

Evaluating Reflection X Advantage



Micro Focus<sup>®</sup>  
Reflection<sup>®</sup>

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Attachmate Corporation  
705 5th Avenue South  
Suite 1000  
Seattle, WA 98104  
USA  
+1.206.217.7100  
<http://www.attachmate.com>

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# Preface

Reflection X Advantage is an X server that allows you to view your UNIX desktop and work with X client applications from a remote workstation. Reflection X Advantage provides two modes of operation— standalone and domain mode. This guide provides an opportunity for you to test both.

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# 1 Reflection X Advantage Features

Reflection X Advantage is an X server that allows you to view your UNIX desktop and work with X client applications from a remote workstation. Reflection X Advantage provides two modes of operation—Standalone mode and Domain mode.

*Standalone mode* is provided by a single application—X Manager, which is installed by default. For users of earlier Reflection X products, Reflection X Advantage in standalone mode will be familiar territory: a bulletproof X server that provides reliable, seamless access to your mission-critical X applications.

*Domain mode* offers all the functionality of standalone mode and complements that power with additional features that help enhance productivity without increasing costs. Domain mode consists of multiple components—X Manager for Domains, the X Administrative Console, and the Reflection X Service. These features are not installed by default; and different systems within the domain require different components.

Whichever mode you choose, you'll have access to the following features:

- ♦ **Multiple platform support:** Using Reflection X Advantage, users can access X hosts and applications from a broader-than-ever array of desktop environments, including Windows, Linux, Solaris, HP-UX, and AIX.
- ♦ **Real-time collaboration:** The session sharing features in Reflection X Advantage allow colleagues to look at the same applications concurrently, and even transfer control of the session from one user to another.
- ♦ **Improved performance options:** Using Reflection X Advantage, you can address problems with low bandwidth or high latency connections using remote session services. When you configure distributed Reflection X Advantage sessions, only the protocol required to update the display is sent over the network. This results in dramatically improved performance where high latency is a problem. Where low bandwidth is a problem, Reflection X Advantage automatically compresses the protocol sent to remote X servers.
- ♦ **Fully-integrated Secure Shell with FIPS 140-2 validation support:** With Reflection X Advantage, you get a single-vendor security solution that is integrated with the X server.
- ♦ **X11 Extension Support:** Reflection X Advantage provides support for key X11 extensions including GLX, Render, Damage, Shape, and XFixes.
- ♦ **Native IME support for input of double-byte characters:** Native IME support lets you use your workstation's input method editor (IME) to compose characters (including Japanese, Korean, and Chinese). The X11 Input Method (XIM) server provided by Reflection X Advantage obtains the composed text from your IME and passes it to XIM-aware clients. This means that you can work with varied X clients without having to learn new input techniques.
- ♦ **X.509 certificate authentication:** Secure Shell connections require both user and host authentication. In addition to supporting standard options for user authentication (passwords and public keys), Reflection X Advantage also supports authentication using X.509 certificates. Certificates can be stored in the Reflection X Advantage Store, a local directory, the Windows Certificate Store, or on a Smart card or similar device. Also, by downloading and installing Reflection PKI Services Manager, you can configure Reflection X Advantage to authenticate hosts that present X.509 certificates. Reflection PKI Services Manager is available at no additional charge.

Additional features available in Domain mode include:

- ♦ **Centralized session configuration:** Reflection X Advantage domain features can help simplify session setup for end users. Administrators can create and maintain client and session definitions in a single centralized location and provide users with access to these definitions. Users can get started quickly using these centrally configured sessions, and can also create and configure individual sessions on their own workstations.
- ♦ **Flexible, instant access to an established session from the office, at home, or on the road:** Leave a running session from one location and rejoin the same session from another location. No time is spent on reestablishing the client connection.
- ♦ **Session protection:** When you run a distributed session, you can use fault tolerance to safeguard against losing the session. This option enables you to return to your work exactly where you left it, even after a network or hardware failure.
- ♦ **Domain authentication services:** Leverage your current authentication process to provide Reflection X Advantage domain authentication. Use any of these authentication methods: Windows, PAM (Pluggable Authentication Modules), LDAP (Lightweight Directory Access Protocol), and Reflection X Internal.
- ♦ **Load balancing:** In a distributed session environment, Reflection X Advantage is installed on more than one computer, and sessions can run on multiple domain nodes. When a user initiates a session, the session is run on the least-loaded domain node.

