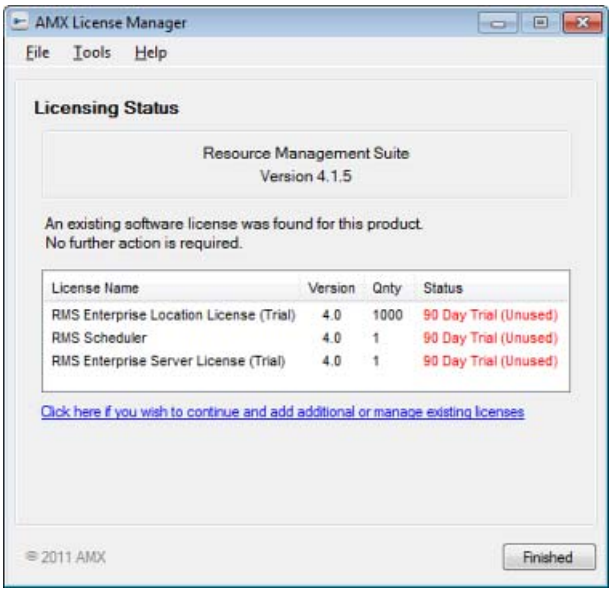

FIG. 60 AMX License Manager Wizard - Installed Product Licenses (showing Trial Licenses)

NOTE

*This dialog can also be accessed by selecting the **View Existing Licenses** option in the Licensing Options Menu, or in the Tools menu at the top of the dialog.*

See the *Upgrading From a Trial License To a Registered License* section on page 58 for information on upgrading a Trial license to a purchased RMS Enterprise license.

Upgrading From a Trial License To a Registered License

This option requires that you have a valid RMS Enterprise Entitlement ID (obtained from AMX).

NOTE

When a Trial License is upgraded to a Purchased License, the existing license information is replaced by the Purchased License information, but any system information entered/gathered under the Trial License is available to the purchased license.

1. Launch the RMS Server Configuration tool (**Start > Programs > AMX Resource Management Suite > Server > RMS Configuration**).
2. In the *Licensing* tab, click on **Configure RMS Licenses** (FIG. 61).

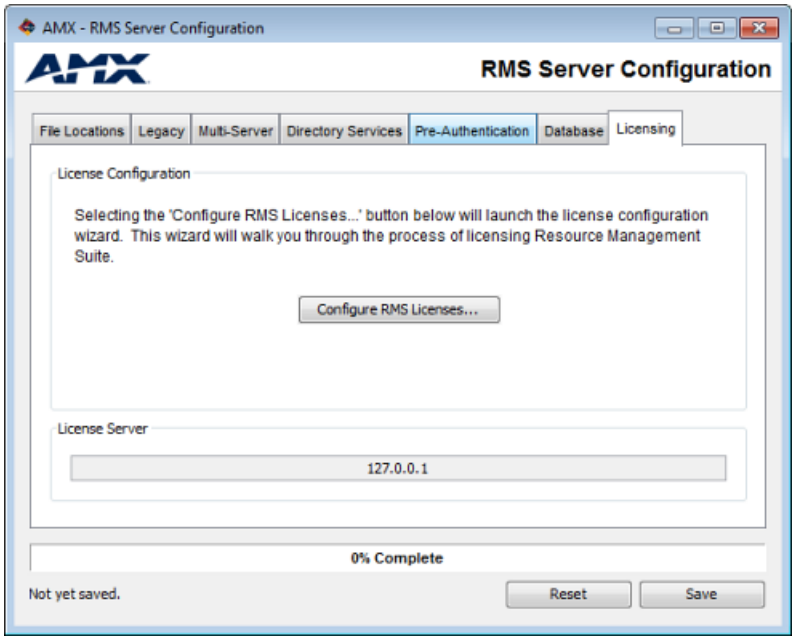

FIG. 61 RMS Server Configuration - Licensing tab

3. This invokes the *AMX Licensing Manager* application - *Welcome* screen (FIG. 62):

FIG. 62 AMX Licensing Manager application (Welcome screen)

4. Click **Next** to proceed to the *Select License Server* dialog (FIG. 63):

FIG. 63 AMX License Manager - Select License Server

5. With the **Use the local license server installed and running on this machine** option selected, click **Next** to proceed to the *Licensing Status* dialog (FIG. 64):

FIG. 64 AMX License Manager - Licensing Status dialog

6. Click on the **Click here if you wish to continue and add additional or manage existing licenses** link to access the *Licensing Options Menu* dialog (FIG. 65):

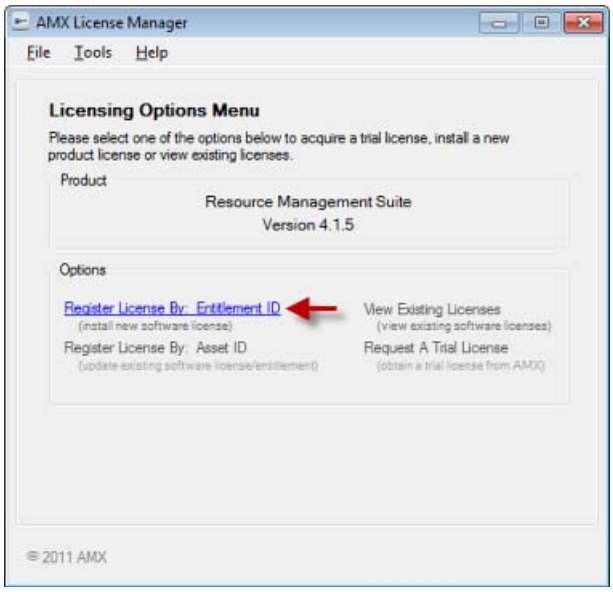

FIG. 65 AMX License Manager - Licensing Options Menu dialog

7. Select the **Register License by Entitlement ID** option.
8. This selection invokes the *Contact Information* dialog (see FIG. 54 on page 54). Enter your contact information.
9. Click **Next** to proceed to the *Customer Information* dialog (see FIG. 57 on page 55). Select from the drop-down menu.
10. Click **Next** to proceed to the *Install New AMX Product License* dialog. (FIG. 66):

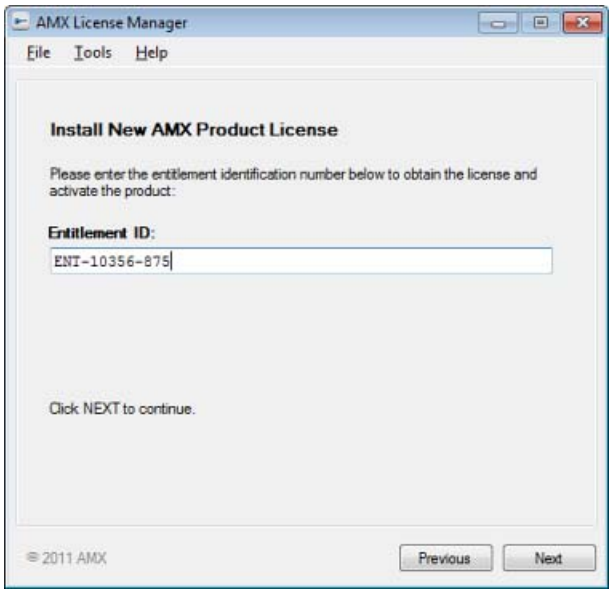

FIG. 66 AMX License Manager Wizard - Install New AMX Product License

11. Enter your **Entitlement ID** in this field.
    - Entitlement IDs begin with the prefix "**ENT-**".
    - The Entitlement ID is obtained from AMX after purchasing RMS Enterprise.
12. Click **Next** to prompt the License Manager to contact the AMX Licensing Server and activate the license associated with the provided Entitlement ID, in the *Requesting License* dialog (FIG. 67):

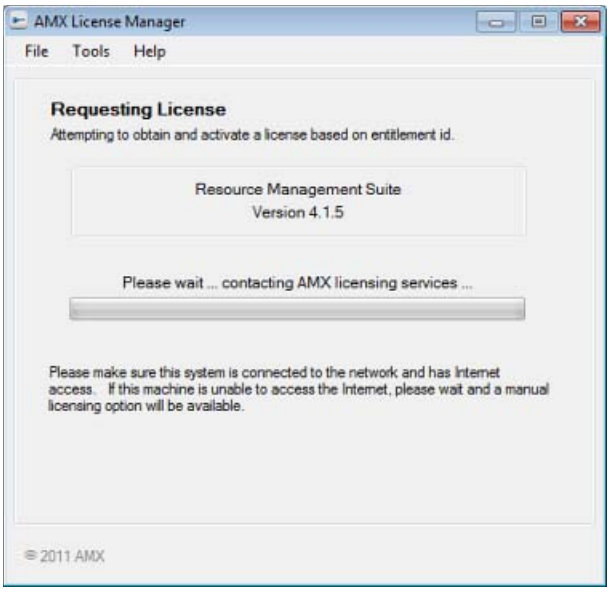

FIG. 67 AMX License Manager - Requesting License dialog

NOTE

An error message will be displayed if the entitlement has already been registered to another system or if the entitlement ID is invalid. Please contact AMX customer service if you encounter any difficulties obtaining your product license.

13. The *License Activated* dialog indicates that the license was successfully activated (FIG. 68):

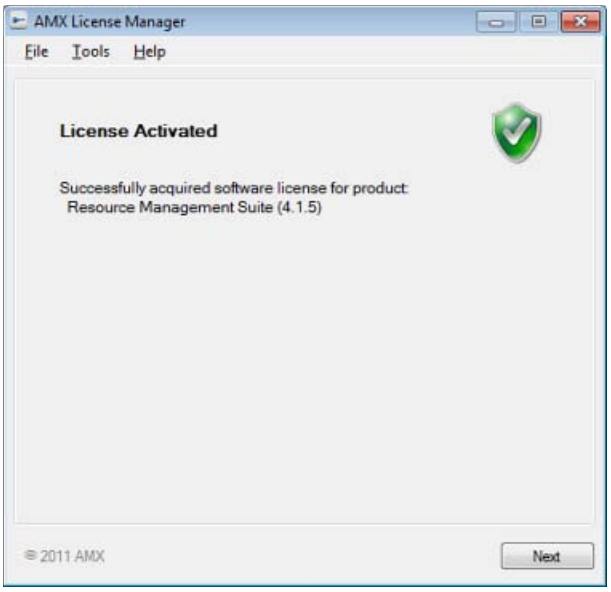

FIG. 68 AMX License Manager - License Activated dialog

14. Click **Next** to return to the *Licensing Options Menu* dialog (FIG. 69):

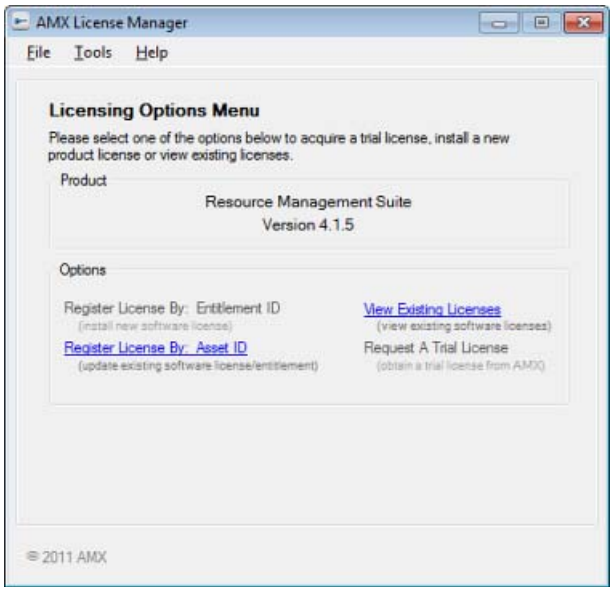

FIG. 69 AMX License Manager - Licensing Options Menu dialog

NOTE

*After upgrading to a registered license, the only available options are **Register License By: Asset ID** and **View Existing Licenses**.*

Accessing the RMS Enterprise Web UI

Once the installation is complete, the RMS Enterprise Web UI is accessed via web browser (see *Supported Web Browsers* on page 8).

To open the main RMS Enterprise Web UI, enter the following URL in your browser's address bar:

http://*servername*:8080/rms

NOTE

*Port **8080** is the default port for Tomcat (see Installing Apache Tomcat v6.0.x* on page 17*). However, when installing of Tomcat, this port can be assigned to another value if desired. The value assigned to Tomcat is the value that is used here in the URL.*

Refer to the *RMS Enterprise System Administrator's Guide* for details on using the RMS Enterprise Web UI.

Registering a Purchased License

Overview

Once you have access to the AMX License Server, you can register a new software license for RMS Enterprise. See the *Installing the AMX License Server* section on page 44 for instructions on installing and connecting to the AMX License Server application.

- This option requires that you have a valid RMS Enterprise Entitlement ID (obtained from AMX).
- For instructions on upgrading from a Trial License to a Registered (purchased) License, see the *Upgrading From a Trial License To a Registered License* section on page 58.

1. When the AMX License Server is launched, assuming that it detects no licenses on the server, the *Select Licensing Option* dialog is presented (FIG. 70):

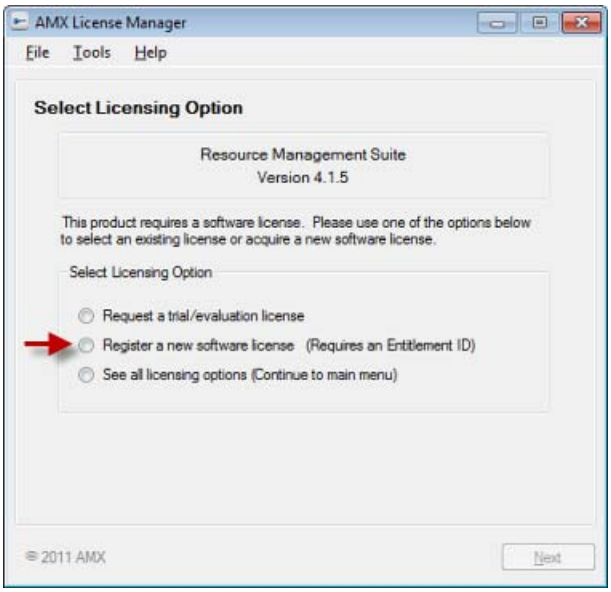

FIG. 70 Select Licensing Option dialog

2. Click the **Register a new software license (Requires an Entitlement ID)** option.
3. Click **Next** to open the *Contact Information* dialog (see FIG. 54 on page 54). Enter your contact information.
4. Click **Next** to proceed to the *Customer Information* dialog (see FIG. 57 on page 55). Select from the drop-down menu.
5. Click **Next** to proceed to the *Install New AMX Product License* dialog. (FIG. 71):
6. Enter your **Entitlement ID** in this field.
   - The Entitlement ID is obtained from AMX after purchasing RMS Enterprise.
   - Entitlement IDs begin with the prefix "**ENT-**".

FIG. 71 AMX License Manager Wizard - Install New AMX Product License

7. Click **Next** to contact the AMX Licensing Server and activate the licenses associated with the provided Entitlement ID.

   To request a license, this system must be connected to the network and have Internet access. If the machine is unable to access the Internet, a manual option will be provided.

   See the *Manually Activating the Product License* section on page 67 for details.

8. Progress is indicated in the *Requesting License* dialog (FIG. 72):

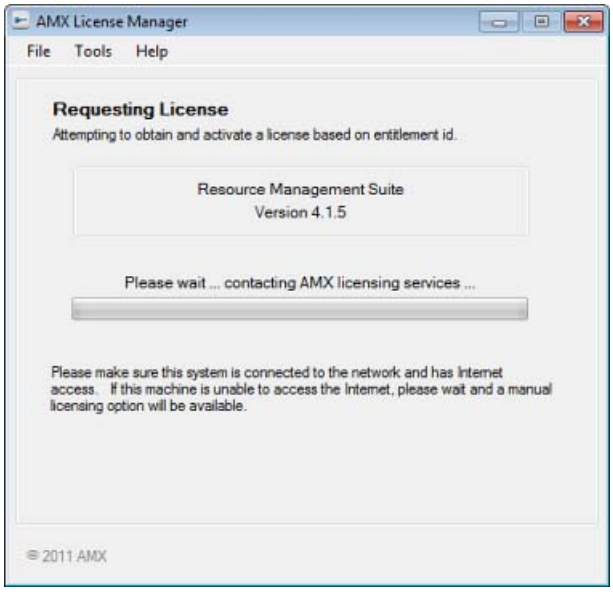

FIG. 72 AMX License Manager Wizard - Requesting License

NOTE

An error message will be displayed if the entitlement has already been registered to another system or if the entitlement ID is invalid. Please contact AMX customer service if you encounter any difficulties obtaining your product license.

9. The *License Activated* dialog indicates that the license was successfully activated (FIG. 73):

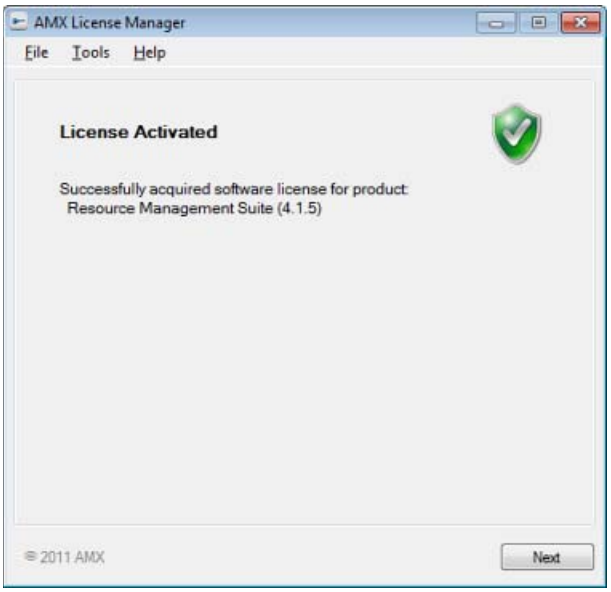

FIG. 73 AMX License Manager Wizard - License Activated

10. Click **Next** to proceed to the *Licensing Status* dialog (FIG. 74):

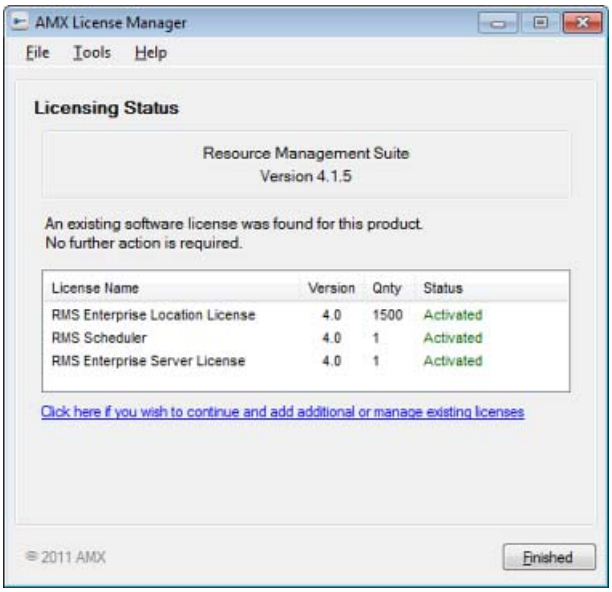

FIG. 74 AMX License Manager Wizard - Licensing Status dialog

NOTE

If this server has previously had a Trial License registered by Entitlement ID, the trial license will no longer be listed in the Installed Product Licenses dialog. Once a license is registered, only valid registered licenses are displayed. See the Viewing Existing Licenses section on page 93 *for details.*

11. Click **Finished** to exit the AMX License Manager, and return to the *License Configuration* tab of the RMS Server Configuration tool (FIG. 75):

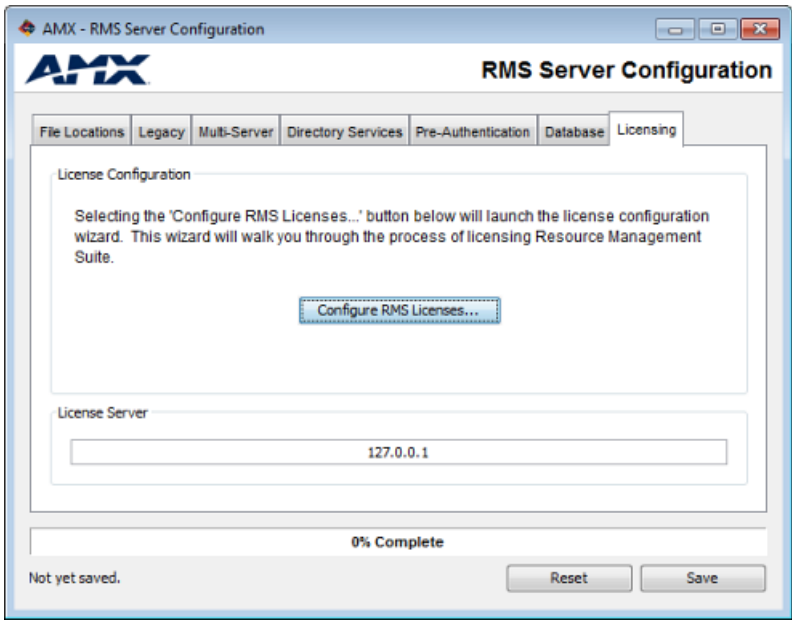

FIG. 75 RMS Server Configuration tool - License Configuration

12. Click **Next** to proceed to the final *RMS Server Configuration* dialog - the *Configuration Summary* dialog (FIG. 76):

FIG. 76 RMS Server Configuration tool - Configuration Summary

13. Click **Finish** to exit the *RMS Server Configuration* tool.

Manually Activating the Product License

To register a new RMS Enterprise License, you must have a valid RMS Enterprise *Entitlement ID* (obtained from AMX). Typically, this process also requires Internet access (in order to contact the AMX Licensing Server). However, if your network configuration precludes the ability to reach the Internet, then your product license will have to be activated manually as described below.

1. In the *Licensing Options Menu* dialog (see FIG. 53 on page 44), select **Register License by Entitlement ID** (FIG. 77):

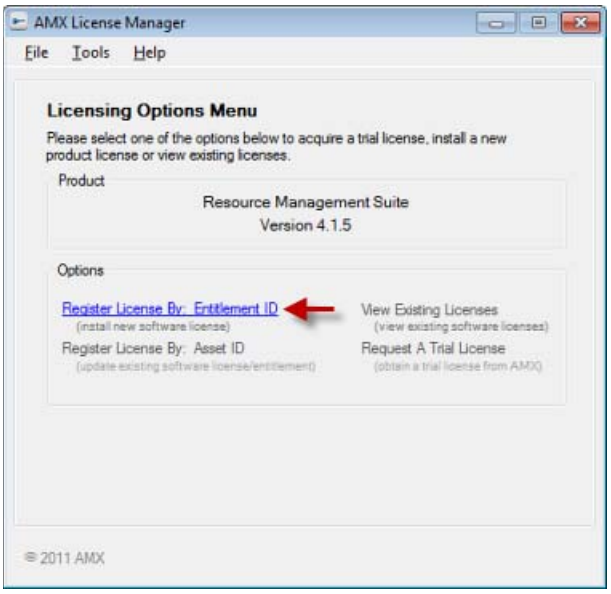

FIG. 77 AMX License Manager - Licensing Options Menu dialog

2. This selection invokes the *Contact Information* dialog (see FIG. 54 on page 54). Enter your contact information.
3. Click **Next** to proceed to the *Customer Information* dialog (see FIG. 57 on page 55). Select from the drop-down menu.
4. Click **Next** to proceed to the *Install New AMX Product License* dialog (see FIG. 71 on page 64).
5. Enter your Entitlement ID in the text field provided.
   - The Entitlement ID is obtained from AMX after purchasing RMS Enterprise.
   - Entitlement IDs begin with the prefix "**ENT-**".
6. Click **Next** to prompt the License Manager to contact the AMX Licensing Server and activate the license associated with the provided Entitlement ID.