## Feature Comparison

	Standalone Mode (X Manager)	Domain Mode (X Manager for Domains)
Launch and interact with an X client application	?	?
XDMCP	?	?
X session sharing	?	?
X11 Extensions support	?	?
Improved performance over slow networks	?	?
Integrated Secure Shell	?	?
FIPS 140-2 support	?	?
X.509 certificate authentication	?	?
Native IME support	?	?
Centralized configuration of settings		?
Leave and rejoin X sessions		?
Fault tolerance for X sessions		?
Domain authentication services		?
Load balancing		?



# See it for Yourself

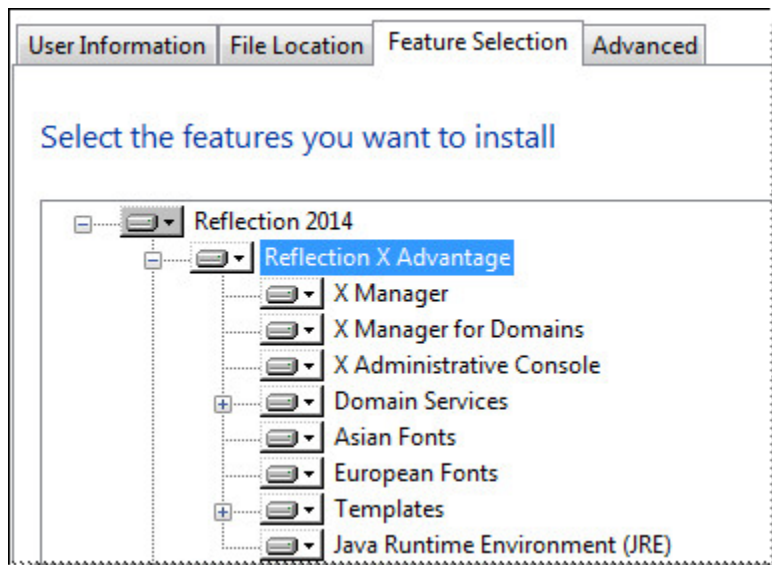
For installations on Windows systems, Reflection X Advantage is included with the following products. You can download and install an evaluation copy at no charge.

- ◆ Reflection X 2014
- ◆ Reflection 2014 Pro 2014

To supplement the information in this guide, you can access complete product documentation from the [Reflection X Advantage documentation page](http://support.attachmate.com/manuals/rxa.html). (<http://support.attachmate.com/manuals/rxa.html>)

## To download and install an evaluation copy

- 1 Request an evaluation copy from the [PC X Server product page](http://www.attachmate.com/Products/PC+X+Server/pcxserver.htm). (<http://www.attachmate.com/Products/PC+X+Server/pcxserver.htm>) After you've filled in the product request form, you'll receive an email with a link to the download library.
- 2 Click the email link to download the evaluation package.
- 3 After you download and run the package, you'll be prompted for a location to unzip the installer files. (This is not the final program files location.) Select a location for these files, and then click **Next**. This extracts the files to the specified location and the Reflection installer starts automatically.
- 4 The installer checks your system for required software prerequisites. If these are not present, the installer installs these packages before running the product installation.
- 5 *For this evaluation, install all Reflection X Advantage features on this computer.* From the **Features Selection** tab, click the feature selection button next to **Reflection X Advantage** and select "Feature will be installed on local hard drive." This automatically selects all features for installation.



---

**NOTE:** To get connected to your X clients using the standalone X Manager, one computer is all you'll need. If you decide to evaluate the full set of features in this guide, you will install some Reflection X Advantage features on an additional system. Details are included in the procedures that follow.

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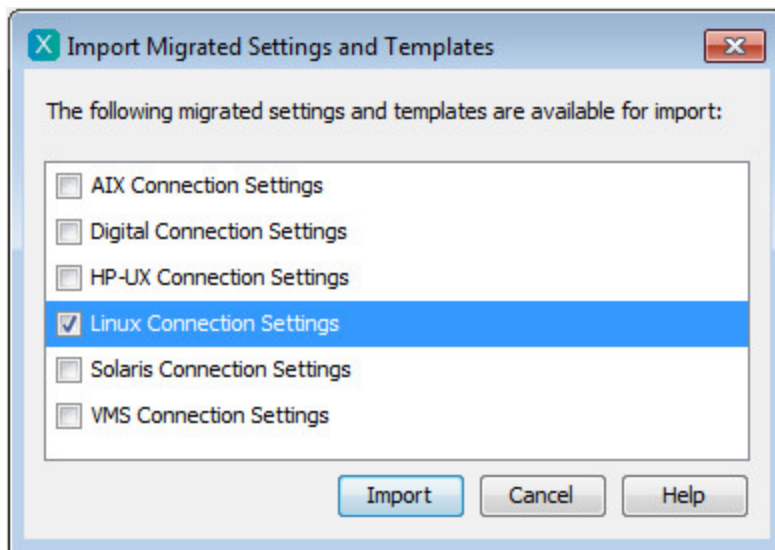
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# 1 Using X Manager in Standalone Mode