   In this case, the AMX Licensing Server will not be reached, and the *Unable To Contact AMX Licensing Services* dialog is invoked (FIG. 78):

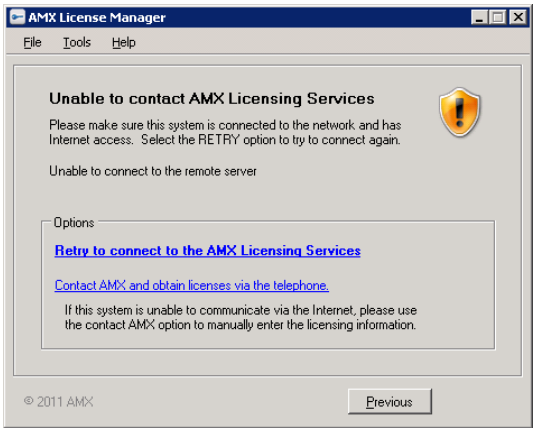

FIG. 78 AMX License Manager - Unable To Contact AMX Licensing Services dialog

7. Select **Contact AMX and obtain licenses via the telephone**. This selection invokes the *Manually Activate Product License* dialog (FIG. 79):

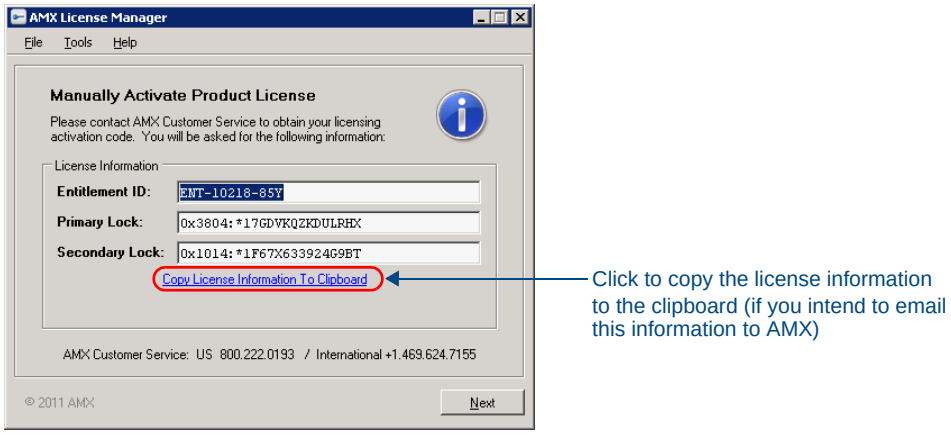

FIG. 79 AMX License Manager - Manually Activate Product License dialog

- Note that the *Entitlement ID*, *Primary Lock* and *Secondary Lock* identifiers are automatically populated.
- Click the link: *Copy License Information To Clipboard* if you intend to e-mail the information to your AMX Customer Support Representative.

8. Call your AMX Customer Representative on the phone and relay the information from this dialog to your AMX Customer Support Representative. You will be provided with a *License Activation Code* (in the form of an email).
9. Click **Next** to proceed.
10. Copy the License Activation Code from the email into the *License Activation Code* field (FIG. 80):

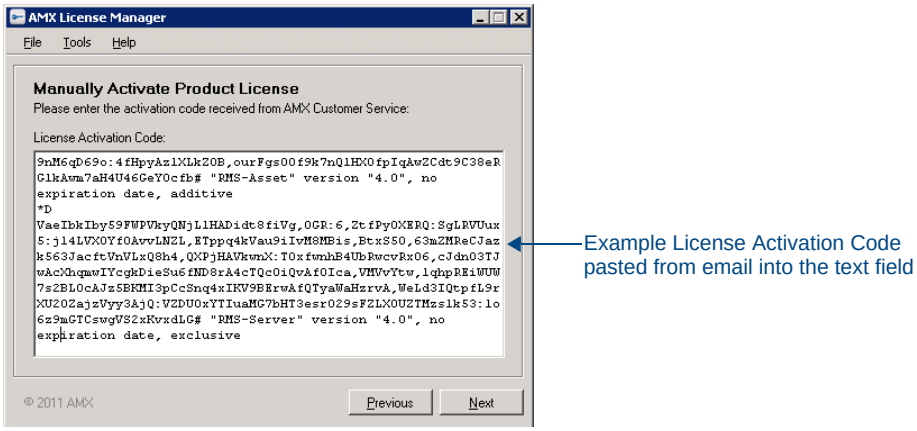

FIG. 80 AMX License Manager - Manually Activate Product License dialog

11. Click **Next** to activate the specified Entitlement ID and proceed to the *License Activated* dialog (FIG. 81):

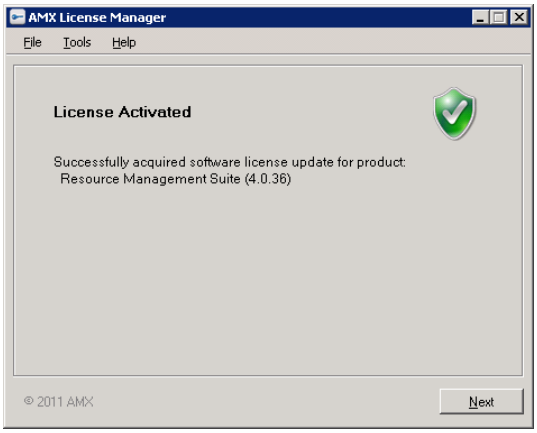

FIG. 81 AMX License Manager Wizard - License Activated dialog

12. Click **Next** to return to the *Licensing Options Menu* dialog (FIG. 77 on page 67).

Accessing the RMS Enterprise Web UI

Once the installation is complete, the RMS Enterprise Web UI is accessed via web browser (see *Supported Web Browsers* on page 8).

To open the main RMS Enterprise Web UI, enter the following URL in your browser's address bar:

http://*servername*:8080/rms

NOTE

*Port **8080** is the default port for Tomcat (see Installing Apache Tomcat v6.0.x* on page 17*). However, when installing of Tomcat, this port can be assigned to another value if desired. The value assigned to Tomcat is the value that is used here in the URL.*

Refer to the *RMS Enterprise System Administrator's Guide* for details on using the RMS Enterprise Web UI.

Adding Asset IDs (Locations)

Overview

Once you have installed a registered version of RMS Enterprise (see the *Registering a Purchased License* section on page 63 for details), you can upgrade your RMS Entitlement with additional Asset Licenses.

- Asset IDs are used to activate additional Asset Licenses, in order to add Locations to your RMS System. Each Location requires an Asset License.
- Assets can be manually added to Systems that are not network-accessible. See the *Manually Adding Assets* section on page 78 for instructions.

1. Launch the *RMS Server Configuration* tool (**Start > Programs > AMX Resource Management Suite > RMS Configuration**.
2. In the *Licensing* tab, click on **Configure RMS Licenses** (FIG. 82).

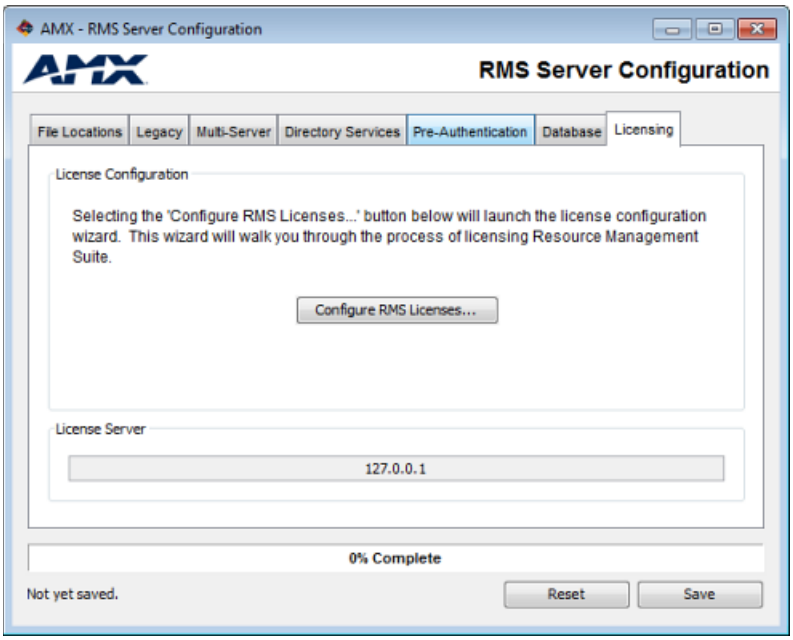

FIG. 82 RMS Server Configuration - Licensing tab

3. This invokes the *AMX Licensing Manager* application - *Welcome* screen (FIG. 83):

FIG. 83 AMX Licensing Manager application (Welcome screen)

4. Click **Next** to proceed to the *Select License Server* dialog (FIG. 84):

FIG. 84 AMX License Manager - Select License Server

5. With the **Use the local license server installed and running on this machine** option selected, click **Next** to proceed to the *Licensing Status* dialog (FIG. 85):

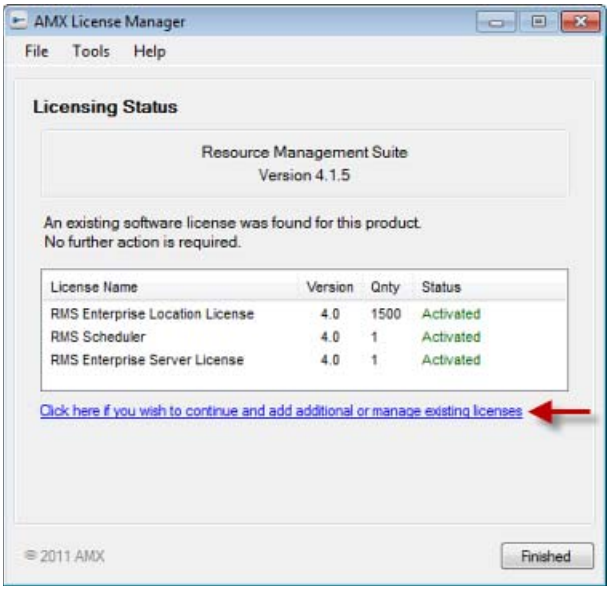

FIG. 85 AMX License Manager - Licensing Status dialog

6. Click on the **Click here if you wish to continue and add additional or manage existing licenses** link to access the *Licensing Options Menu* dialog (FIG. 86):

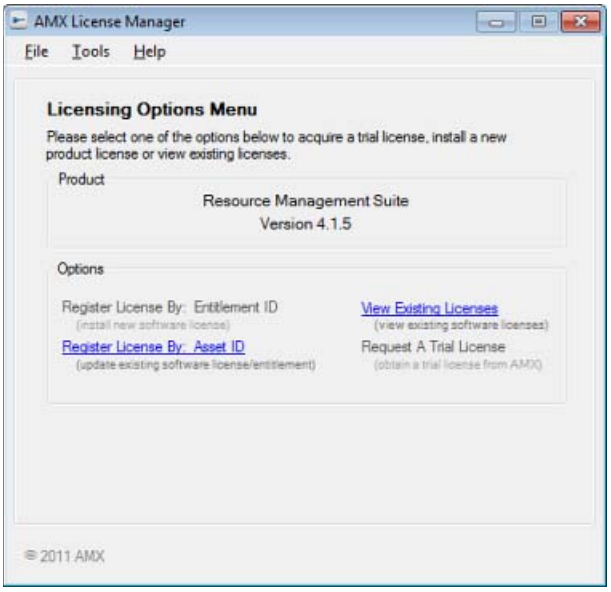

FIG. 86 AMX License Manager - Licensing Options Menu dialog

7. Click on **Register License By: Asset ID** to proceed to the *Select Entitlement* dialog (FIG. 87):

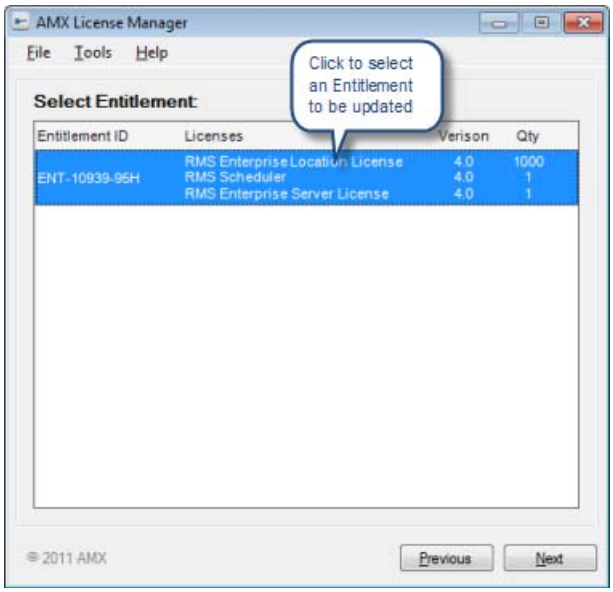

FIG. 87 AMX License Manager - Select Entitlement dialog

8. Click to select the Entitlement to be updated.
9. Click **Next** to proceed to the *Entitlement Asset ID* dialog (FIG. 88):

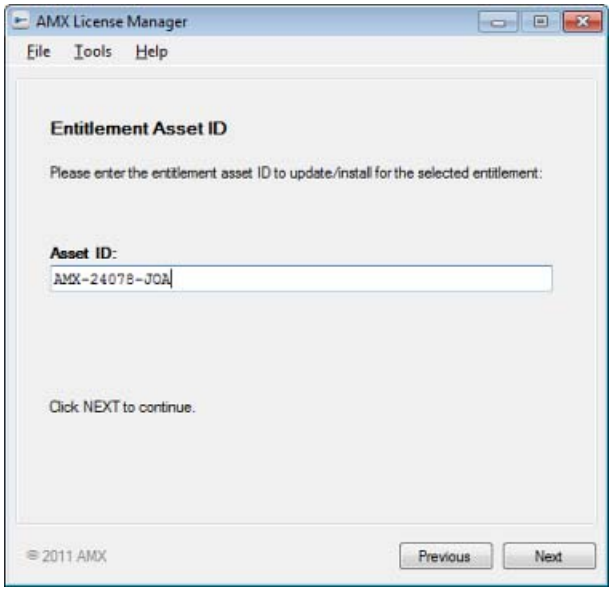

FIG. 88 AMX License Manager - Entitlement Asset ID dialog

10. Enter the **Asset ID** obtained from AMX.
11. Click **Next** to proceed to the *Requesting License Entitlement Update* dialog (FIG. 89):

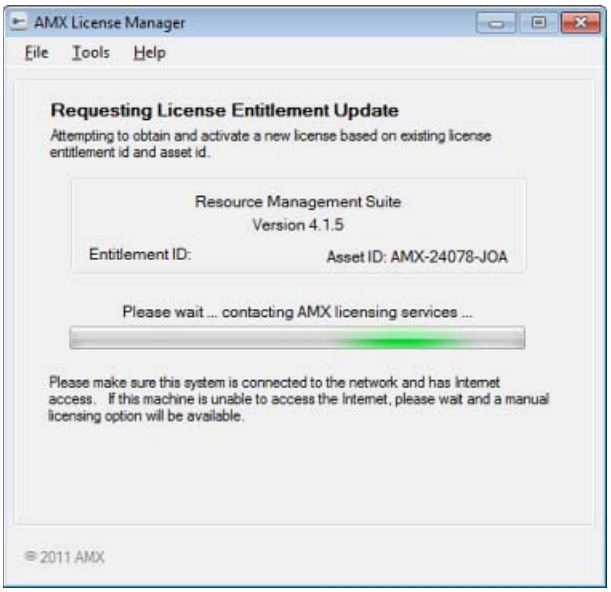

FIG. 89 AMX License Manager - Requesting License Entitlement Update dialog

12. The system will then request to update the existing license. A successful activation results in the presentation of the *License Activated* dialog (FIG. 90):

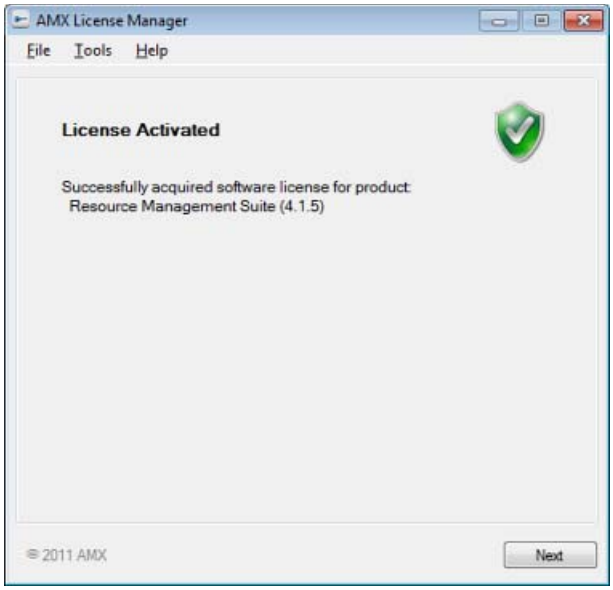

FIG. 90 AMX License Manager - License Activated dialog

13. Click **Next** to return to the *Licensing Options Menu* dialog. At this point, the only available options are **Register License By: Asset ID** and **View Existing Licenses** (FIG. 91):

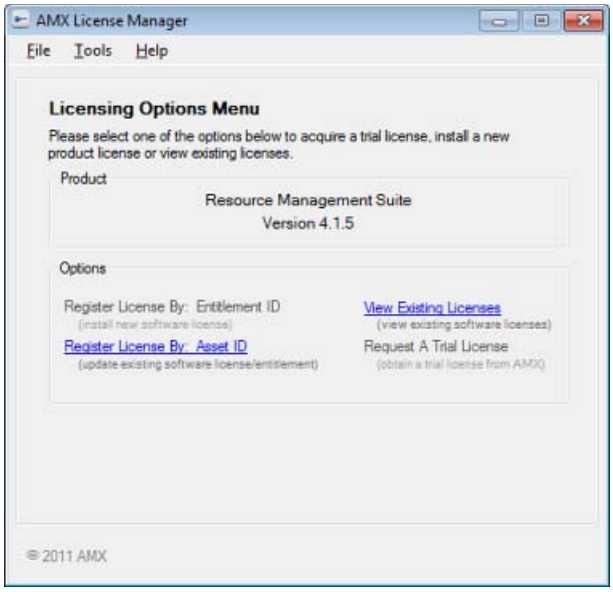

FIG. 91 AMX License Manager - Licensing Options Menu dialog.

- If you click on **View Existing Licenses**, you will see the additional Asset Licenses represented as new **RMS Location Asset Licenses** in the *Installed Product Licenses* dialog. The example in FIG. 92 shows that 500 Locations have been added to the original 1000, for a total of 1500 Locations:

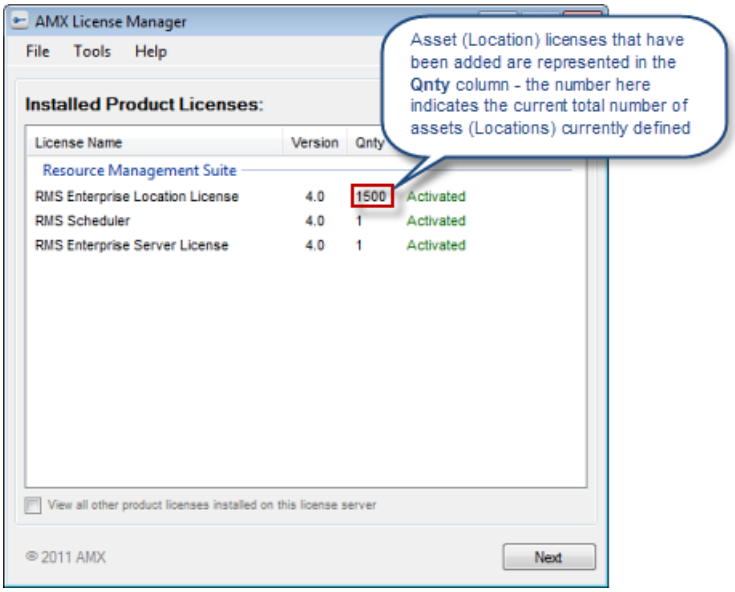

FIG. 92 AMX License Manager - Installed Product Licenses dialog.

- Also, if you view the Installed Entitlements (via the *Installed Entitlements* dialog), the new Assets are represented as **RMS Enterprise Location Licenses** (FIG. 93):

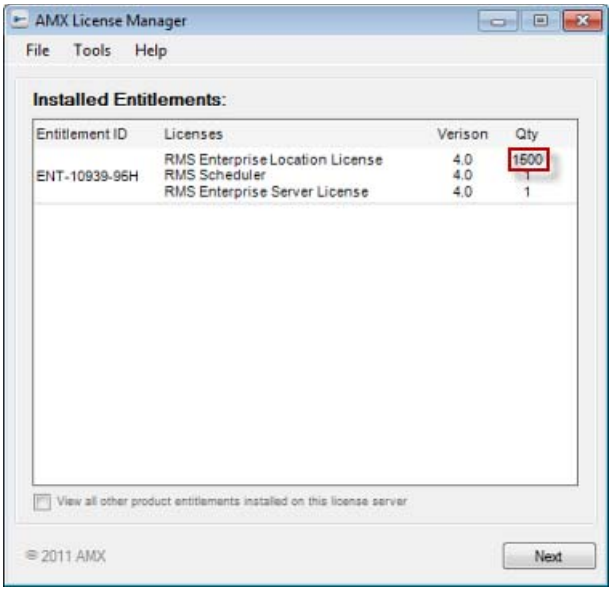

FIG. 93 AMX License Manager - Installed Entitlements dialog

To open this dialog:

a. Select **Start > Programs > AMX Resource Management Suite > Server > RMS Configuration**.

b. In the RMS Server Configuration dialog, open the **Licenses** tab.

c. Click on **Configure RMS Licenses** to access the AMX License Manager.

d. Select **Tools > View AMX Entitlements**.

14. Click **Next** to return to the *Licensing Options Menu* dialog.

Manually Adding Assets

To add an Asset License, you must have a valid *Asset ID* (obtained from AMX). Typically, this process also requires Internet access (in order to contact the AMX Licensing Server). However, if your network configuration precludes the ability to reach the Internet, then your Asset license will have to be activated manually as described below.

1. Launch the *RMS Server Configuration* tool (**Start > Programs > AMX Resource Management Suite > RMS Configuration**.
2. In the *Licensing* tab, click on **Configure RMS Licenses**.
3. This invokes the *AMX Licensing Manager - Welcome* screen.
4. Click **Next** to proceed to the *Select License Server* dialog.
5. With the **Use the local license server installed and running on this machine** option selected, click **Next** to proceed to the *Licensing Status* dialog (FIG. 94):

FIG. 94 AMX License Manager - Licensing Status dialog

6. Click on the **Click here if you wish to continue and add additional or manage existing licenses** link to access the *Licensing Options Menu* dialog (FIG. 95):

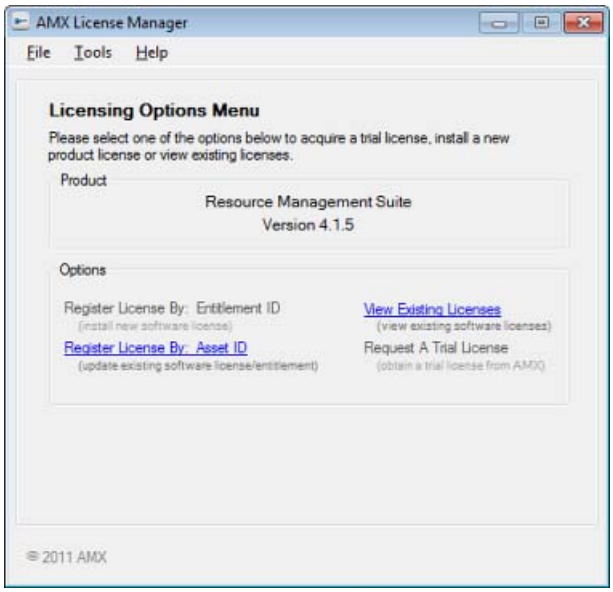

FIG. 95 AMX License Manager - Licensing Options Menu dialog

7. Click on **Register License By: Asset ID** to proceed to the *Select Entitlement* dialog (FIG. 96):

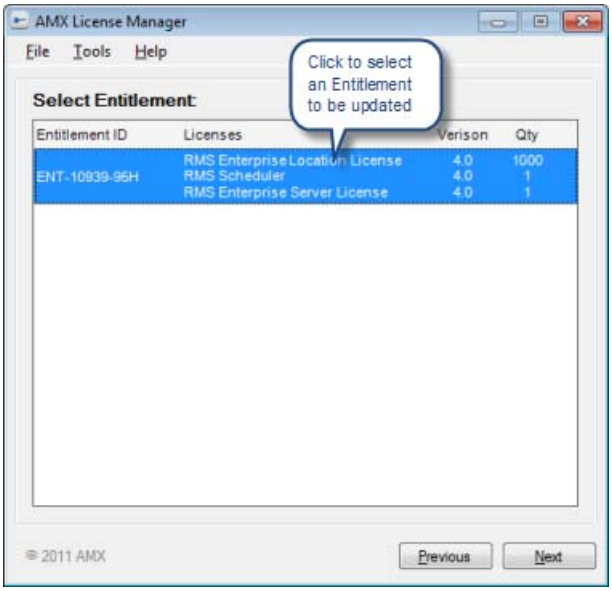

FIG. 96 AMX License Manager - Select Entitlement dialog

8. Click to select the Entitlement to be updated.
9. Click **Next** to proceed to the *Entitlement Asset ID* dialog (FIG. 97):

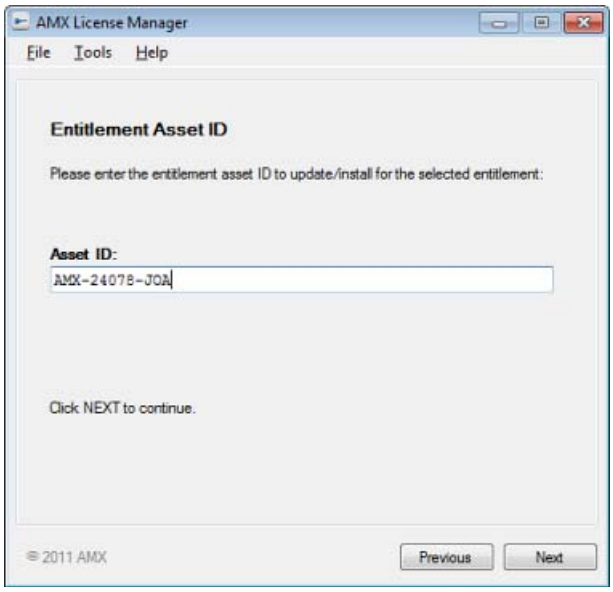

FIG. 97 AMX License Manager - Entitlement Asset ID dialog

10. Enter the **Asset ID** obtained from AMX. and click **Next** to proceed.
11. The system will attempt to contact AMX Licensing Services to update the license and activate the new Assets. In this case (without network access) it will fail, as indicated in the *Unable to contact AMX Licensing Services* dialog (FIG. 98):

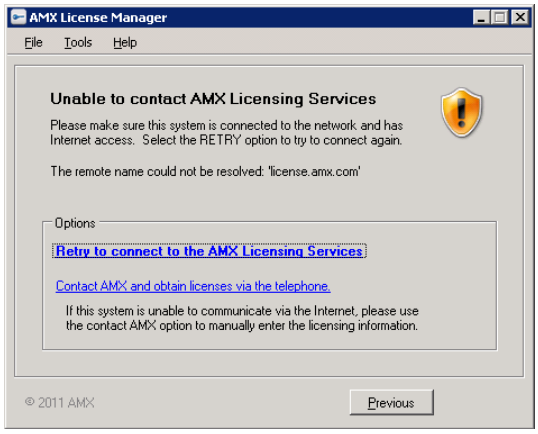

FIG. 98 AMX License Manager - Unable to contact AMX Licensing Services dialog

12. Click on the **Contact AMX and obtain licenses via the telephone** link to open the *Manually Activate Product License* dialog (FIG. 99):

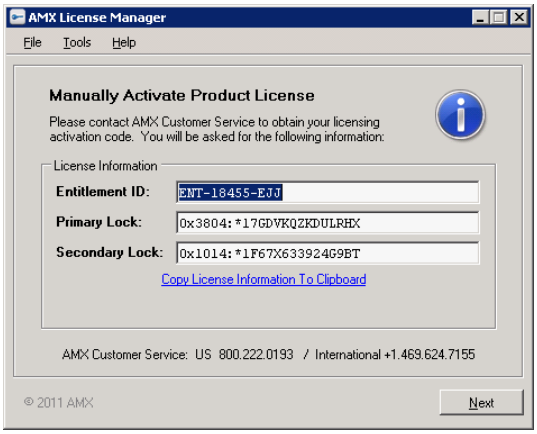

FIG. 99 AMX License Manager - Manually Activate Product License dialog (License Information)

13. The information in this dialog along with the following information must be provided to AMX Customer Service:
    - Product being added
    - Quantity of this product
    - Order Number or Dealer Number
    - Date of the order

    AMX Customer Service will then provide the updated license key.

14. Click the **Next** button to proceed to the *Manually Activate Product License* dialog, and enter the key from received from AMX Customer Service into the *License Activation* field (FIG. 100).

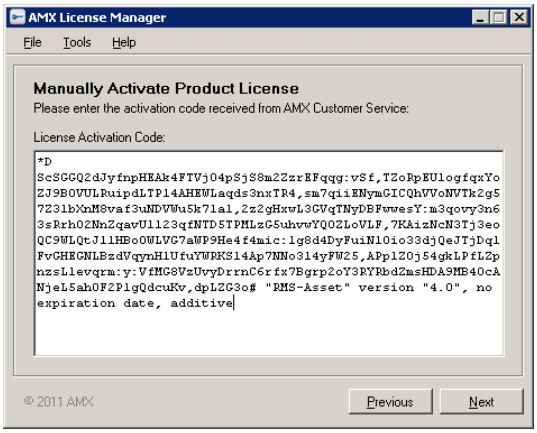

FIG. 100 AMX License Manager - Manually Activate Product License dialog (License Activation)

15. Click **Next**, to update the license and proceed to the *License Activation Success* dialog upon a successful update of the license (FIG. 101):

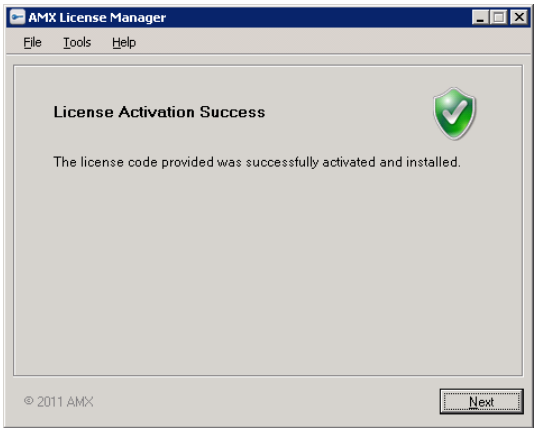

FIG. 101 AMX License Manager - License Activation Success dialog

16. Click **Next** to proceed to the *Licensing Options Menu* dialog.
17. Click on **View Existing Licenses** to view the updated licenses in the *Installed Product Licenses* dialog (FIG. 102):

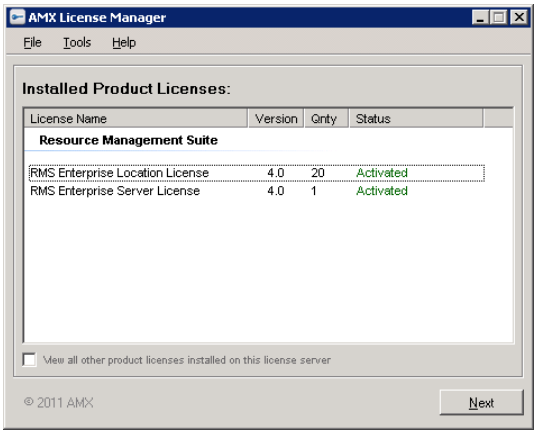

FIG. 102 AMX License Manager - Installed Product Licenses dialog

18. Click **Next** to view the updated entitlement in the *Installed Entitlements* dialog (FIG. 103):

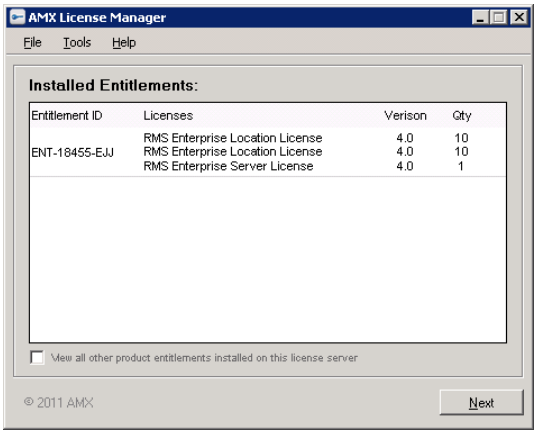

FIG. 103 AMX License Manager - Installed Entitlements dialog

19. Click **Next** to return to the *Licensing Options Menu* dialog (FIG. 86 on page 73).

Adding the Scheduling Interface and Plug-In

Overview

Once you have installed a registered version of RMS Enterprise (see the *Registering a Purchased License* section on page 63 for details), you can upgrade your RMS Entitlement with a *Scheduling License*. The Scheduling License enables support for various scheduling plug-ins for RMS Enterprise.

NOTE

To ensure optimal performance of the RMS Enterprise UI, the RMS Scheduling Interface application should not be installed on the Primary RMS Enterprise Server. Install the RMS Scheduling Interface application on a separate server.

Verify that the server that will run the RMS Enterprise Scheduling Interface meets or exceeds the minimum OS and hardware requirements indicated on page 14.

Supported Scheduling Plug-Ins

The following scheduling plug-in is supported by RMS Enterprise:

- RMS Interface for Exchange EWS (RMS-SCH-EWS)

Scheduling plug-ins are available to purchase from www.amx.com/rms/.

Before You Start

- Verify that the Primary RMS Server is running.
- Have the IP Address and login credentials for the RMS Enterprise Server.
- Have the IP Address and login credentials for the scheduling interface.

1) Install the Scheduling Interface and Configuration Tool

The first step in adding a Scheduling License to RMS Enterprise is to install the *RMS Scheduling Interface* application and *RMS Scheduling Configuration Tool*:

1. Download the RMS Enterprise Scheduling installation file (**ResourceManagementSuiteScheduler.msi)** from www.amx.com/rms/.
2. Double-click to launch the *AMX RMS Scheduling Setup Wizard* (FIG. 104):

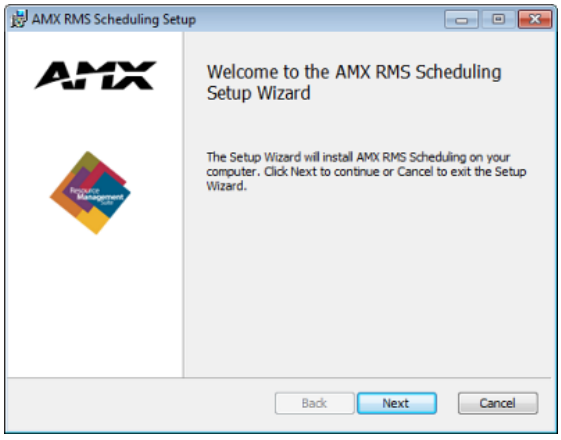

FIG. 104 AMX RMS Scheduling Setup Wizard (Welcome screen)

3. Click **Next** to proceed to the *End-User License Agreement* screen (FIG. 105):

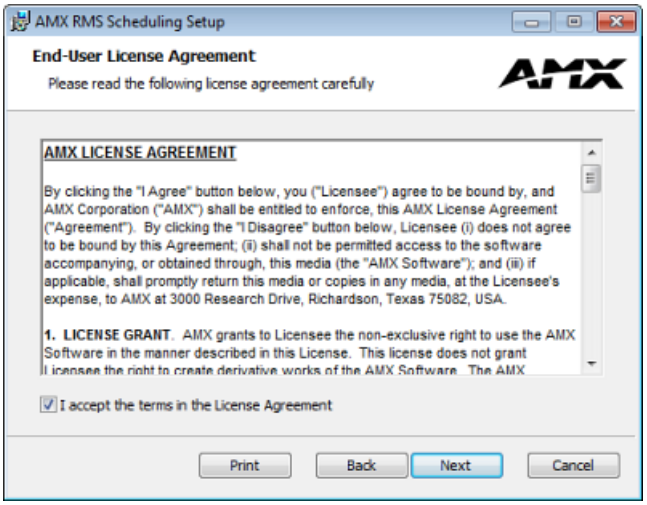

FIG. 105 AMX RMS Scheduling Setup Wizard - End User License Agreement

4. Click *I accept the terms in the License Agreement* to enable the *Next* button, then click **Next** to proceed to the *Destination Folder* screen (FIG. 106):

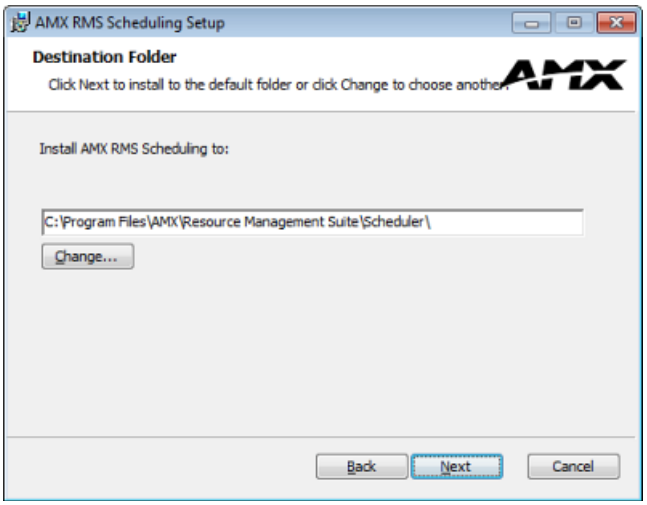

FIG. 106 AMX RMS Scheduling Setup Wizard - Destination Folder

The default target directory for the Interface installation is indicated in the text field on this screen:

- 32-bit OS: **C:\Program Files\AMX\Resource Management Suite\Scheduler**
- 64-bit OS: **C:\Program Files (x86)\AMX\Resource Management Suite\Scheduler**

In most cases you should use this default setting. However, if your installation requires a different folder, click **Change** and select the desired folder in the *Change Destination Folder* screen.

5. Click **Next** to proceed to the *Ready To Install AMX RMS Scheduling* screen (FIG. 107):

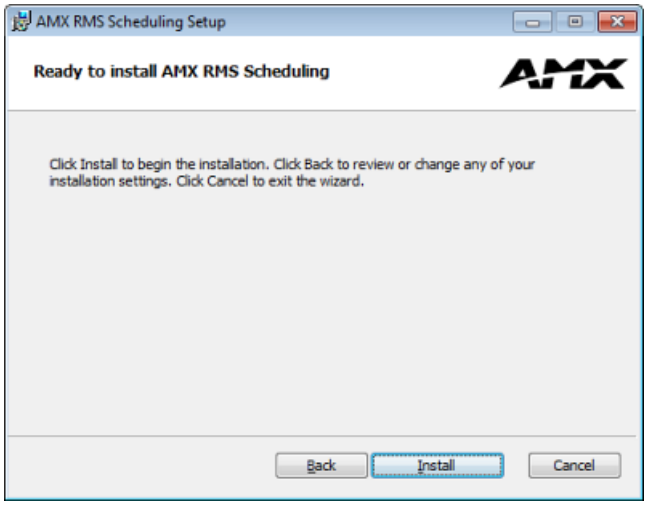

FIG. 107 AMX RMS Scheduling Setup Wizard - Ready To Install AMX RMS Scheduling

6. Click **Install** to begin installing AMX RMS Scheduling to the target directory on the specified server. Installation progress is indicated in the *Installing AMX RMS Scheduling* screen (FIG. 108):

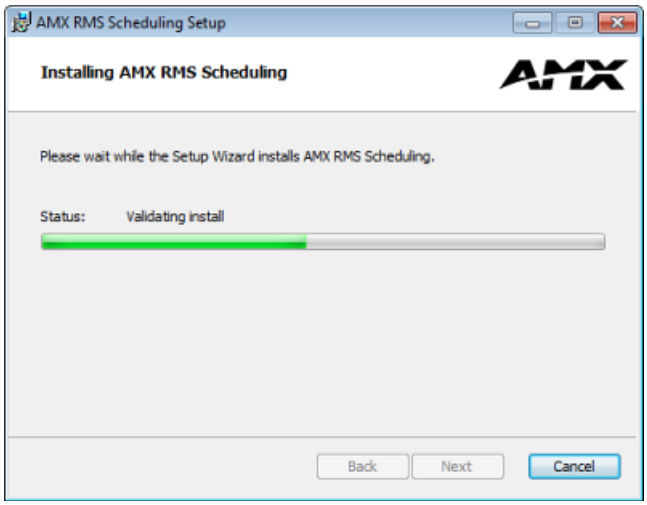

FIG. 108 AMX RMS Scheduling Setup Wizard - Installing AMX RMS Scheduling

7. When the installation is complete, the *Completed the AMX RMS Scheduling Setup Wizard* screen is displayed (FIG. 109):

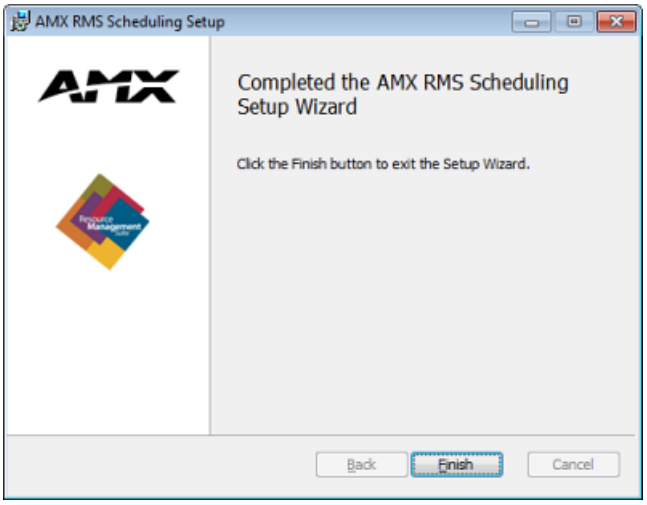

FIG. 109 AMX RMS Scheduling Setup Wizard - Completed the AMX RMS Scheduling Setup Wizard

8. Click **Finish** to close the AMX RMS Scheduling Setup Wizard.

At this point, the Scheduling Interface and Scheduling Configuration Tool are both installed. The next step is to install the appropriate RMS scheduling plug-in. This process will invoke the *RMS Enterprise Scheduling Configuration* tool as described below.

2) Install and Configure the Scheduling Plug-In

Install the scheduling plug-in that will be used with RMS Enterprise.

- Scheduling plug-ins are available to download from www.amx.com/rms/.
- Refer to each plug-in's Installation Guide for installation details.
- Supported scheduling plug-ins are listed on page 83.

FIG. 110 shows the *Installation Completed* dialog for the Microsoft Exchange 2010 plug-in, as an example:

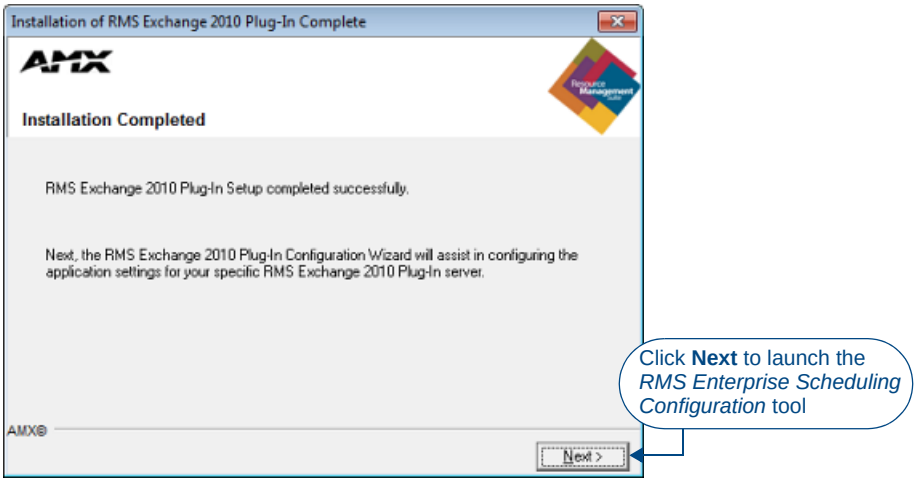

FIG. 110 RMS Exchange 2010 Plug-In - Installation Completed

1. At the end of the installation routine for the scheduling plug-in, click **Next** to launch the *RMS Enterprise Scheduling Configuration* tool.

   The *RMS Enterprise Scheduling Configuration* tool allows you to configure the Interface to communicate with RMS Enterprise.