The quickest way to get connected to an X client is to use the standalone X Manager. This is an easy-to-use tool for configuring and starting X sessions.

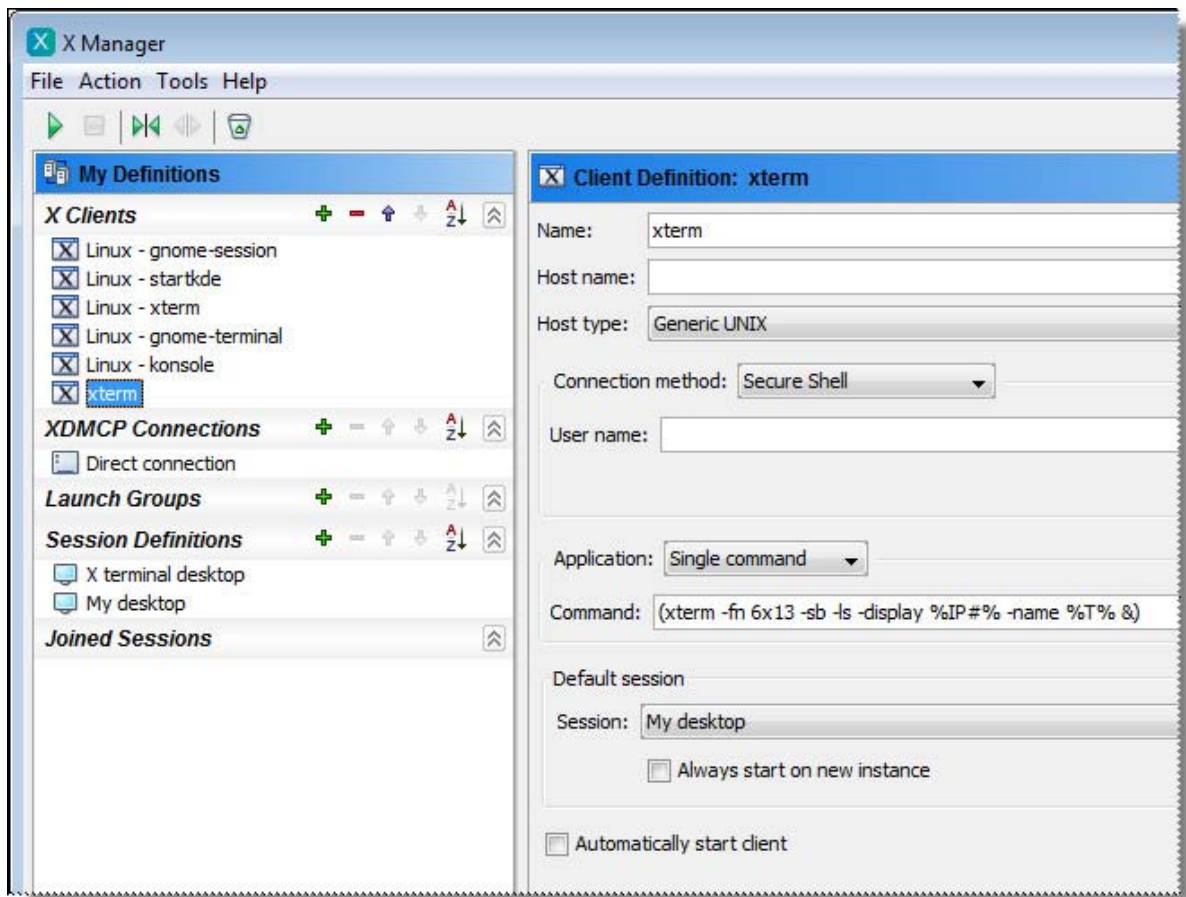
## To start X Manager

- 1 From the Windows Start menu, go to: **All Programs > Attachmate Reflection > X Manager - Reflection X Advantage**
- 2 The first time you run X Manager, the **Import Migrated Settings and Templates** dialog box opens. This dialog box includes a list of sample connection settings for different host types. Migrated settings are also listed if you are running on a system with local settings used by earlier Reflection X products (typically version 13.x or 14.x), or Hummingbird Exceed.