   The initial view is of the *RMS Server* tab (FIG. 111):

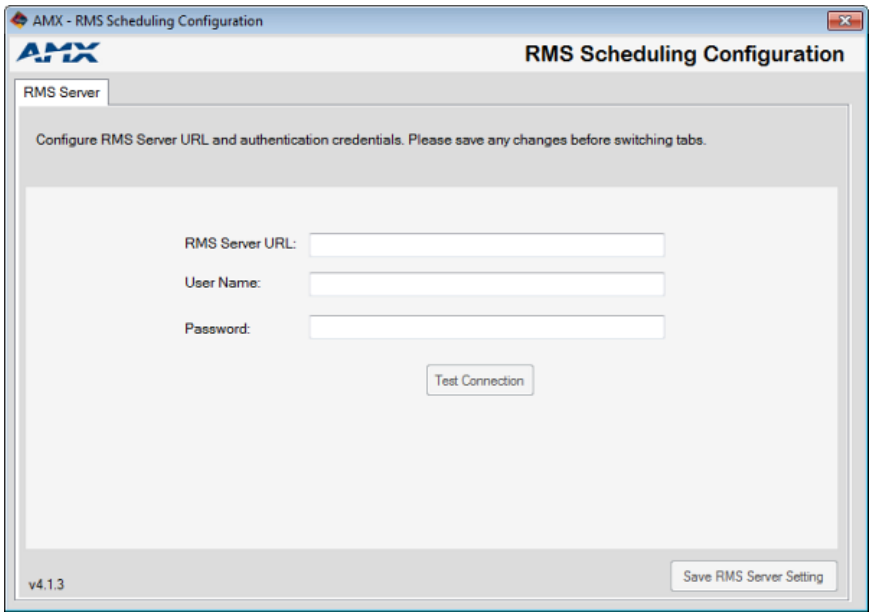

FIG. 111 RMS Enterprise Scheduling Configuration tool - RMS Server tab

1. Enter the appropriate connection information for your RMS Enterprise server:

RMS Enterprise Scheduling Configuration - RMS Server Configuration options	
RMS Server URL:	Enter the URL or IP address of the RMS Server that will use this scheduling plug-in.
User Name:	Enter the user name as required by the server (default = "scheduler")
Password:	Enter the password as required by the server (default = "password")

2. Click the **Test Connection** button to verify this information. The program will indicate that the connection was successful or not. If the connection attempt fails, re-enter the server information.

   You cannot proceed until you have successfully connected to the server.

3. Click **Save RMS Server Setting** to save these settings, register the Interface with the server, and enable the *Scheduling Plugins* and *Resource Profiles* tabs (FIG. 112):

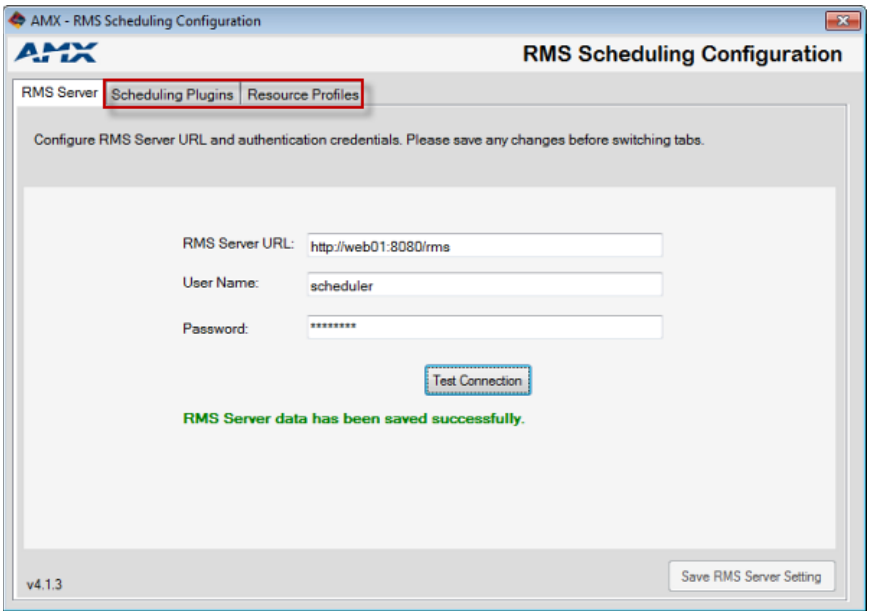

FIG. 112 RMS Enterprise Scheduling Configuration tool - Scheduling Plugins and Resource Profiles tabs enabled

4. Open the *Scheduling Plug-Ins* tab (FIG. 113):

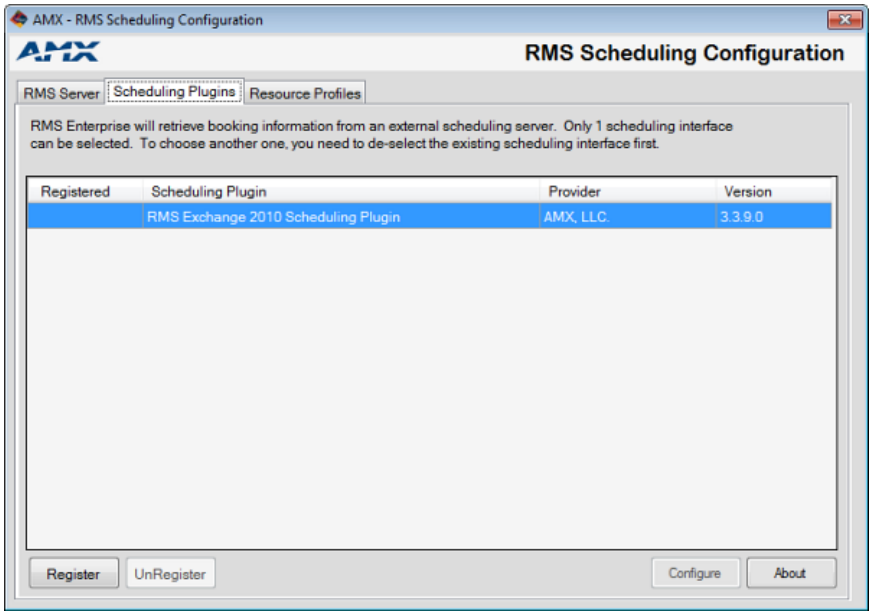

FIG. 113 RMS Enterprise Scheduling Configuration tool - Scheduling Plug-Ins tab

The options in this tab allow you to register a scheduling plug-in with RMS Enterprise. If you have only installed a single scheduling plug-in, then there is only one Scheduling Plugin listed (and pre-selected) in this dialog.

- Only one scheduling plug-in can be registered with RMS Enterprise. However, it is possible to install multiple scheduling plug-ins. If you have multiple scheduling plug-in installed, they will all be listed in this dialog.
- To register a different scheduling plug-in, the currently registered plug-in must first be un-registered: select the plug-in and click **Unregister**. Only then can you register a different scheduling plug-in.

5. With the desired scheduling plug-in selected, click **Register** to invoke the *Plugin Configuration* dialog specific to the selected scheduling plug-in. The example in FIG. 114 shows the Plugin Configuration dialog for the Microsoft Exchange 2010 plug-in:

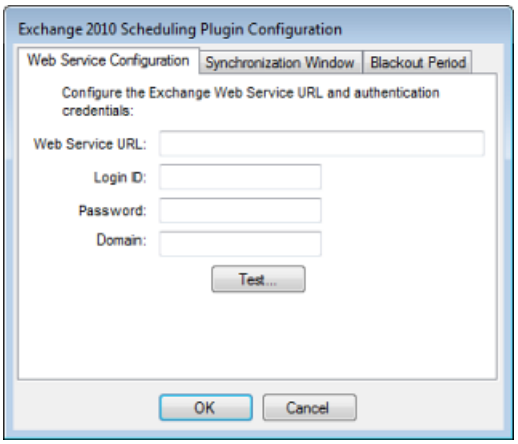

FIG. 114 Example Plugin Configuration tool

6. Enter the configuration information required by the plug-in. Refer to each plug-in's Installation Guide for installation details.
7. Click **OK** to save the configuration and close the *Plugin Configuration* dialog.

The plug-in is now indicated as *Registered* in the *Scheduling Plugins* tab of the *AMX - RMS Scheduling Configuration* tool (FIG. 115):

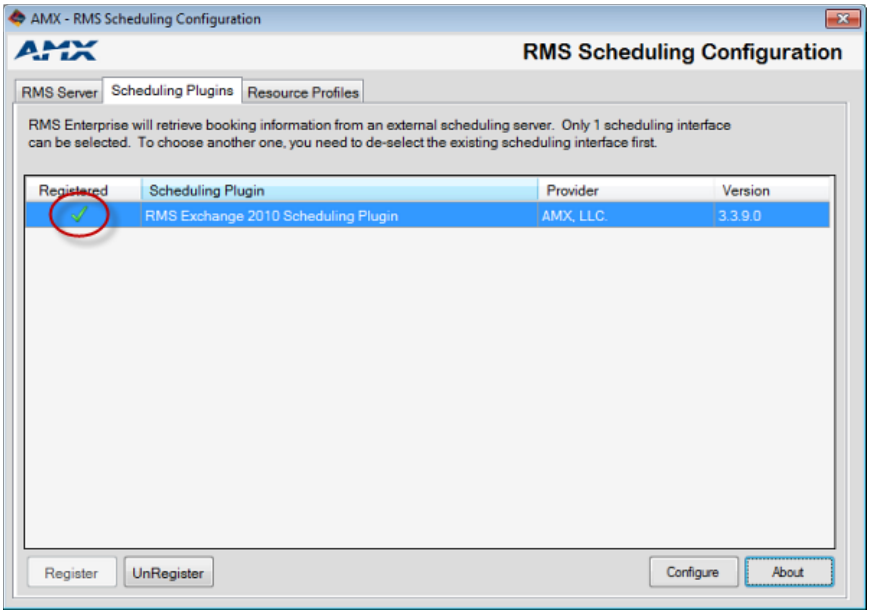

FIG. 115 RMS Enterprise Scheduling Configuration tool - Scheduling Plug-Ins tab (Plug-in Registered)

8. Open the *Resource Profiles* tab (FIG. 116):

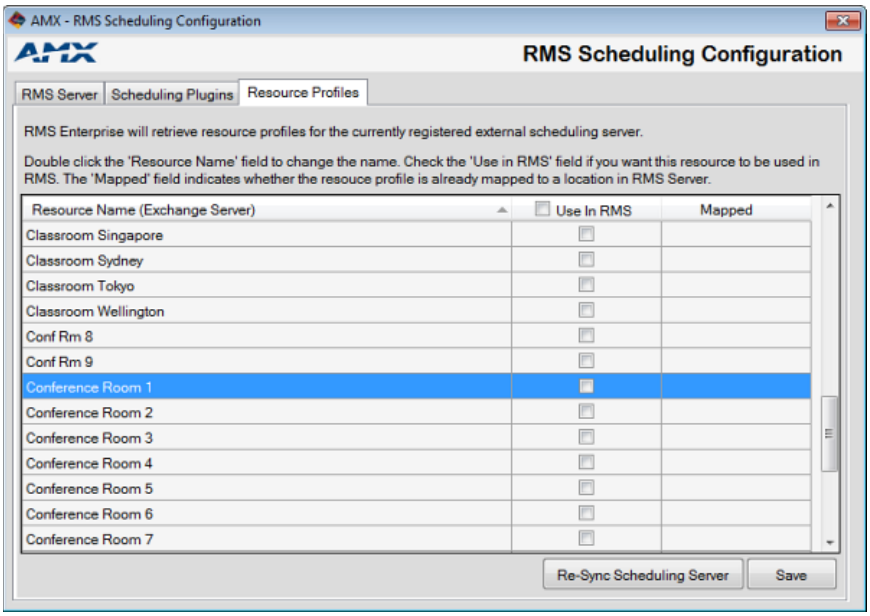

FIG. 116 RMS Enterprise Scheduling Configuration tool - Resource Profiles tab

This tab displays all Resources (Locations) defined in RMS. Check the **Use In RMS** option for each resource that you want to use this scheduling plug-in.

- The **Resource Name (Exchange Server)** column provides the names of each resource (as it exists in the scheduling interface). Double-click on a resource name to edit the name that will be presented in the RMS UI. Note that editing a resource name here does not change the name in the scheduling interface.
- Select the checkboxes in the **Use In RMS** column to specify which resources will use this scheduling plug-in. By default, no resources are selected. Only resources that have been selected in this column will use the scheduling interface.

- A green checkmark in the **Mapped** column indicates that the resource is currently mapped to a location in RMS. This is to call attention to the fact that resources that are currently mapped to locations in RMS are currently in use, so care should be taken when removing these resources from the scheduling interface (by de-selecting the checkmark in the **Use In RMS** column).

9. Click **Save** to save your changes.
10. Close the *RMS Enterprise Scheduling Configuration* tool.
11. Map the resources (Locations) listed here to a resource profile, to enable the scheduling interface for each location. See *Mapping Locations to Resource Profiles for Scheduling* below.

Mapping Locations to Resource Profiles for Scheduling

It is necessary to map each of the selected resources (Locations) in the *RMS Enterprise Scheduling Configuration* tool to a *Resource Profile*, in order to enable the scheduling interface for each location. This requires accessing the Location Management page in the RMS Enterprise UI:

The RMS Enterprise UI is accessed via web browser (see *Supported Web Browsers* on page 8).

To open the main RMS Enterprise Web UI, enter the following URL in your browser's address bar:

http://*servername*:8080/rms

NOTE

*Port **8080** is the default port for Tomcat (see Installing Apache Tomcat v6.0.x* on page 17*). However, when installing of Tomcat, this port can be assigned to another value if desired. The value assigned to Tomcat is the value that is used here in the URL. Refer to the RMS Enterprise Installation Guide for details on installing and configuring Tomcat.*

1. To open the Locations page in the RMS Enterprise UI, select **Management > Configure Locations/ Clients > Locations** from the main menu (FIG. 117):

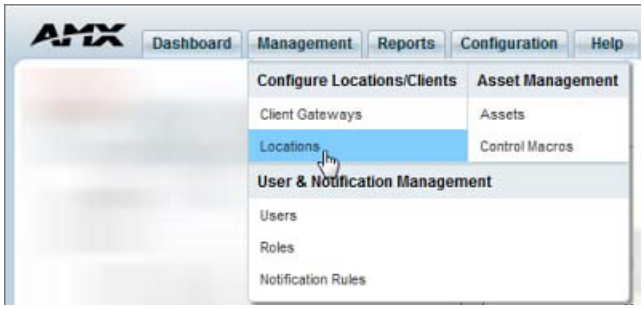

FIG. 117 RMS Enterprise UI - Management > Configure Locations/Clients > Locations

2. In the *Locations* page, select a Location and click **Edit** to open the *Location Edit* page (alternatively, double-click on a Location to edit).
3. Under *Scheduling Configuration*, select a Resource Profile from the drop-down list. The entries in this drop-down list represent the Resource Profiles that were selected to **Use In RMS**, in the *RMS Enterprise Scheduling Configuration* tool - *Resource Profiles* tab.

   For example FIG. 118 shows that five resources (Locations) are selected to *Use In RMS*:

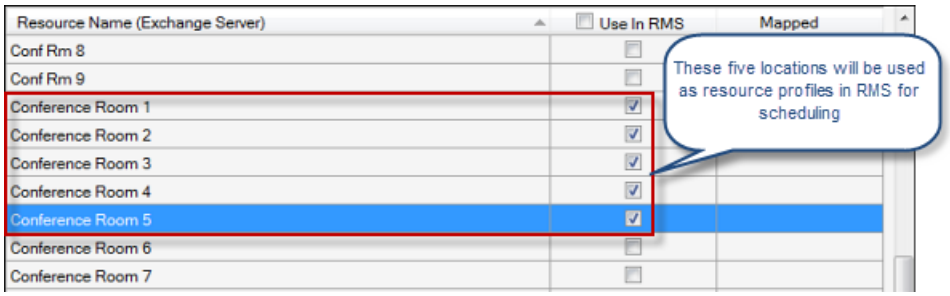

FIG. 118 RMS Enterprise Scheduling Configuration tool - Resource Profiles tab, with resources selected to Use In RMS

In the RMS UI *Locations* page, these are the resources (Locations) that appear in the *Resource Profile* drop-down list (FIG. 119):

FIG. 119 RMS Enterprise UI (Locations page) - Resource Profile drop-down list

Note that if any of the resource names were edited in the *RMS Enterprise Scheduling Configuration* tool, the edited names are displayed here.

4. Click **Apply** (at the bottom of this page) to save the selected Resource Profile as the scheduling configuration for the currently selected Location.

5. Repeat this process for all other Locations that require scheduling.

   Note that each resource profile can only be applied to a single Location. As resource profiles are applied to Locations, they are removed from the Resource Profiles list.

Viewing Existing Licenses

Overview

The **View Existing Licenses** option in the *Licensing Options Menu* dialog (FIG. 120) allows you to view all existing RMS software licenses detected by the AMX License Manager.

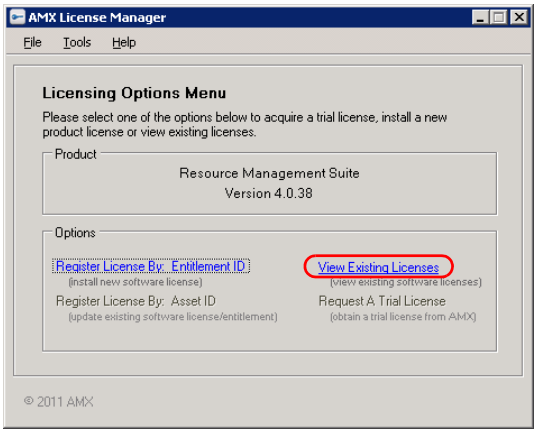

FIG. 120 AMX License Manager - Licensing Options Menu dialog

Opening AMX License Manager

1. To open the AMX License Manager, click **Configure RMS Licenses** in the *Licensing* tab of the RMS Server Configuration tool (FIG. 121). See the *RMS Server Configuration* section on page 29 for details.

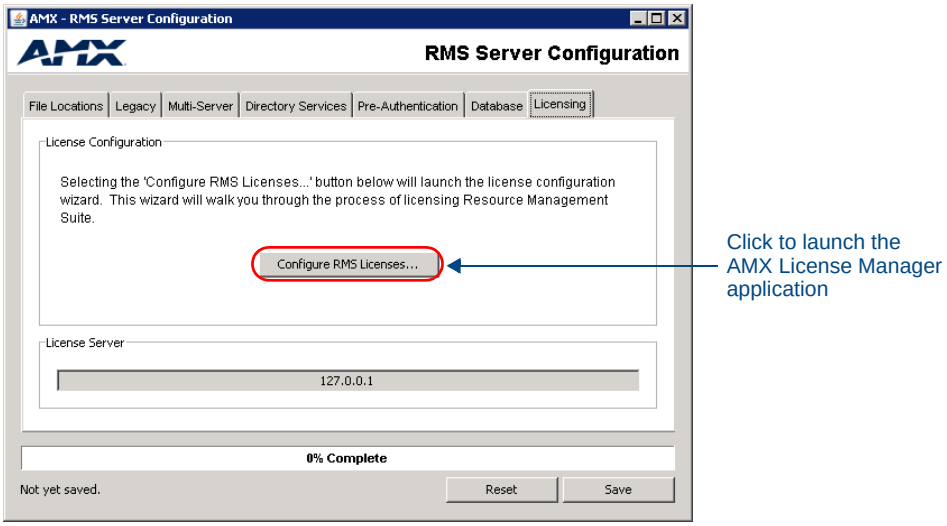

FIG. 121 RMS Server Configuration tool - Licensing tab

If you accessed the RMS Server Configuration tool via the **Next** button in the final dialog of the AMX RMS Server Installer (see FIG. 23 on page 27), then click *Next* until you get to the *License Configuration* page. Click **Configure RMS Licenses** to launch AMX License Manager.

Either way, the first dialog presented is the *Welcome To AMX License Manager* dialog (FIG. 122):

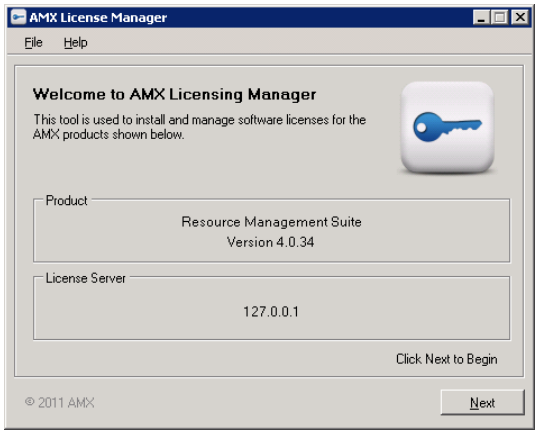

FIG. 122 AMX License Manager - Licensing Options Menu dialog

2. Click **Next** to proceed to the *Select License Server* dialog (FIG. 123).

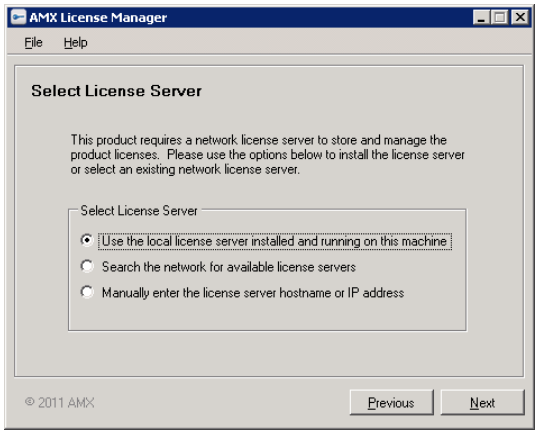

FIG. 123 AMX License Manager - Select License Server dialog

3. Select a License Server option (see *Selecting a Licensing Option* on page 50), and click **Next** to proceed to the *Licensing Status* dialog (FIG. 124):

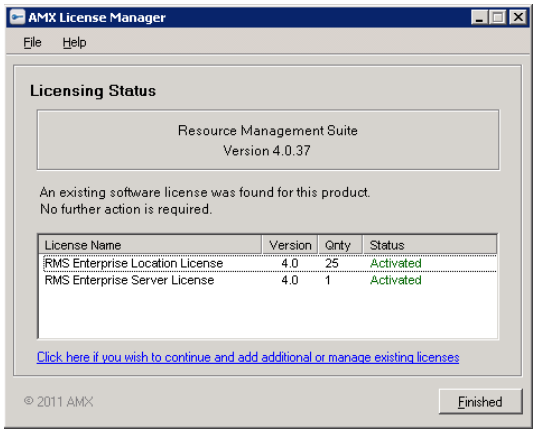

FIG. 124 AMX License Manager - Licensing Status dialog

This dialog lists all licenses currently installed, with their current Status.

4. Click on the link: **Click here if you wish to continue and add additional or manage existing licenses** to access the *Licensing Options Menu* dialog (FIG. 125):

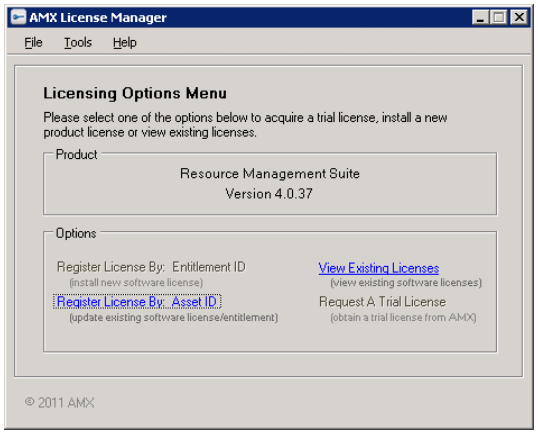

FIG. 125 AMX License Manager - Licensing Options Menu dialog

5. Select **View Existing Licenses** to open the *Installed Product Licenses* dialog (FIG. 126):

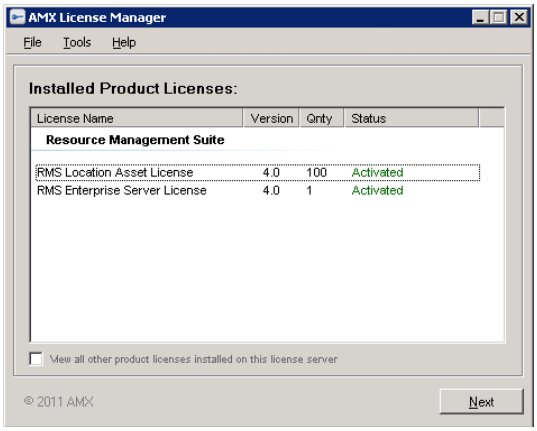

FIG. 126 AMX License Manager Wizard - Installed Product Licenses

- Hover over a *Location Asset* license to view details in the selected license in a tool-tip window similar to the one shown in FIG. 127:

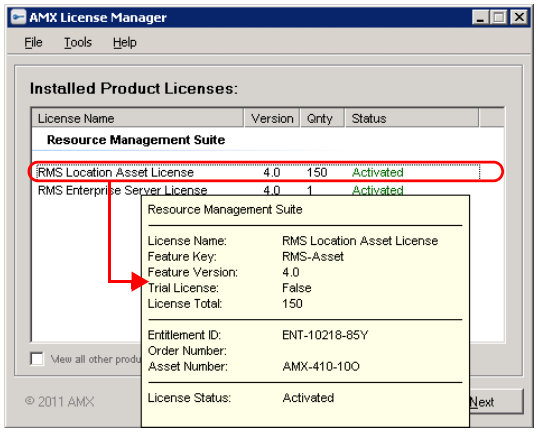

FIG. 127 Installed Product Licenses - Location Asset License Details window

- Hover over a *Server* license to view details in the selected license in a tool-tip window similar to the one shown in FIG. 127:

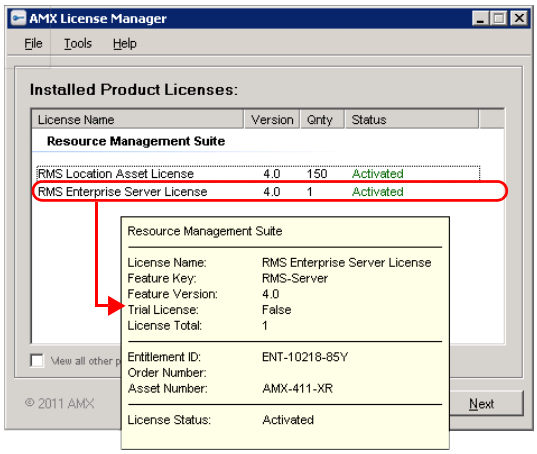

FIG. 128 Installed Product Licenses - Server License Details window

- Click the **View all other product licenses installed on this license server** option to expand the list to show all AMX product licenses (including non-RMS licenses).

6. Click **Next** to return to the *Licensing Options Menu* dialog (see the *Licensing Options Menu dialog* section on page 51).

Appendix A: Installing SQL Server 2008 Express Edition

Overview

The instructions in this Appendix are intended to assist in installing and configuring SQL Server 2008 Express Edition for use with RMS Enterprise.

- While RMS does support Microsoft SQL Express 2008 databases, the RMS services and website must connect using a TCP/IP connection or named pipes.
- Connecting to SQL Express 2008 via shared memory is not supported.
- The Network Administrator should perform this type of configuration.

NOTE

SQL "Express" is only appropriate for systems with less than 50 locations. See the Supported Database Platforms section on page 8 *for details.*

Installing SQL Server Express

The steps below describe installing SQL Server Express for RMS Enterprise via the SQL Server 2008 Setup installation routine.

The following section (*Configuring SQL Express via the SQL Server Configuration Manager* on page 101) describes configuring SQL Server Express for use with RMS Enterprise.

NOTE

You can use the SQL Server Configuration Manager utility to configure (or change the current configuration of) the SQL Server after it has been installed.

1. Download the *SQL Server 2008 Express Edition* (SP1 or higher) installation file from Microsoft.
2. Run the downloaded file to launch the *SQL Server Installation Center.*
3. Click on **Installation** in the menu pane to open the page shown in FIG. 129:

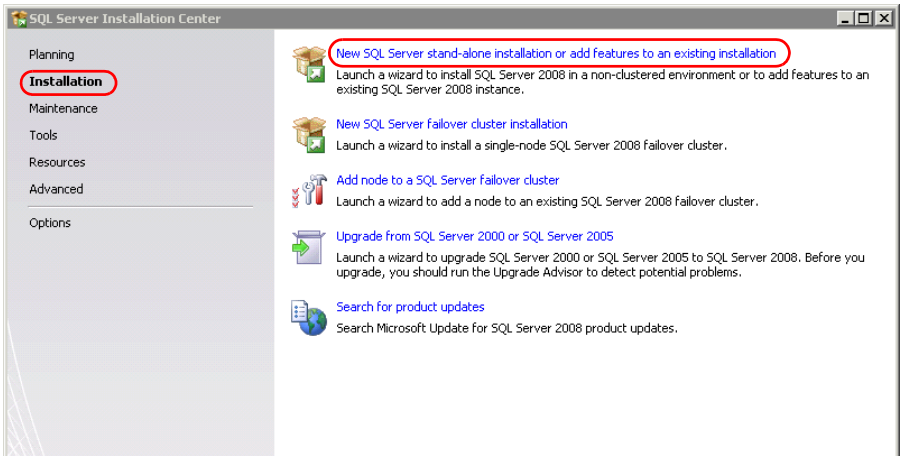

FIG. 129 SQL Server Installation Center

4. Click on **New SQL Server stand-alone installation or add features to an existing installation** to proceed to the *Product Key* page.
5. Since SQL Express does not require a Product Key, click **Next** to proceed to the *Setup Support Rules* page.

6. No changes are required in the *Setup Support Rules* page, so click **Next** to proceed to the *Feature Selection* page (FIG. 130).

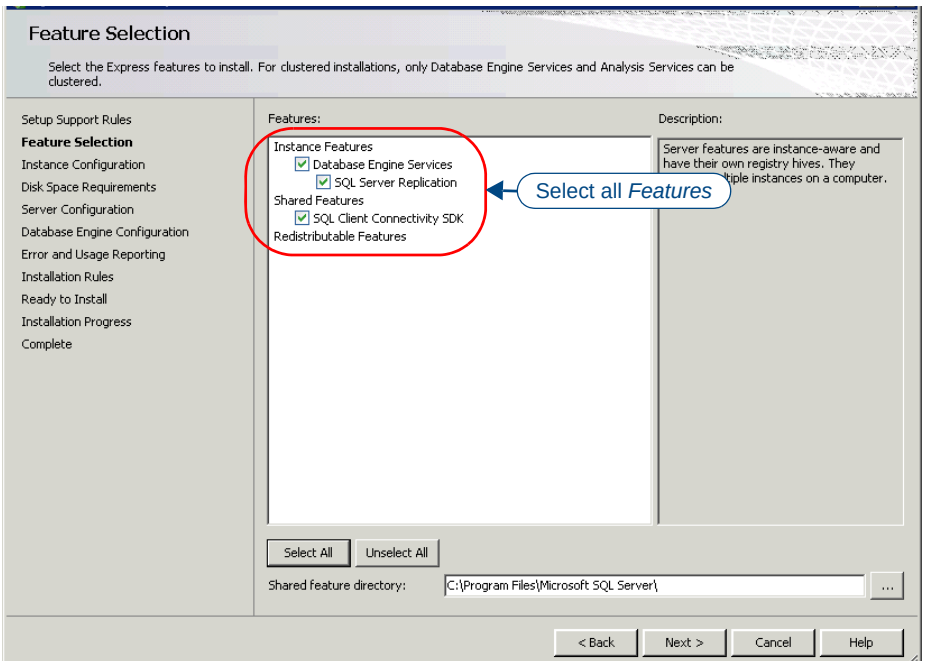

FIG. 130 SQL Server 2008 Setup - Feature Selection page

7. Select all options in the *Features* window, and click **Next** to proceed to the *Instance Configuration* page.
8. No changes are required on the following two pages (*Instance Configuration* and *Disc Space Requirements*), so click **Next** to accept the default settings and proceed to the *Server Configuration* page (FIG. 131):

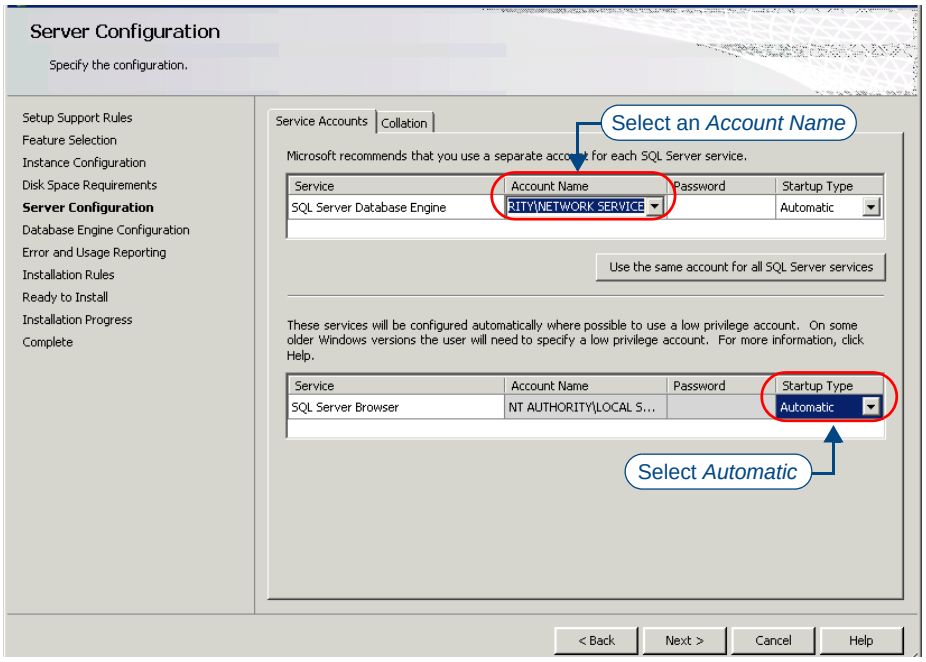

FIG. 131 SQL Server 2008 Setup - Server Configuration page

9. In the *Server Configuration* page (*Server Accounts* tab):

a. In the upper window (*SQL Server Database Engine*, select the appropriate **Account Name** from the options provided.

b. In the lower window (*SQL Server Browser*), select **Automatic** from the *Startup Type* drop-down menu.

c. Click **Next** to proceed to the *Database Engine Configuration* page (FIG. 132):

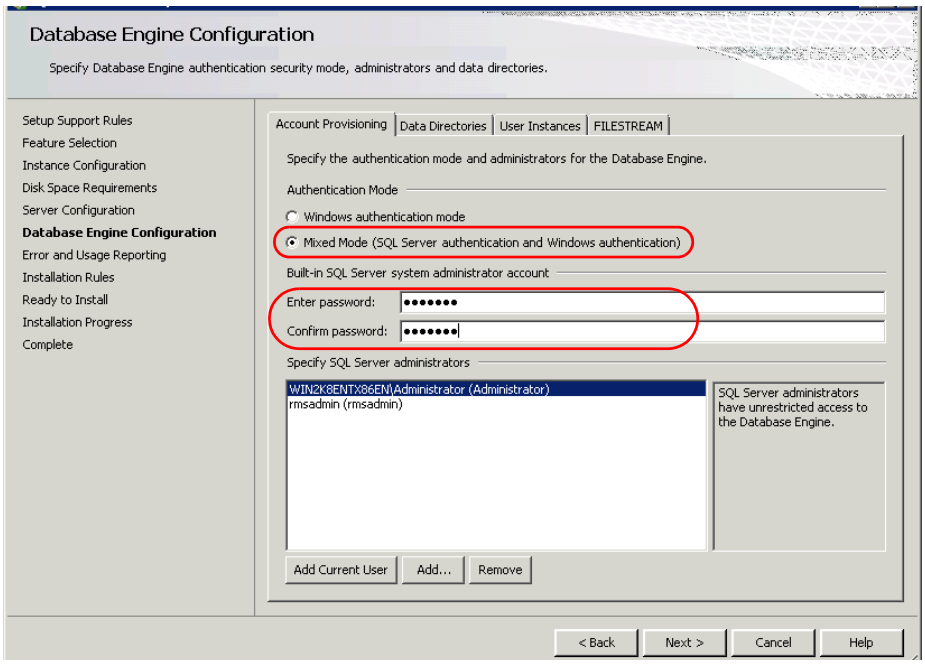

FIG. 132 SQL Server 2008 Setup - Database Engine Configuration page

10. In the *Database Engine Configuration* page (*Account Provisioning* tab):

RMS Enterprise supports both Windows Authentication and SQL Authentication. SQL Authentication is recommended simply due to the simplicity of installation.

a. Under Authentication Mode, select **Mixed Mode.**

b. Enter and confirm a **Password** to apply to the SQL Server System Administrator account.

c. Click **Next** to proceed to the *Error and Usage Reporting* page.

11. No changes are required on the following two pages (*Error and Usage Reporting* and *Installation Rules*), so click **Next** to accept the default settings and proceed to the *Ready To Install* page (FIG. 133):

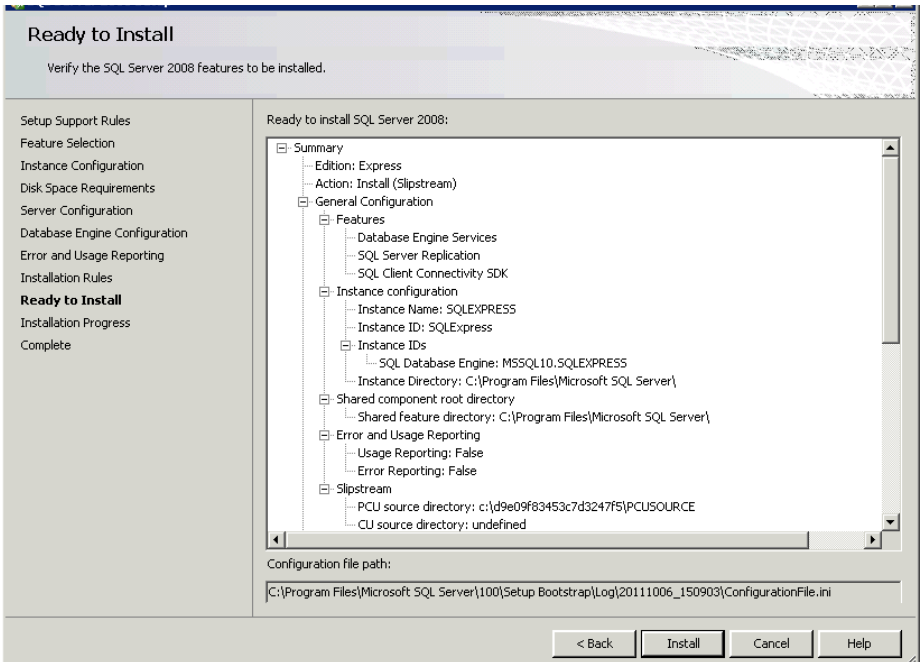

FIG. 133 SQL Server 2008 Setup - Ready To Install page

12. Click **Install** to begin the installation. Progress is indicated in the *Installation Progress* page.

13. Once this page indicates *Setup Process Complete*, click **Next** to proceed to the *Complete* page (FIG. 134):

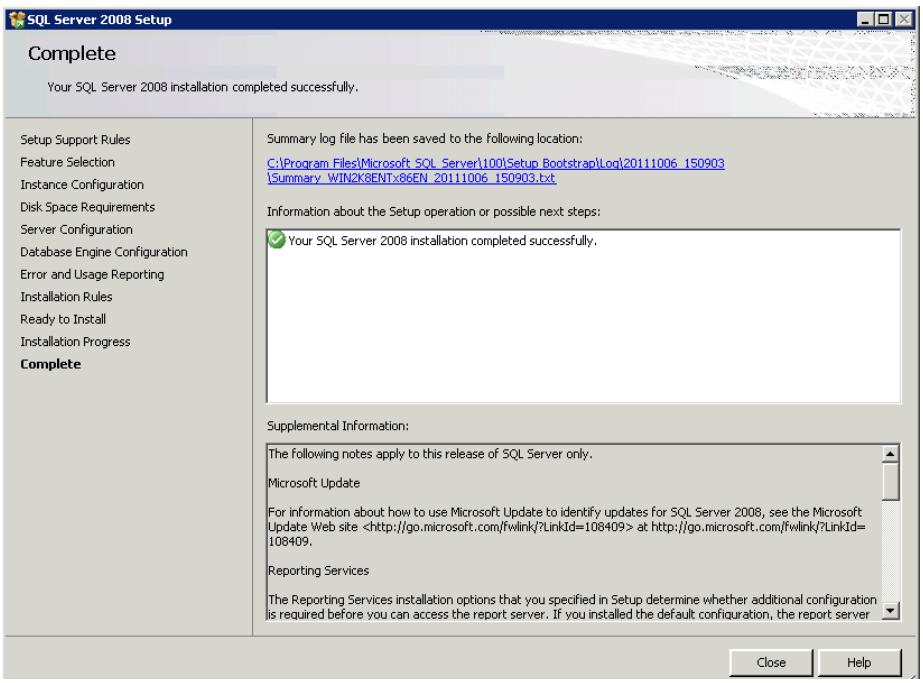

FIG. 134 SQL Server 2008 Setup - Complete page

14. Click **Close** to close the SQL Server 2008 Setup program.

Configuring SQL Express via the SQL Server Configuration Manager

The following steps describe using the *SQL Server Configuration Manager* to configure (or change the current configuration of) the SQL Server after it has been installed.

NOTE

The screen caps included n this section represent the SQL Express 2008 User Interface (UI). If you are using SQL Express 2008 R2, you may notice cosmetic differences in the UI, but the principles are the same.

1. With SQL Server Express already installed, launch the *SQL Server Configuration Manager* utility from the Start menu (FIG. 135):

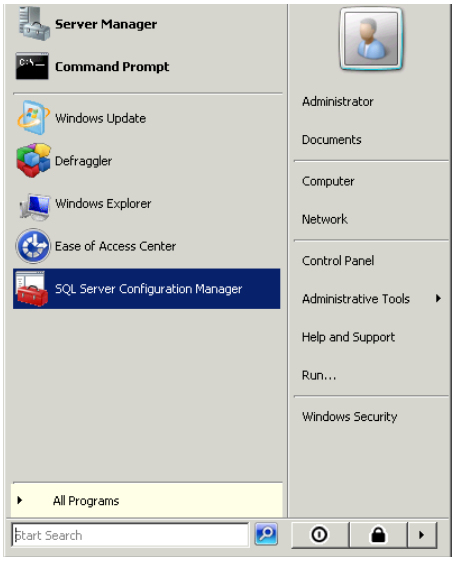

FIG. 135 SQL Server Configuration Manager

2. In the left menu pane, select **SQL Server Services** (FIG. 136):

If the steps in the "*Installing SQL Express*" section were followed, then the SQL Server Browser service should indicate **Running** at this point. If this is the case, then Steps 3-6 can be ignored.
verify that the SQL Server Browser service is Running before proceeding.
If the SQL Browser is **Stopped** (as indicated here), follow Steps 3-6.

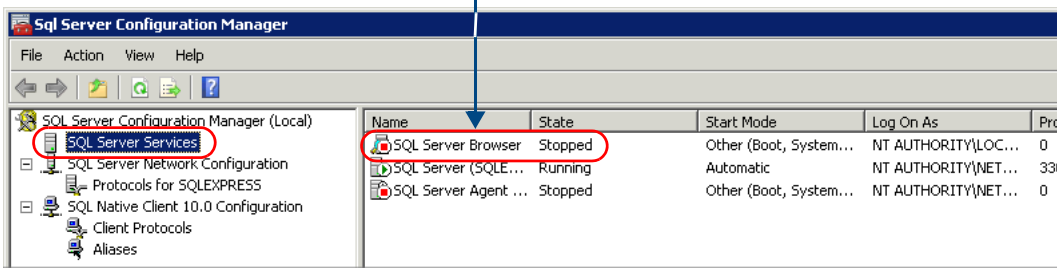

FIG. 136 SQL Server Configuration Manager - SQL Server Services

NOTE

If you followed the steps described in the previous section, the SQL Server Browser service should be running at this point.
If the SQL Server Browser is running, Steps 3-6 can be ignored. However, verify that the SQL Server is still running before continuing with Step 7 (selecting Protocols for SQL Express - see FIG. 141 on page 103).

3. Right-click on **SQL Server Browser** and select **Properties** from the context-menu (FIG. 137). This selection invokes the *Properties* dialog.