- 3 By default, all the sample connection settings are selected. Uncheck the host types you don't use (as shown in the example above). If you also see an option to import migrated settings, leave this option selected.
- 4 Click **Import**. This launches X Manager and imports the settings you selected.

When X Manager opens, you'll see that it is divided into two main areas: a navigation pane on the left, and a definition pane on the right. The definitions listed on the left were imported based on your selections in the **Import Migrated Settings and Templates** dialog box. Selecting an entry in the left pane displays details for that definition in the right pane.



The xterm client definition selected in the image above will be the starting point for your first X Client connection.

## Starting an X Client

Use the following procedures to help you get started making your first client connections. The first procedure uses the default "xterm" sample definition. The second procedure uses a sample template designed for your host. The third procedure demonstrates how to create a new client definition without using the samples. You may want to experiment with one or more of these procedures.

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**NOTE:** Tip: Once you have a successful connection, you can [clone a client definition \(page 5\)](#) to use it as a basis for configuring other connections.

---

### To connect using the sample xterm definition

You can get connected with this sample definition if an SSH server is running on your host and the xterm command is available and on the path.

- 1 From X Manager, Under **X Clients** on the left, double-click the sample "xterm" definition. (The other options you see here depend on what you selected in the **Import Migrated Settings and Templates** dialog box.)



- 2 Enter your host and user name in response to the first prompt.
- 3 If the host is available and supports Secure Shell connections, you see the **Host Key Unknown** message the first time you connect. Click **Always** to trust the host key. Reflection X Advantage saves this key and uses it in subsequent connections to confirm that you're connecting to the correct host.

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**NOTE:** If you've migrated settings from an earlier version, known host keys are included in the migration, so you may not see this an unknown host prompt.

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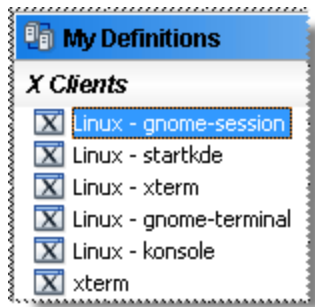
- 4 Enter your password in response to the prompt.

If your connection is successful, a window opens on your desktop showing your host command prompt.

### To connect using one of the sample definitions for your host type

Use the host-specific sample definitions to launch X clients that are typical for this host type. These connections also use Secure Shell by default.

- 1 From X Manager, Under **X Clients** on the left, double-click one of the sample definitions imported for you host type. For example, the Linux - gnome-session definition selected below launches a connection that displays the Linux desktop.




- 2 Enter your host and user name in response to the first prompt.
- 3 If you haven't yet connected to this host, you see the **Host Key Unknown** message the first time you connect. Click **Always** to trust the host key.
- 4 Enter your password in response to the prompt.

If your connection is successful, a window opens with the X Client display you selected.

If you don't see your X client, look at the status bar at the bottom of the X Manager window for information. If you see a message that says "Client failed to connect to the X server," the command specified in the client definition isn't supported on your host. Try one of the other sample definitions.

## To create a new client definition without using the samples

Use this procedure to configure a connection to the X Client starting with all default values.

- 1 From X Manager, in the left pane, click  next to **X Clients**.
- 2 In the **Client Definition** for **Name**, enter a descriptive name for this connection.

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**NOTE:** As you work, your changes are saved automatically.

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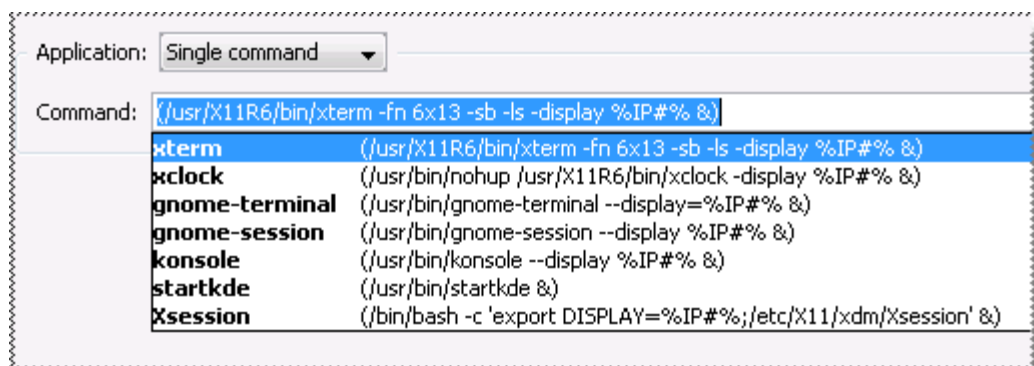
- 3 For **Host name**, specify the name or IP address of the computer that hosts your X client application.
- 4 Select a **Host type** from the drop-down list.