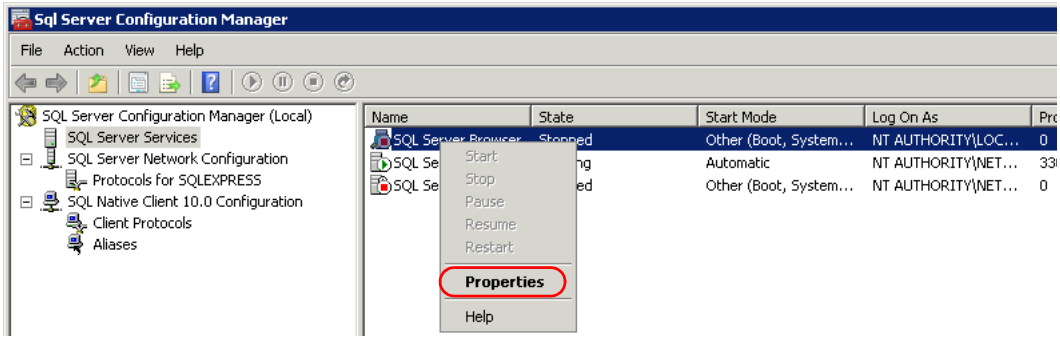

FIG. 137 SQL Server Configuration Manager - SQL Server Services context menu

4. In the *Services* tab, change the *Start Mode* setting to **Automatic** (FIG. 138):

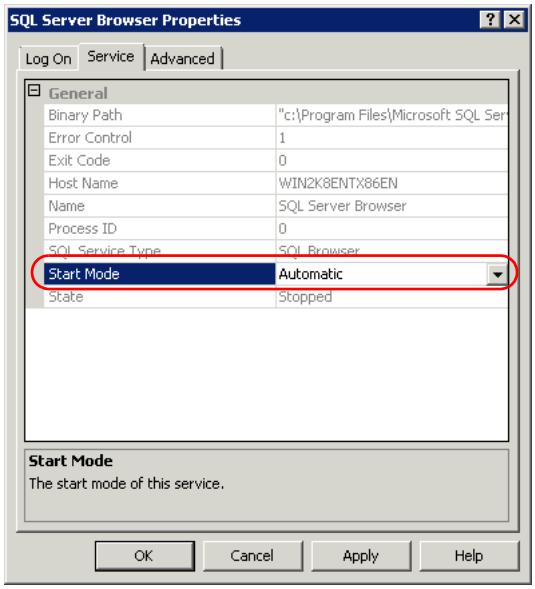

FIG. 138 SQL Server Browser Properties dialog (Services tab)

5. Click **Apply** to save this change, and click **OK** to close this dialog.
6. Right-click on **SQL Server Browser** and select **Start** from the context-menu (FIG. 139):

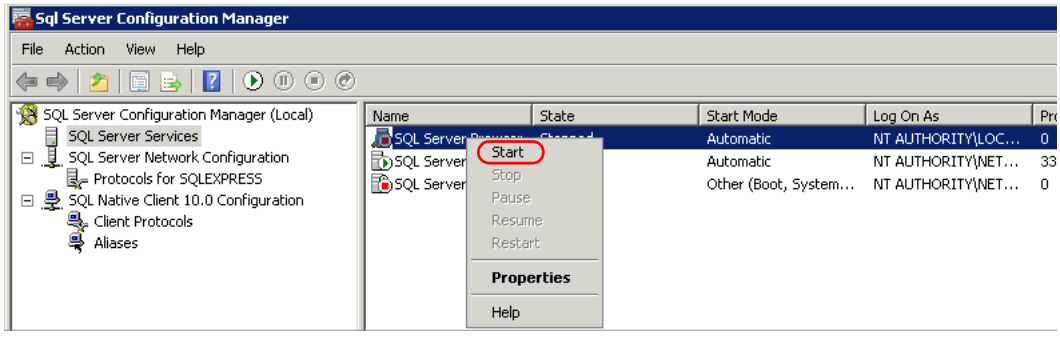

FIG. 139 SQL Server Configuration Manager - SQL Server Services context menu

Note that the *State* column for the SQL Server Browser now indicates **Running** (FIG. 140):

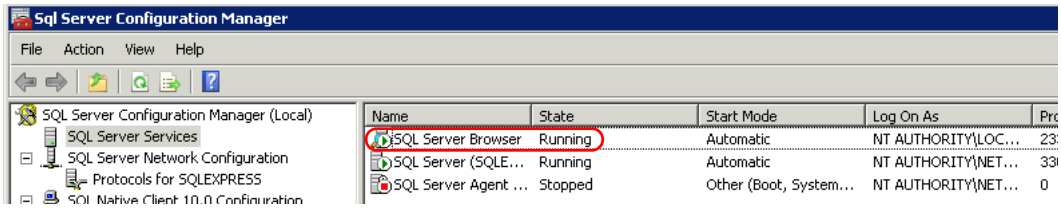

FIG. 140 SQL Server Configuration Manager - SQL Server Browser Running

7. In the left menu pane, select **Protocols for SQLEXPRESS** (FIG. 141):

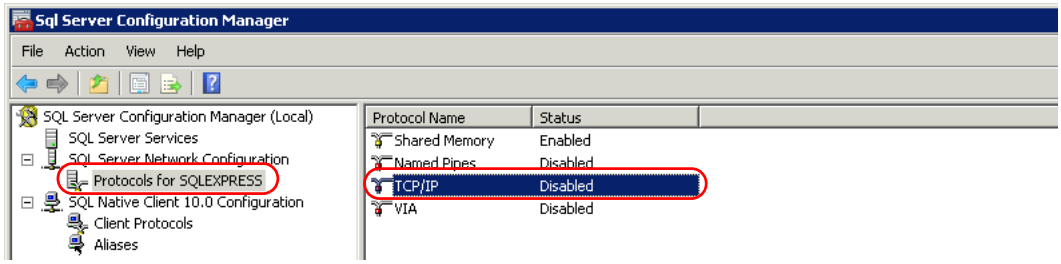

FIG. 141 SQL Server Configuration Manager - SQL Server Services

8. Right-click on **TCP/IP** and select **Properties** from the context menu. This selection invokes the *TCP/IP Properties* dialog.

9. In the *Protocol* tab, change the *Enabled* setting to **Yes** (FIG. 142):

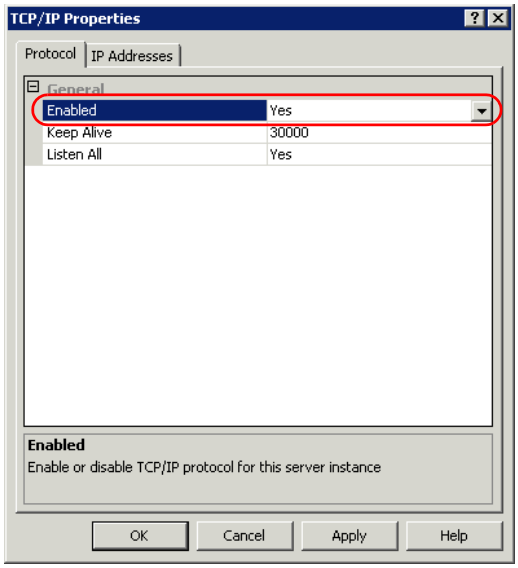

FIG. 142 TCP/IP Properties dialog (Protocol tab)

10. Click **Apply** to save these changes.

11. In the *IP Addresses* tab, change the *TCP Port* setting under each IP listed (*IP1*, *IP2*, *IP3*, etc) to **1433** (FIG. 143):

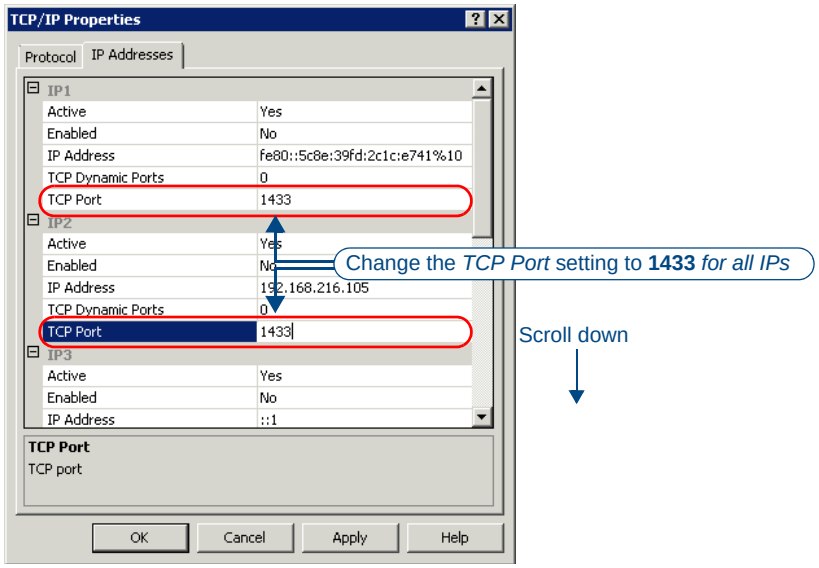

FIG. 143 TCP/IP Properties dialog (IP Addresses tab)

12. Click **Apply** to save these changes, and click **OK** to close this dialog.

13. The program will prompt you to stop and restart the service for these changes to take effect (FIG. 144):

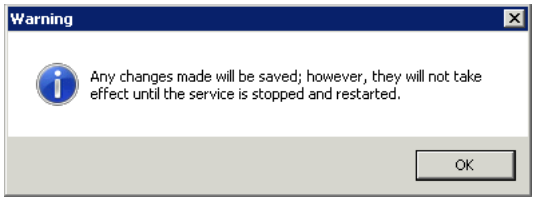

FIG. 144 TCP/IP Properties - Warning dialog

14. Click **OK** to close this dialog and return to the main screen of the *SQL Server Configuration Manager*.

15. *Stop* and *Restart* the SQL Server Services:

a. In the left menu pane, select **SQL Server Services** (FIG. 145):

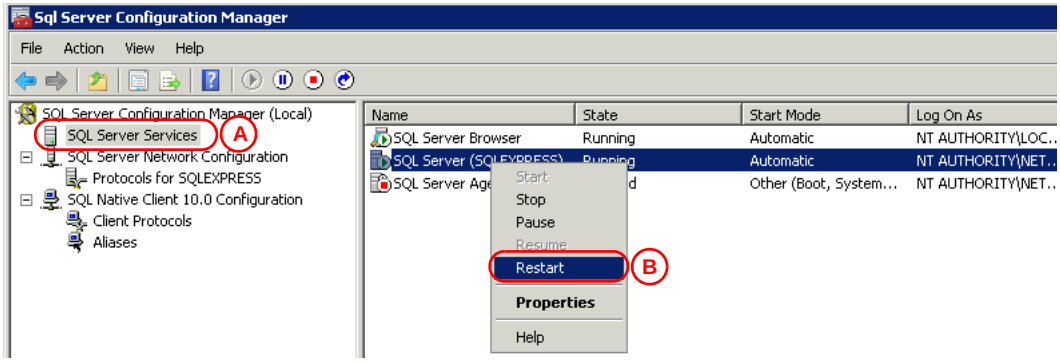

FIG. 145 SQL Server Configuration Manager - SQL Server Services

b. Right-click on *SQL Server (SQLEXPRESS)* and select **Restart** from the context menu (FIG. 145).

Appendix B: Tomcat Configuration

Overview

In configuring RMS Enterprise, there are system variables involved that include:

- The size of the RMS system (for example, the number of rooms in the system as well as the number of devices in each room).
- The characteristics of the network on which RMS is installed.
- The manner in which the RMS system is designed, programmed and used.
- The hardware and software configuration of the RMS server and RMS database server.

All of these variables can affect the overall performance of the RMS system.

In particular, the *MaxPermSize*, *Initial Memory Pool* and *Maximum Memory Pool* settings for Tomcat may need to be adjusted from the suggested default values that are provided in the *Configuring Apache Tomcat* section on page 20.

As indicated in the *Installing Apache Tomcat v6.0.x* section, Tomcat must be restarted after the final step in the configuration procedure. Testing has indicated that in some cases, Tomcat will not restart if the recommended memory settings are incompatible with a specific PC (usually due to the hardware configuration of the server). Specifically, the Tomcat Start/Start options in the task bar are disabled, and the system manager indicates that Tomcat is in "*Starting*" mode.

The recommended method of troubleshooting this issue is to perform a test that will establish valid values for *MaxPermSize*, *Initial Memory Pool* and *Maximum Memory Pool*, for the server that will run the RMS Enterprise application.

Testing for Acceptable Java Memory Settings

1. Open a command prompt on the server that will run the RMS Enterprise application.
2. Enter the following command at the Command prompt:

   `java -Xms<MB> -Xmx<MB> -XX:MaxPermSize=<MB>`

   where:

   - **Xms** - *Minimum heap size*
   - **Xmx** - *Maximum heap size*
3. Enter values (in MB) for the minimum and maximum heap size as well as for MaxPermSize.
   a. If the values entered are acceptable for this server, then the allocations are made and no error message is invoked (FIG. 146):

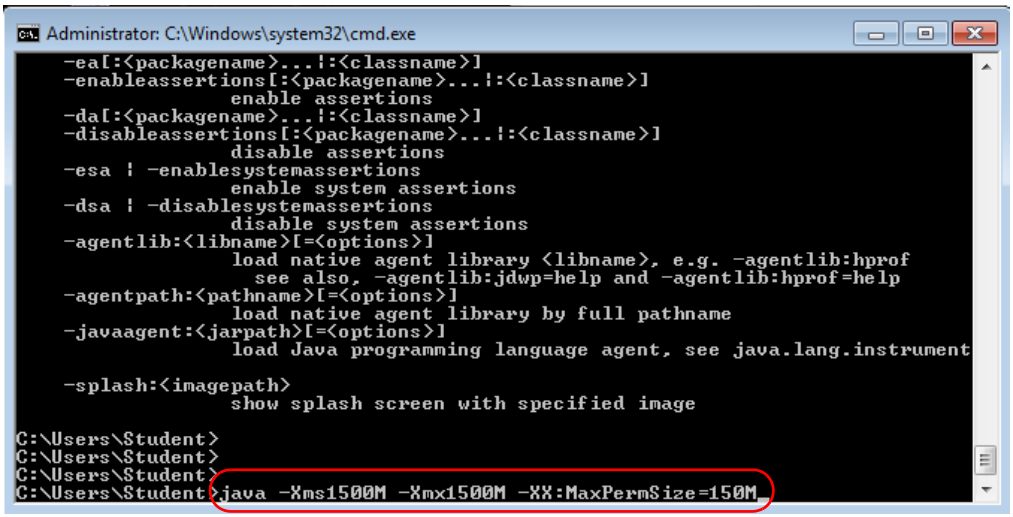

FIG. 146 Java memory settings - no errors

b. However, if the values entered are not acceptable for this server, the following error messages are returned (FIG. 147):

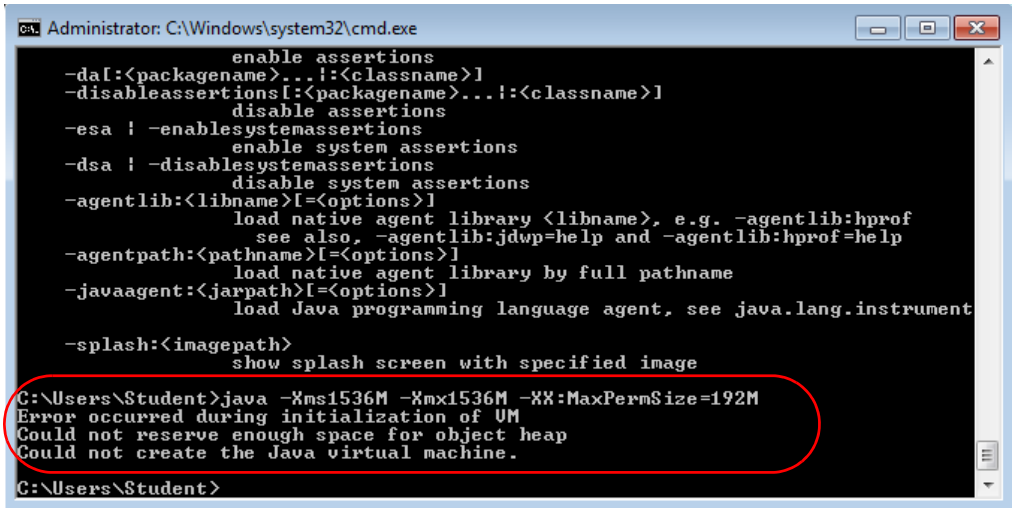

FIG. 147 Java memory settings - Java memory allocation errors

c. In this case, adjust the enter a different set of values. It may be necessary to repeat this process until the acceptable values are found. Use this method until you are able to establish memory allocation values that do not generate these errors.

4. Once you have determined these values. change these settings in the Java tab of the *Apache Tomcat 6 Properties* dialog (FIG. 148).

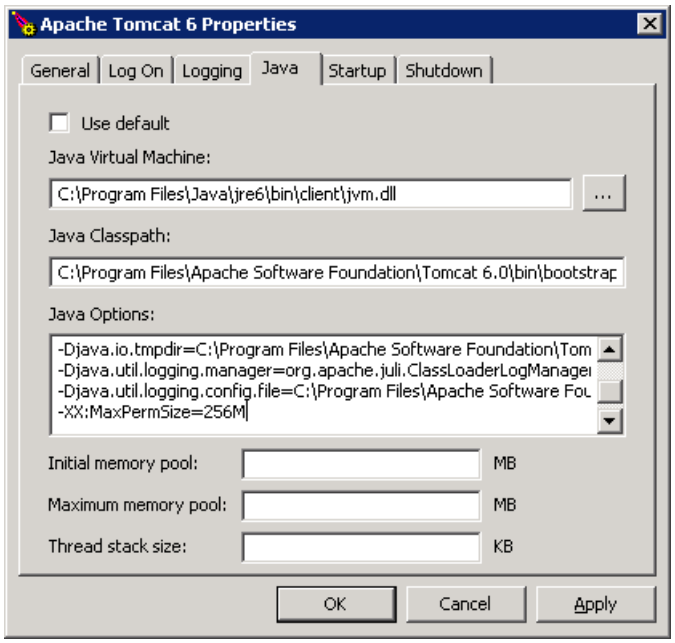

FIG. 148 Apache Tomcat 6 Properties dialog - Java tab

NOTE

*Since it is recommended that the "Initial memory pool" and "Maximum memory pool" values match each other, enter the value that was established in this test for Maximum heap size in both the **Initial memory pool** and **Maximum memory pool** fields in this dialog.*

5. Delete the logs in the Tomcat 6.0 directory so they can re-initialize (FIG. 149):

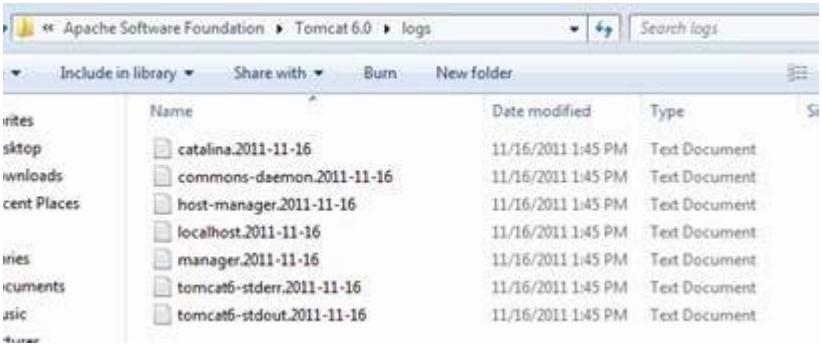

FIG. 149 Apache Tomcat 6 Logs (delete all)

6. In *Task Manager*, select **End Process** on **Tomcat6.exe** (FIG. 150):

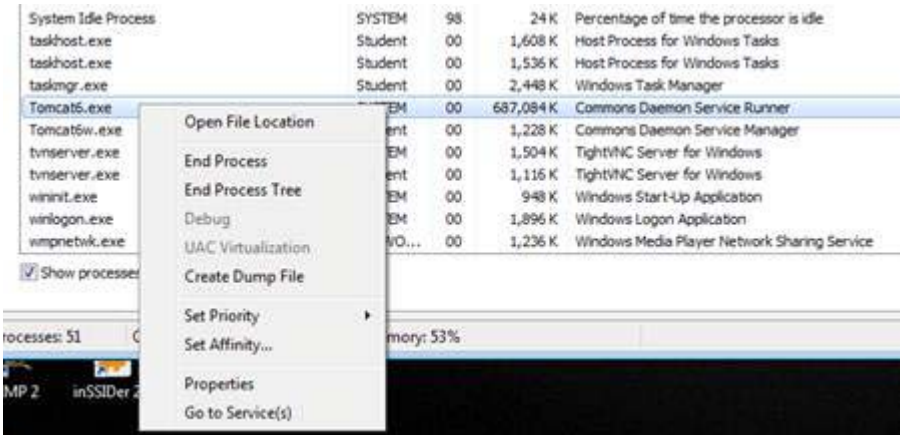

FIG. 150 End Process - Tomcat6.exe

At this point you should be able to restart Tomcat.

Since proper memory allocation settings are dependent on the hardware and software configuration of the RMS server and RMS database server, if any changes are made to either the software or hardware on the server, these steps may need to be repeated.

Appendix C: Clustered Deployment

Overview

The following points address common question relative to installing RMS in a clustered deployment.

Sticky Sessions

The term "*sticky session*" refers to the feature of many commercial load balancing solutions for web-farms to route the requests for a particular session to the same physical machine that serviced the first request for that session.

In a sticky session, the user is always sent to the same physical server as they page through the Web site. This is usually done at the router or switch layer, and it keeps the session variables of the user available.

- For users coming through the Flex interface, sticky sessions are a requirement. In the event of a fail-over to another node, the user's session will not exist on the new node and they'll be forced back to the login screen.
- For programmatic clients coming through the REST interface, sticky sessions aren't a requirement, but still desirable for performance reasons.

Shared file storage

Shared file storage serves two purposes:

- Server log files are written to a shared log directory. This provides the application a single place to download log files via the Flex UI.

  If access to the shared log directory is lost, the individual servers will continue to also write their log files to a local directory on their own hard drive.
- Shared file storage houses the search index. All nodes in the cluster need to be able to read this index data. Searches against this data only happen from the Flex UI (e.g. the Asset Management UI uses searches against this index exclusively).

  If access to this search index is lost, searches will fail.
- Tomcat's Session Replication feature is not used by RMS.

In the event of node failure

When a node fails, the transactions in-work on that server will not be committed to the database.

- Human users will be forced to login again and start their workflow over.
- Programmatic clients (or NetLinx controllers) will have their current request fail and subsequent requests will be routed to another server. They use Digest authentication and will simply re-authenticate transparently.

Recommended procedure to restore a failed node

This will depend on the kind of failure:

- If the JVM or Tomcat crashed, just restart Tomcat.
- If the hard drive crashed, then a new drive and a reinstall is required.

  If the hard drive crashed on the server that hosts the Sentinel Licensing service, then restoring that node will likely also involve resetting the licenses with AMX so they can be reactivated on a new hard drive.

If a node loses connectivity to the database

If a node loses database connectivity it does not remove itself from the cluster. It will just issue errors to both the Flex and REST clients. The underlying database connection pool will begin working to restore database connectivity. Without the database, the application simply will not function.

From a UI perspective, RMS may show an error retrieving the Hotlist, but if database connectivity is restored the UI will recover and begin working again.

Network infrastructure requirements

In a clustered deployment, the nodes must find each other using multicast UDP communication and need to all be on the same subnet.

By default, RMS uses the following multicast ports for a clustered deployment: **45564**, **45588**, and **46655**

Communication between the nodes provides a variety of functions:

1. Configuration changes made via the Flex UI.

   For example, when a configuration change within the Flex UI is made (e.g. SMTP Server), that change is persisted to the database and propagated to the other servers.
2. Search index write operations: when locations are created and client gateways and their assets are registered with the server, this information must be indexed on the shared file storage.

   Only one server can write to the index at a time, so RMS employs a dynamic master-slave approach:
   - The first server to start in a cluster becomes the master, and subsequent servers become slaves.
   - The slaves send their index updates to the master who will perform the index writes for them.
   - If the master node goes down, the second server that was started becomes the new master and performs the index writes.
3. Search index read operations (via SMB network file storage).
4. A distributed data grid (between the nodes) stores the last time each REST-based client gateway communicated with the server. This allows RMS to determine when a client has gone off-line.
5. Licensing checks. Each server must communicate with the Sentinel license service approximately every 10 minutes.

   If the Sentinel license service goes down, RMS will continue to operate for a 24 hour grace period.

Bandwidth costs

Many factors influence the bandwidth costs, including the number of servers in the cluster as well as the number of locations, client gateways, and assets.

Appendix D: Manually Removing & Moving Licenses

Overview

The instructions in this section describe using the *AMX License Manager* tool to remove (revoke) existing RMS Enterprise Licenses, as well as move revoked licenses to a different server. This information is intended to be used in scenarios where purchased RMS Enterprise Licenses need to be transferred from the server on which they were initially installed, to a different replacement server.

Before You Start

Contact AMX Customer Support

Revoking and/or moving an active RMS Enterprise License requires contacting your AMX Customer Support representative. Your representative will provide a RMA number, which you will need in order to complete the revocation process.

Launch AMX License Manager

1. To launch the AMX License Manager tool, select **Programs > AMX Resource Management Suite > Server > RMS Configuration**. This launches the *RMS Server Configuration* tool.
2. Open the *Licensing* tab and click **Configure RMS Licenses** to launch the *AMX License Manager* (*Welcome* dialog).

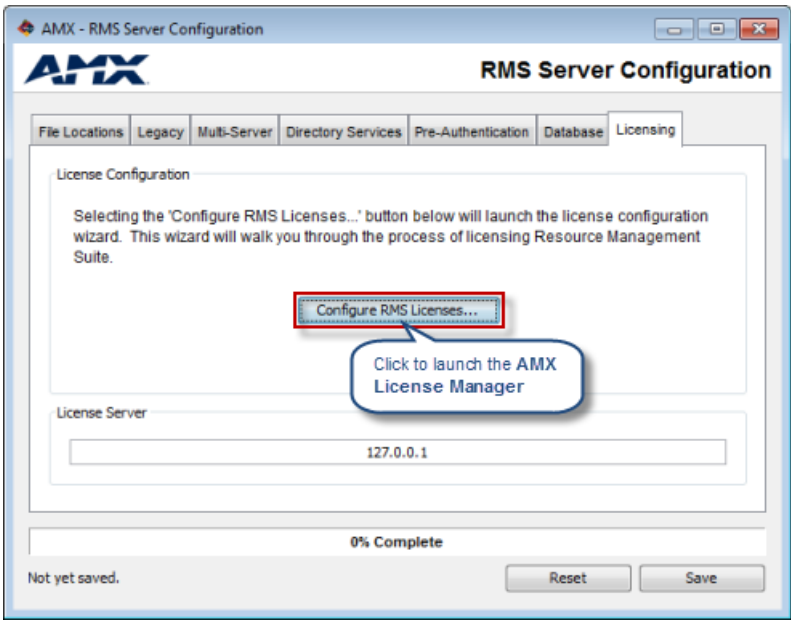

FIG. 151 AMX License Manager - Active License Selected For Removal

Manually Removing (Revoking) a License

1. In the *AMX License Manager* (*Welcome* dialog), click **Next** to proceed to the *Select License Server* dialog. You should be able to use the default selection - **Use the local license server installed and running on this machine**.

NOTE

*If the license server was installed elsewhere, select the appropriate option in this dialog and click **Next** to connect to the license server.*

2. Click **Next** to proceed to the *Licensing Status* dialog, which provides a listing of all licenses detected on the license server (FIG. 152):

FIG. 152 AMX License Manager - Licensing Status dialog

3. Select the License that you want to remove.
4. In the **Tools** menu, select **Return License For Refund > Disconnected to Internet** (FIG. 153):

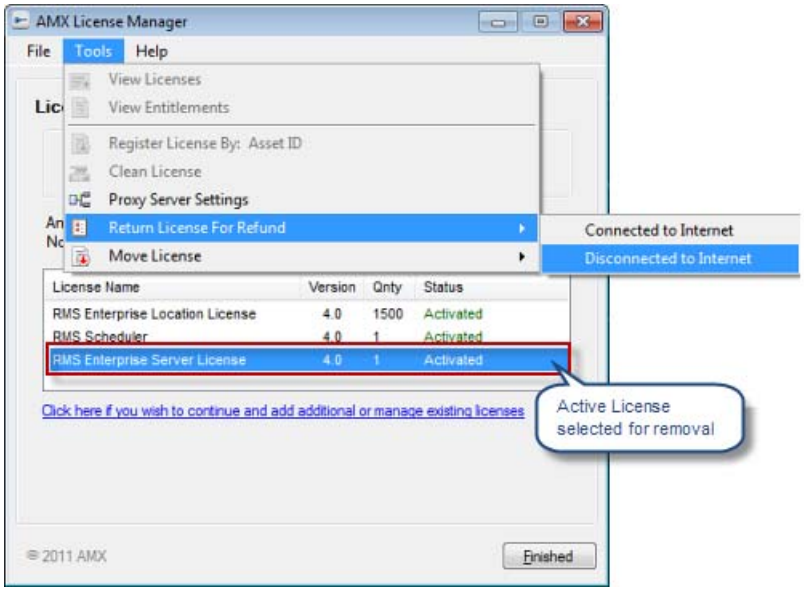

FIG. 153 AMX License Manager - Active License Selected For Removal

This selection invokes the *Manually Return AMX Product License* dialog (FIG. 154):

FIG. 154 AMX License Manager - Manually Return AMX Product License

5. In the **RMA Number** field, enter the 6-digit RMA number provided by AMX Customer Support.
6. Click the *Copy License Information To Clipboard* link and email the information to your Customer Service representative.

   Customer service will create a *Revoke Permission Ticket* based on this information, and send the Permission Ticket information to you. This Permission Ticket information is required in the next step:
7. Click **Next** to proceed to the *License Revocation Permissions Ticket* dialog (FIG. 155):

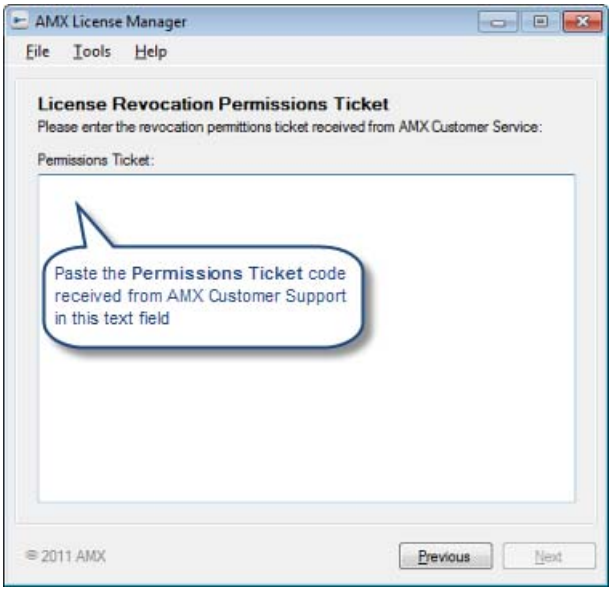

FIG. 155 AMX License Manager - License Revocation Permissions Ticket

8. Copy and paste the Permissions Ticket code received from AMX Customer Support into the *Permissions Ticket* text field. Assuming the entered code is valid, this enables the **Next** button.
9. Click **Next** to prompt the license server to validate the Permissions Ticket code, and return a revocation verification ticket if the permission ticket matches. The Revocation Verification Ticket code is provided in the *License Revocation Verification Ticket* dialog (FIG. 156):

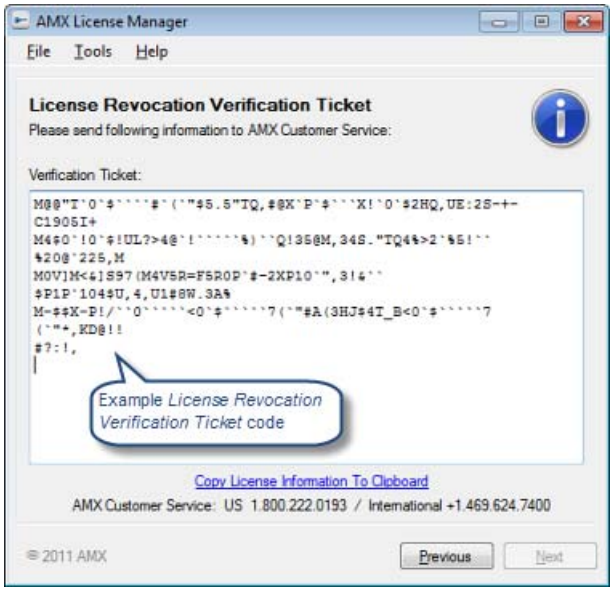

FIG. 156 AMX License Manager - License Revocation Permissions Ticket

10. Click the **Copy License Information to Clipboard** link, paste the Revocation Verification Ticket code in an email, and send it to Customer Service for revocation.
11. After the revocation verification ticket code has been sent to Customer Service, click **Next** to proceed to the *AMX License Revoke* dialog (FIG. 157):

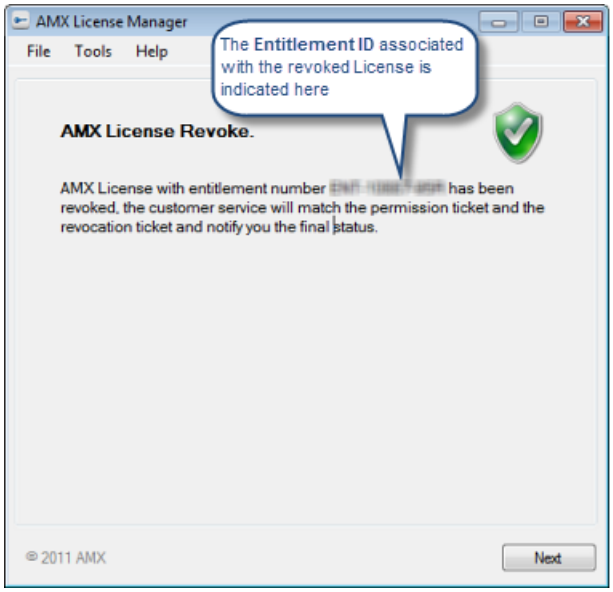

FIG. 157 AMX License Manager - AMX License Revoke

12. Click **Next** to close this dialog, completing the process in the *AMX Licensing Manager.*

Your Customer Service representative will complete the revocation process, and inform you of the final status,

Manually Moving a License (To a Different Server)

1. In the *AMX License Manager* (*Welcome* dialog), click **Next** to proceed to the *Select License Server* dialog. You should be able to use the default selection - **Use the local license server installed and running on this machine**.

NOTE

*If the license server was installed elsewhere, select the appropriate option in this dialog and click **Next** to connect to the license server.*

2. Click **Next** to proceed to the *Licensing Status* dialog, which provides a listing of all licenses detected on the license server (FIG. 158):

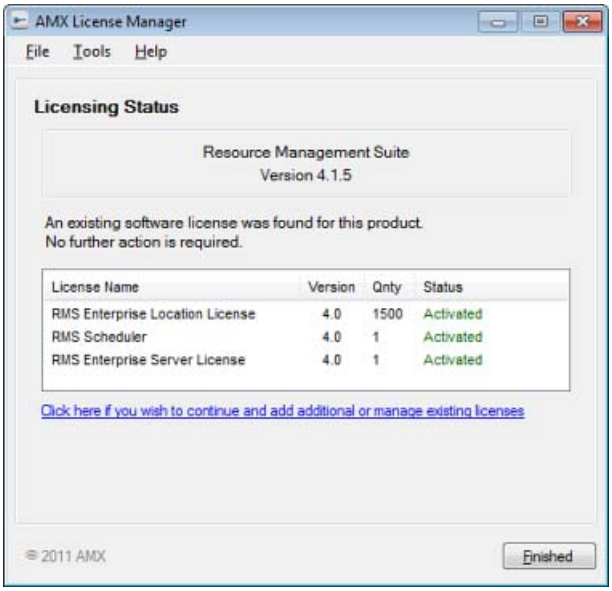

FIG. 158 AMX License Manager - Licensing Status dialog

3. Select the License that you want to move.
4. In the **Tools** menu, select **Move License > Disconnected to Internet** (FIG. 159):

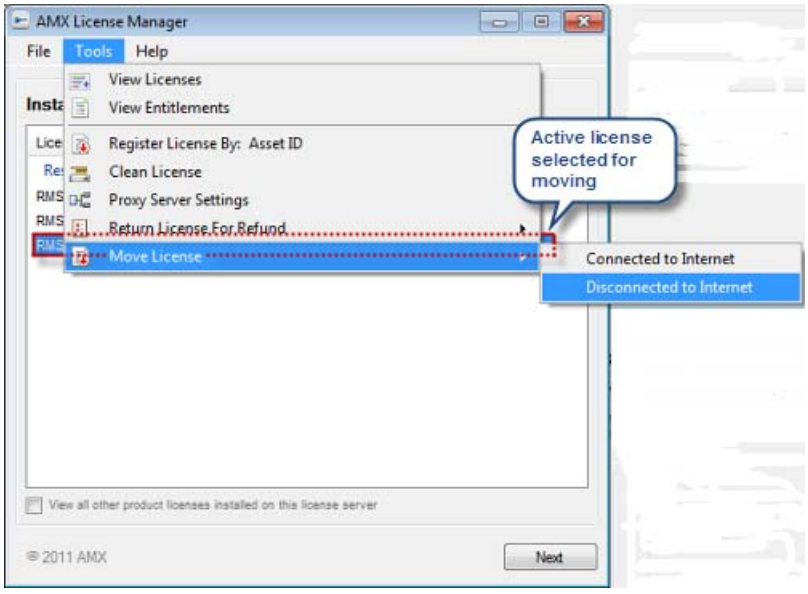

FIG. 159 AMX License Manager - Active License Selected To Move

This action invokes an *Information* dialog prompting you to verify this action, and reminding you that the process of moving licenses entails removing all licenses from the selected entitlement installed n this machine, allowing you to activate the selected entitlement on another machine (FIG. 160):

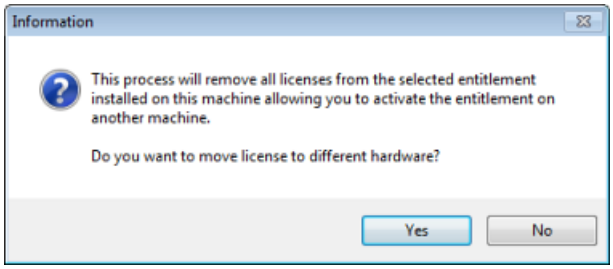

FIG. 160 Information dialog (click Yes to proceed)

5. Click **Yes** to proceed to the *Manually Move AMX Product License* dialog (FIG. 161).

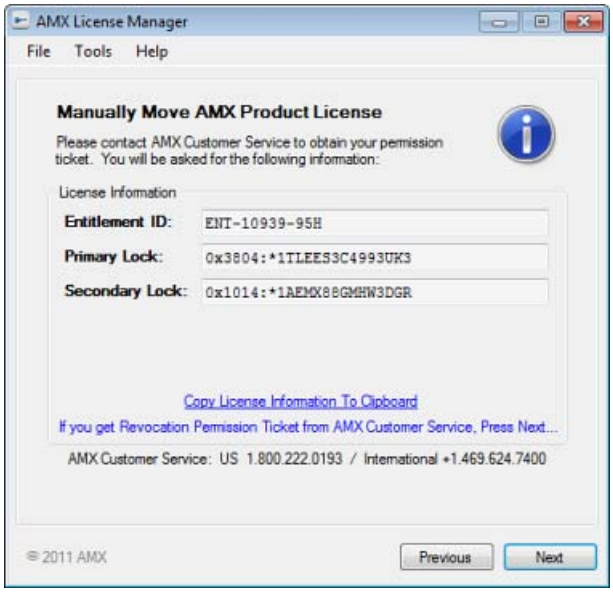

FIG. 161 AMX License Manager - Manually Move AMX Product License dialog

6. Click the *Copy License Information To Clipboard* link and email the information to your Customer Service representative.

   Customer service will create a *Revoke Permission Ticket* based on this information, and send the Permission Ticket information to you. This Permission Ticket information is required in the next step:

7. Click **Next** to proceed to the *License Revocation Permissions Ticket* dialog (FIG. 162):

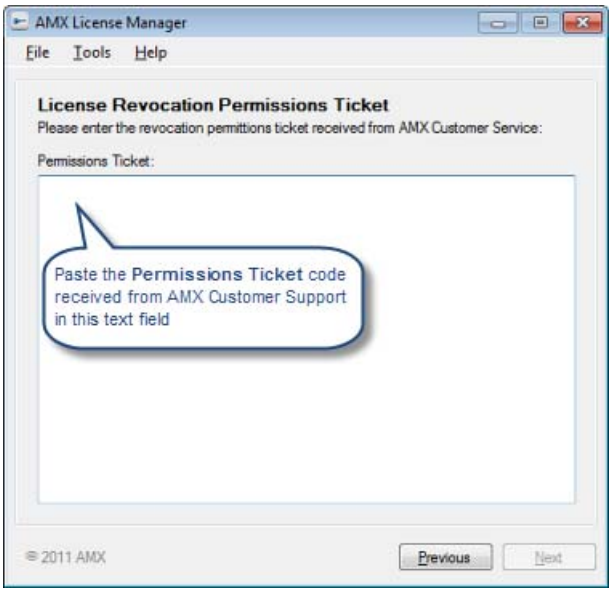

FIG. 162 AMX License Manager - License Revocation Permissions Ticket

8. Copy and paste the Permissions Ticket code received from AMX Customer Support into the *Permissions Ticket* text field. Assuming the entered code is valid, this enables the **Next** button.
9. Click **Next** to prompt the license server to validate the Permissions Ticket code, and return a revocation verification ticket if the permission ticket matches. The Revocation Verification Ticket code is provided in the *License Revocation Verification Ticket* dialog (FIG. 163):

FIG. 163 AMX License Manager - License Revocation Permissions Ticket

10. Click the **Copy License Information to Clipboard** link, paste the Revocation Verification Ticket code in an email, and send it to Customer Service for revocation.
11. After the revocation verification ticket code has been sent to Customer Service, click **Next** to proceed to the *AMX License Return* dialog (FIG. 164):

FIG. 164 AMX License Manager - AMX License Return

12. Click **Next** to close this dialog, completing the process in the *AMX Licensing Manager.*

Your Customer Service representative will complete the return process, inform you of the final status, and prompt you to re-activate it on another machine. Refer to the *Registering a Purchased License* section on page 63 for instructions.

Appendix E: Windows Pre-Authentication Configuration

Overview

Purpose

The purpose of configuring Windows-based pre-authentication in RMS Enterprise is to provide users with a single sign-on (SSO) solution. Users who have already logged into their Windows computers can immediately access RMS Enterprise via their browser and not be challenged with a login prompt by RMS.

How It Works

Microsoft's Internet Information Services (IIS) must be installed and sit in front of the Tomcat Server that hosts RMS Enterprise. IIS can be hosted on the same physical server as Tomcat or can be on a different server altogether. Users access RMS through IIS rather than browsing to the Tomcat Server directly. IIS receives the Windows user name from the browser and then packages that user name into a request header before forwarding the request on to the Tomcat Server. The RMS application, when configured for pre-authentication, retrieves the user name from the request header and trusts IIS that the user's identity has already been authenticated.

- All users that want to leverage SSO must already have an RMS User account in the RMS database.
- Another possibility would be if RMS is configured for LDAP / Active Directory User management, the user account must already exist in that repository for SSO to work.

Security Implications

Because the RMS Enterprise Windows Pre-Authentication mechanism depends on a trust between IIS and Tomcat, it is strongly advised that the **HTTP/1.1** Connector in Tomcat be disabled (see *Appendix B: Tomcat Configuration* on page 105 for more details).

All web traffic to RMS Enterprise should come through IIS, and no users should be able to access Tomcat directly.

If the Tomcat HTTP/1.1 Connector is left enabled, it is trivial to spoof any RMS user by simply putting the appropriate header into the HTTP request.

Client Gateway Authentication

Client gateways built upon the RMS 4 SDK do not participate in SSO, but they do communicate to RMS through IIS when the system is configured for Windows Pre-Authentication. In this case, a client gateway's requests simply pass through IIS anonymously and the RMS application challenges the client gateway to authenticate with Digest Authentication.

*Client gateways built with the RMS 3 Legacy SDK still communicate directly to the RMS Server through port **3839**. They have no authentication.*

Browser Support

Internet Explorer

Internet Explorer (IE) versions 6, 7, and 8 have been tested and works with Windows Pre-Authentication. IE 9 and 10 should also work with no problem.

Chrome

Chrome version 24 has been tested and works with Windows Pre-Authentication.

Firefox

Firefox version 14 (and newer) has native support for Windows Pre-Authentication, but it is not enabled by default. The easiest way to enable and configure it is by installing a Firefox add-on such as Integrated Authentication for Firefox.

Configuration of RMS Enterprise

Enable Window Pre-Authentication

Run the RMS Configuration Tool and enable the Windows type of Pre-Authentication (FIG. 165):

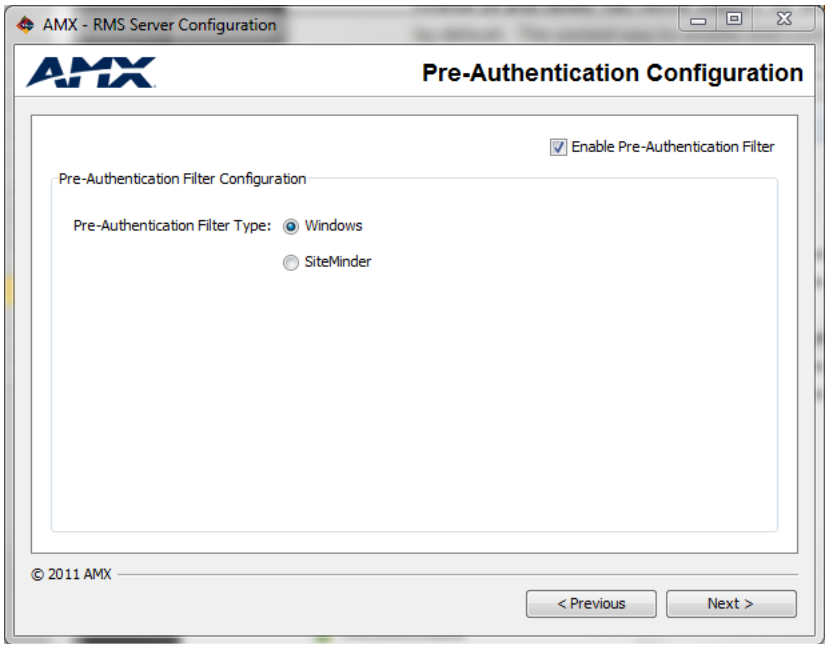

FIG. 165 RMS Server Configuration - Pre-Authentication Configuration

Configuration of Tomcat

Tomcat has a primary configuration file named server.xml that needs to be changed with a text editor such as Notepad. These changes will only take effect after restarting the Tomcat service.

Executor Thread Pool

Tomcat can make use of a shared Executor that provides a thread pool. By default, the Executor is commented out. Uncomment the **<Executor>** element.

```
<Executor name="tomcatThreadPool" namePrefix="catalina-exec-"
     maxThreads="150" minSpareThreads="4"/>
```

HTTP Connector

The **HTTP/1.1** Connector is enabled by default. Comment this Connector out due to the security implications described earlier.

```
<!--
<Connector port="8080" protocol="HTTP/1.1"
     connectionTimeout="20000" redirectPort="8443" />
-->
```

AJP Connector

Change the **AJP/1.3** Connector by adding a reference to the Executor and turning Tomcat authentication off.

The tomcatAuthentication key must be added, since it is not part of the basic Tomcat installation.

```
<Connector port="8009" protocol="AJP/1.3" redirectPort="8443"
     Executor="tomcatThreadPool" tomcatAuthentication="false"/>
```

Configuration of ISAPI Redirect

The Apache Tomcat site has Tomcat Connectors available for download. One of those connectors is for IIS and is named **ISAPI-redirect**. It is a DLL that can be installed into IIS, but before the IIS configuration, the ISAPI-redirect DLL must itself be configured.

Two instances of the ISAPI-redirect are required to make RMS Enterprise Windows Pre-Authentication work. One of them is from the RMS UI and the other is for the RMS REST API used by the client gateways.

Tomcat Connectors Download

http://tomcat.apache.org/download-connectors.cgi

From this web site, browse to the "**Binary Releases**" and then choose the "**windows**" subdirectory. There are numerous zip files that can be downloaded, but either the i386 or the x86_64 version for IIS is what is required.

- tomcat-connectors-1.2.37-windows-i386-iis.zip
- tomcat-connectors-1.2.37-windows-x86_64-iis.zip

Tomcat Connectors Documentation

http://tomcat.apache.org/connectors-doc/

This link is for the Tomcat Connectors documentation. The "*Reference Guide*" section has very useful information that describes all of the individual settings. The following sections are important for Windows Pre-Authentication:

- workers.properties
- uriworkermap.properties
- IIS

Directory Structure

The following directories need to be created. The exact names and paths can be changed, but the paths are important and referenced in some of the configuration files.

```
C:\isapi-redirect-rms-api
C:\isapi-redirect-rms-api\conf
C:\isapi-redirect-rms-api\logs
C:\isapi-redirect-rms-ui
C:\isapi-redirect-rms-ui\conf
C:\isapi-redirect-rms-ui\logs
```

Unzip the Connector

There is no installer for the Tomcat Connector. It needs to be unzipped twice into two these directories:

```
C:\isapi-redirect-rms-api
C:\isapi-redirect-rms-ui
```

Properties File for RMS API

In the **C:\isapi-redirect-rms-api** directory, create a file named **isapi_redirect.properties**, and put the following contents into the file with a text editor:

```
# Configuration file for the Jakarta ISAPI Redirector

# The path to the ISAPI Redirector Extension, relative to the website

# This must be in a virtual directory with execute privileges
extension_uri=/rms-api/isapi_redirect.dll

# Full path to the log file for the ISAPI Redirector
log_file=c:\isapi-redirect-rms-api\logs\isapi_redirect.log

# Log level (debug, info, warn, error or trace)
log_level=warn

# Full path to the workers.properties file
worker_file=c:\isapi-redirect-rms-api\conf\workers.properties

# Full path to the uriworkermap.properties file
worker_mount_file=c:\isapi-redirect-rms-api\conf\uriworkermap.properties

auth_complete=0
```

Properties File for RMS UI

In the **C:\isapi-redirect-rms-ui** directory, create a file named **isapi_redirect.properties**, and put the following contents into the file with a text editor:

```
# Configuration file for the Jakarta ISAPI Redirector

# The path to the ISAPI Redirector Extension, relative to the website
# This must be in a virtual directory with execute privileges
extension_uri=/rms-ui/isapi_redirect.dll

# Full path to the log file for the ISAPI Redirector
log_file=c:\isapi-redirect-rms-ui\logs\isapi_redirect.log

# Log level (debug, info, warn, error or trace)
log_level=warn

# Full path to the workers.properties file
worker_file=c:\isapi-redirect-rms-ui\conf\workers.properties

# Full path to the uriworkermap.properties file
worker_mount_file=c:\isapi-redirect-rms-ui\conf\uriworkermap.properties
```

URI Worker Map Properties for RMS API

In the **C:\isapi-redirect-rms-api\conf** directory, create a file named **uriworkermap.properties**, and put the following contents into the file with a text editor:

```
/rms|/api/*=worker1
/jkmanager=jkstatus
```

URI Worker Map Properties for RMS UI

In the **C:\isapi-redirect-rms-ui\conf** directory, create a file named **uriworkermap.properties**, and put the following contents into the file with a text editor:

```
/rms|/*=worker1
/jkmanager=jkstatus
```

Workers Properties for RMS API

In the **C:\isapi-redirect-rms-api\conf** directory, create a file named **workers.properties**, and put the following contents into the file with a text editor:

```
worker.list=worker1, jkstatus

worker.worker1.type=ajp13
worker.worker1.host=localhost
worker.worker1.port=8009

worker.balancer.type=lb
worker.balancer.balance_workers=worker1
worker.balancer.sticky_session=true

worker.jkstatus.type=status
worker.jkstatus.mount=/jkmanager
```

If IIS is hosted on a different machine than Tomcat, then the property worker.worker1.host needs to be set to an actual DNS host name or IP address of the Tomcat server rather than localhost.

Workers Properties for RMS UI

In the **C:\isapi-redirect-rms-ui\conf** directory create a file named "**workers.properties**" and put the following contents into the file with a text editor:

```
worker.list=worker1, jkstatus

worker.worker1.type=ajp13
worker.worker1.host=localhost
worker.worker1.port=8009
worker.worker1.lbfactor=1

worker.balancer.type=lb
worker.balancer.balance_workers=worker1
worker.balancer.sticky_session=true

worker.jkstatus.type=status
worker.jkstatus.mount=/jkmanager
worker.jkstatus.read_only=True
```

If IIS is hosted on a different machine than Tomcat, then the property worker.worker1.host needs to be set to an actual DNS host name or IP address of the Tomcat server rather than localhost.

Configuration of IIS

Internet Information Services (IIS) can be configured with the IIS Manager found in Computer Management > Services and Applications > IIS Manager.

ISAPI and CGI Restrictions

1. With the root node (see AHARRISA1135) selected, double-click **ISAPI and CGI Restrictions** (FIG. 166):

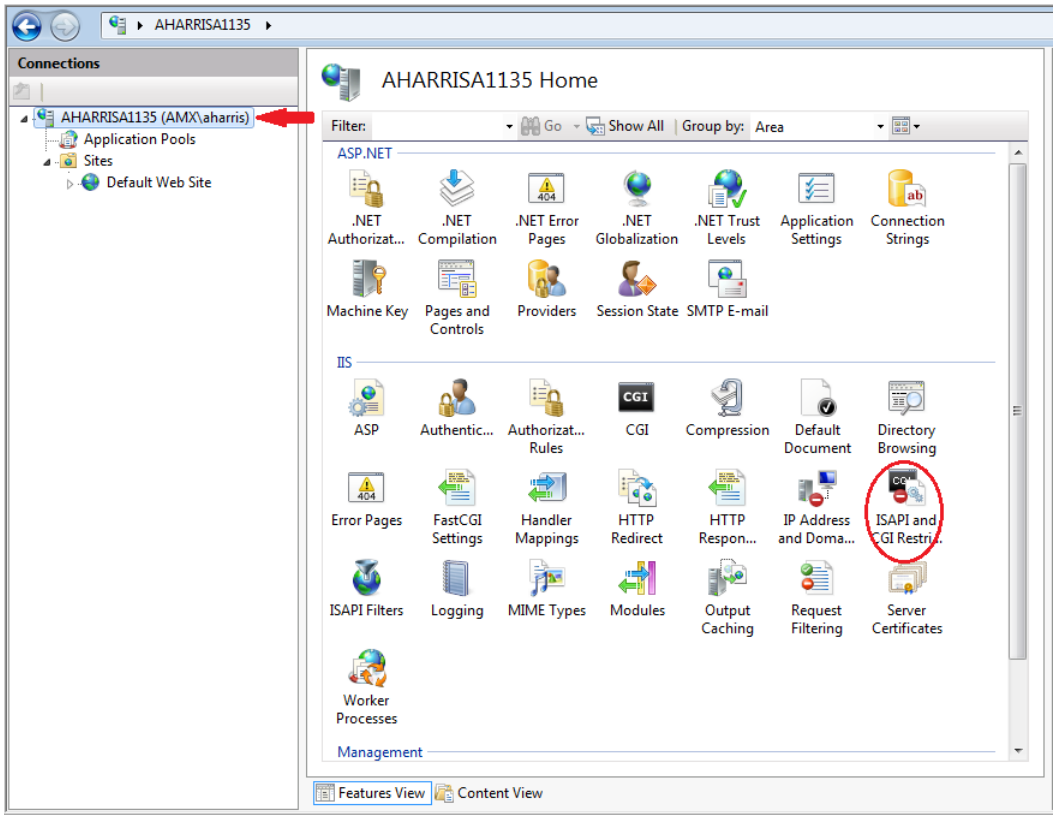

FIG. 166 IIS Manager - ISAPI and CGI Restrictions

2. Add two new restrictions and point each of them to the **isapi_redirect.dll** in the respective RMS API and RMS UI directories created earlier.

3. Click "**Allow extension path to execute**" (FIG. 167):

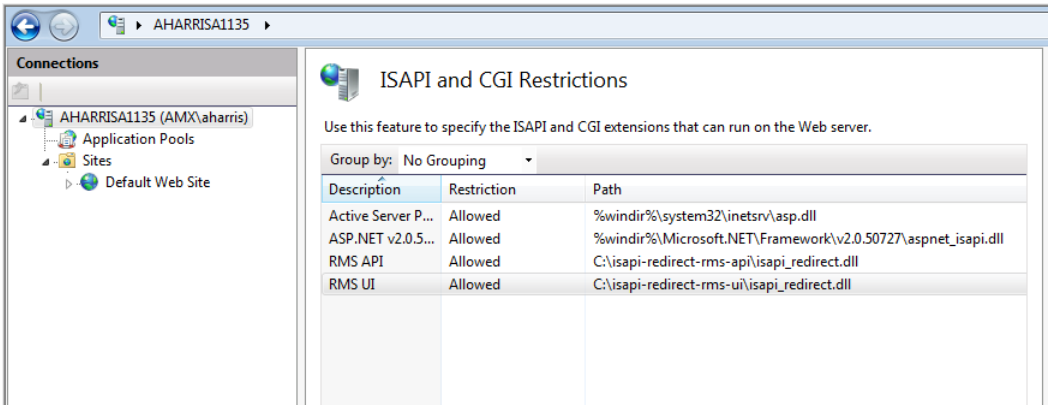

FIG. 167 ISAPI and CGI Restrictions

ISAPI Filters

1. With the "**Default Web Site**" node selected, double-click "**ISAPI Filters**" (FIG. 168):

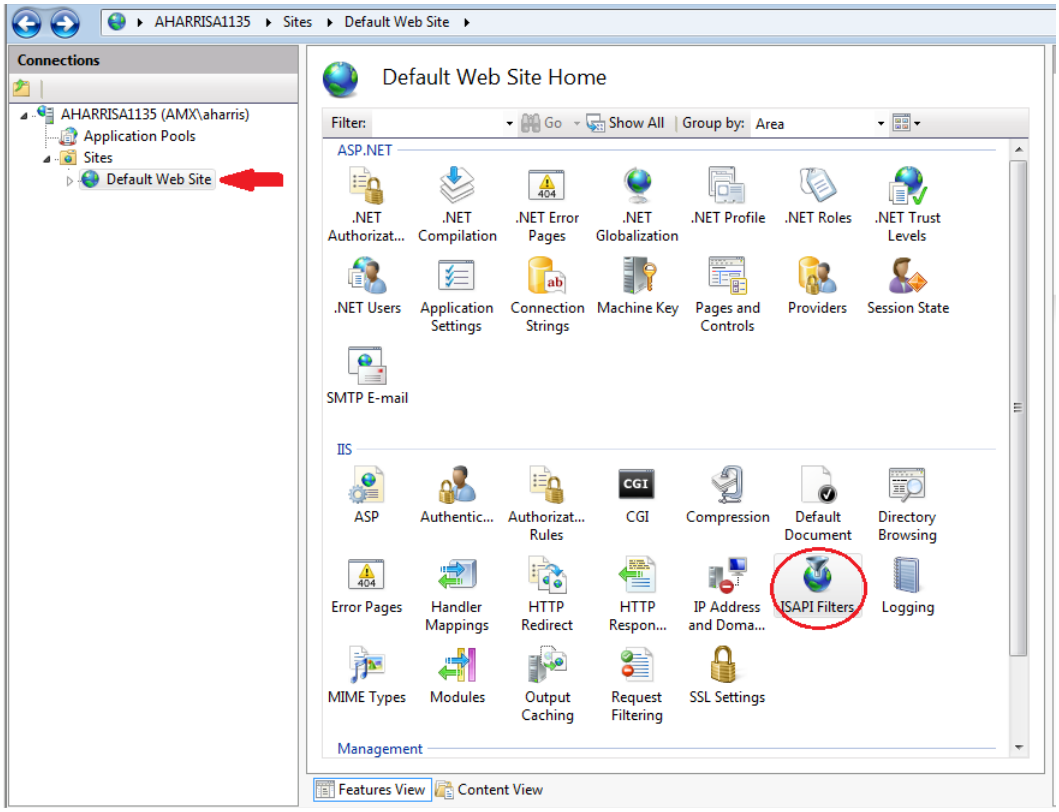

FIG. 168 IIS Manager - ISAPI Filters

2. Add two new ISAPI Filters and point each of them to the **isapi_redirect.dll** in the respective RMS API and RMS UI directories created earlier (FIG. 169):

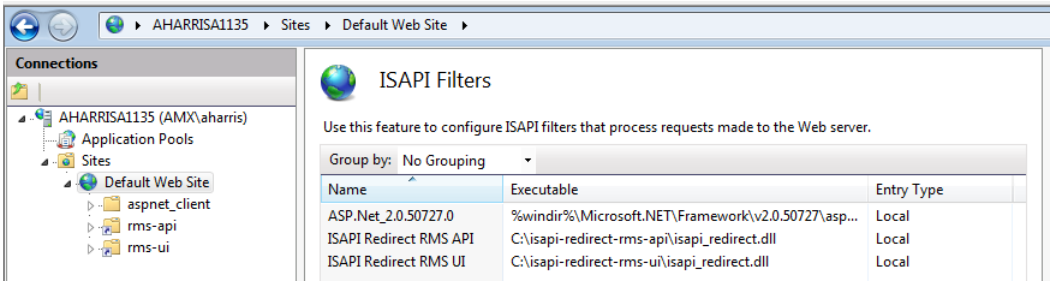

FIG. 169 ISAPI Filters

Virtual Directories

Two new virtual directories need to be added; one for RMS API and another for RMS UI. Right-click on the "**Default Web Site**" node, and select "**Add Virtual Directory…**"

RMS API

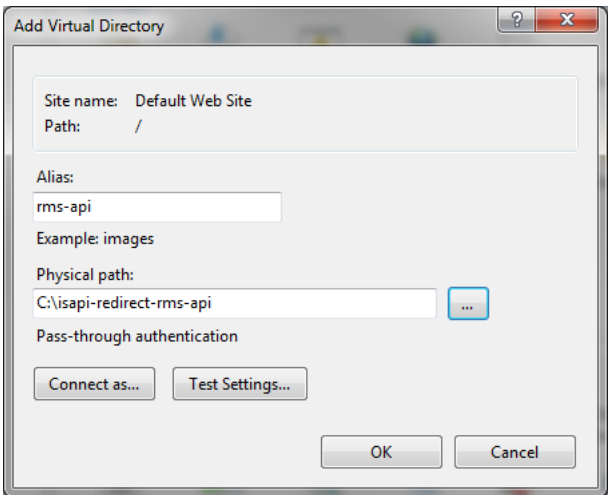

FIG. 170 Add Virtual Directory - RMS API

RMS UI

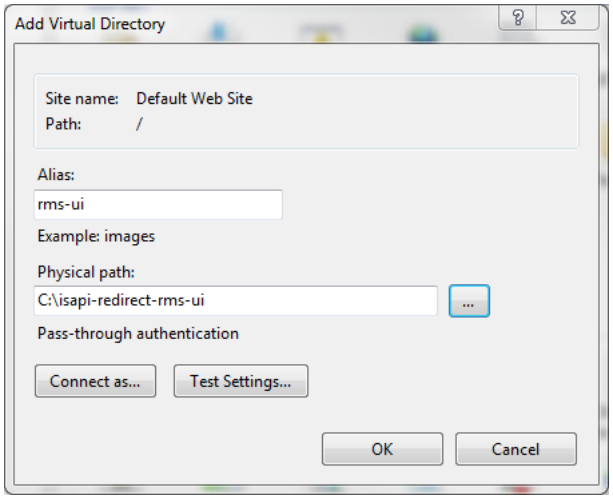

FIG. 171 Add Virtual Directory - RMS UI

It is imperative that the aliases given match what is in the **extension_uri** property in the **isapi-redirect.properties** files from earlier.

Authentication Settings

1. On each of the new virtual directories just added, visit the *Authentication* page (FIG. 172):

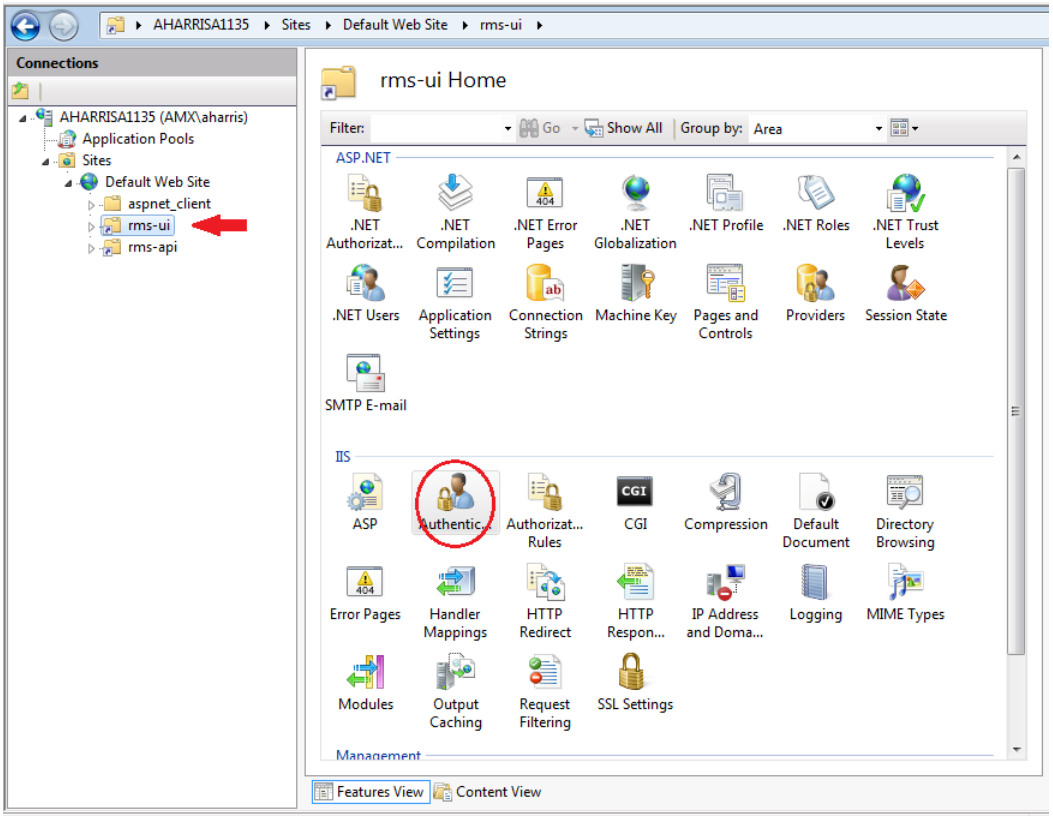

FIG. 172 rms-ui Home page - Authentication option

2. For the **rms-api** virtual directory, confirm that *Anonymous Authentication* is enabled, and all other forms are disabled.

   The RMS Enterprise application will be responsible for enforcing digest authentication for client gateways, not IIS (FIG. 173):

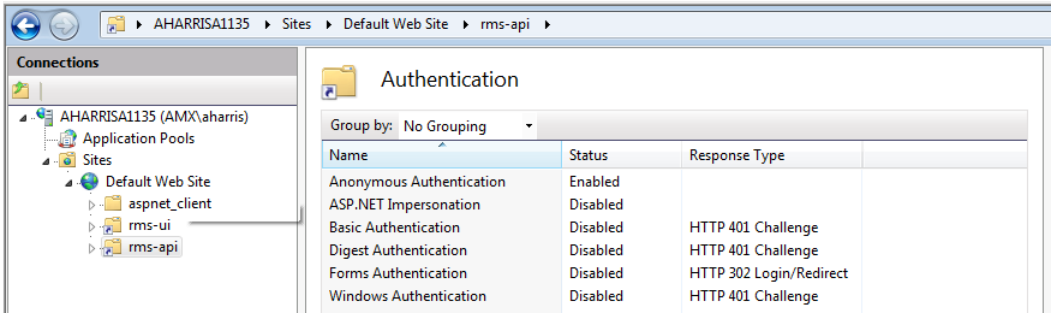

FIG. 173 rms-api - Authentication page

3. For the **rms-ui** virtual directory, disable *Anonymous Authentication* and enable *Windows Authentication*. All other forms of authentication should be disabled (FIG. 174):

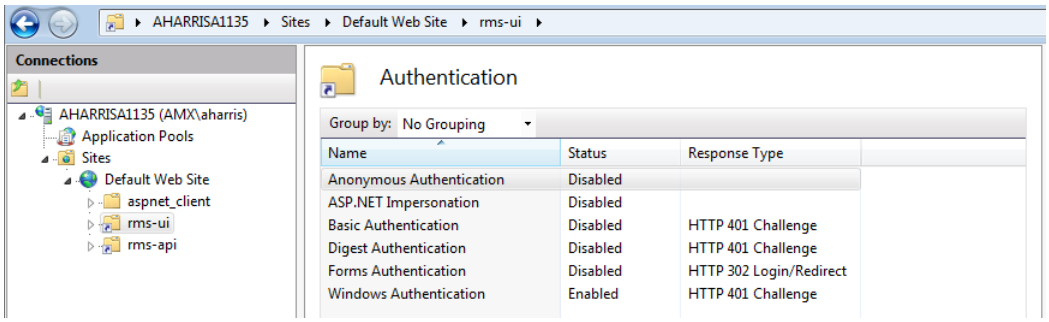

FIG. 174 rms-ui - Authentication page

Handler Mappings on Virtual Directories

1. Select the **rms-api** virtual directory, and then double-click **Handler Mappings**.
   It will look similar to FIG. 175, with ISAPI-dll in a disabled state:

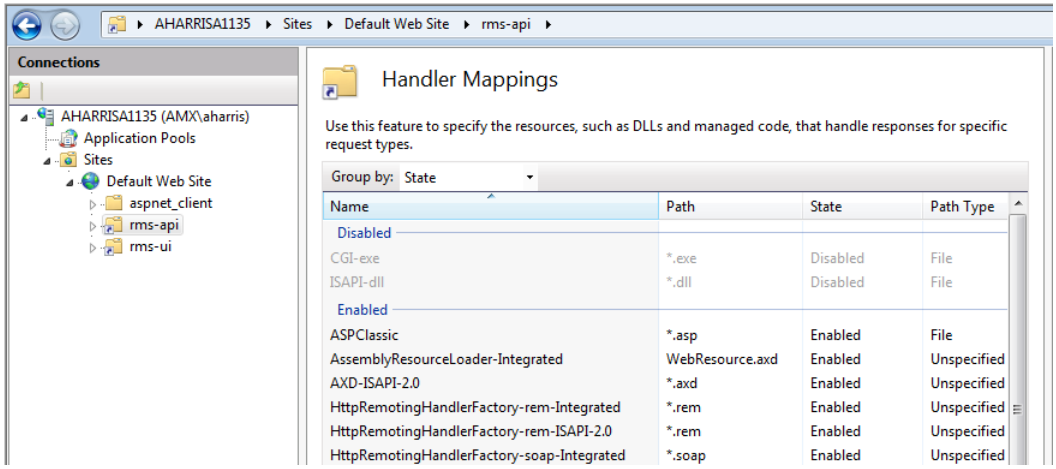

FIG. 175 rms-api - Handler Mappings page

2. Right-click on ISAPI-dll, and click **Edit Feature Permissions…** , and click **Execute**.
3. Repeat this process for **rms-ui** virtual directory.

Restart IIS

Finally, restart the IIS service. Now browsing to the RMS application through the IIS server should result in the user bypassing the login page and going straight into the application.

Final Remarks

- Since the RMS application will be accessed through IIS, remember to not include port 8080 in the URL to the application (e.g. http://myserver.com/rms).
- Any clients that were previously configured to connect on port 8080 will need to be reconfigured to connect using port **80**.
- The administrator needs to take software and network firewalls into consideration and make any necessary changes for this new deployment. IIS needs to talk to Tomcat over port 8009. If IIS and Tomcat are hosted on different machines or VMs, this port must be open.

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