---

**NOTE:** Changing the host type changes the list of sample client commands available in the **Command** drop-down list.

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- 5 The default value for **Connection method** is **Secure Shell**. You can leave this option selected, or select one of the other options if your host doesn't support SSH connections.
- 6 For **User name**, enter your user name for this host.
- 7 The default value for **Application** is **Single command**. Leave this option selected.
- 8 In the **Command** text box, use the drop-down list to select one of the available options (shown below), select one of the available options to use as a template and then edit it to launch a different client, or enter your client command directly into the **Command** box. Note the following:
  - ◆ The sample commands demonstrate the use of macros, which are replaced by appropriate values when the command is sent to the host. For example, the macro `%IP#%` resolves to the IP address of the display host and the display number.
  - ◆ The sample commands add an ampersand to the command and enclose it in parentheses. When the command is sent to the host, it runs in a subshell in the background. This format may be required with some Telnet connections to keep the application running. For most connections, you can omit the parentheses and ampersand.



- 9 From the **Session** list, select a default session to start when you start this client.
  - ◆ If you want your client application to run on your desktop, select a session configured to **Show clients on my desktop**. The sample session called "My desktop" uses this configuration.
  - ◆ If your client command launches a desktop environment such as KDE, CDE or GNOME, select a session configured to **Show clients on X terminal desktop**. The sample session called "X terminal desktop" uses this configuration. For these clients, also enable **Always start on new instance**.
- 10 In the left pane, double-click your client definition name to initiate the connection.

## Cloning a Client Definition

You can clone any existing client definition to create a duplicate copy. By cloning a definition, you create a new definition with the same settings and preserve the original definition to use as a reference.

### To create and edit a new client definition by cloning an existing definition

- 1 Right-click an existing client definition and select **Clone Client**.
- 2 Edit the cloned definition. Changes are saved automatically as you work. For example:
  - ◆ If you used one of the sample definitions, add information for **Host name** and **User name** so you won't be prompted each time you connect.
  - ◆ Change the value of **Host type**. This changes the list of sample commands available to you.
  - ◆ Edit the **Command** to start a different X client application. Use the drop-down arrow to view sample commands that typically work for the host type you selected.
  - ◆ Select **Automatically start client** to start this client each time you start Reflection X Advantage.

## Sharing a Session with Another User



Imagine that you have just received a call from a colleague who wants to collaborate with you on a project. The peer-to-peer session sharing feature in Reflection X Advantage makes this easy.

To share a session in standalone mode, both users need to run the Reflection X Advantage standalone X Manager on their computers.

### Configure a second computer to test session sharing

- 1 Run the installation on a second computer.
- 2 Install using defaults. This installs the standalone X Manager, which is all you need for this test.

### To set up your shared session

- 1 Start X Manager on your first computer (the one on which you created the first test session).
- 2 Under **X Clients**, double-click to start the client (or select a client, then click ).
- 3 After the session is established, make some changes in the client window. For example, if you've launched an xterm, enter a command, such as **ls**, in the terminal window.
- 4 Return to the Reflection X Manager window. Under **Session Definitions**, select the running session, which is identified with this icon: 

- 5 In the **Session Status** area on the right-hand side of the X Manager window, under **Connection URL**, click **Share**. This shares the session and generates a unique connection URL.
- 6 For this walkthrough, select **Allow users to take control of session**.
- 7 Click **Copy URL** to copy the connection URL to the clipboard.
- 8 Paste the URL into an email message and send this to the user with whom you wish to share the session.

Other users can now join and control your session using the procedures described next. The session remains available until you shut down the session or until you choose **Unshare** to stop sharing the current session and disconnect external users that joined it.

#### To join the session as the second user

- 1 Start X Manager on your second computer.
- 2 Click the green double-arrowed Join button from the toolbar:



(Or, select **Action > Join**.)

This opens the **Join Session** dialog box.

- 3 Paste in the connection URL you created in the previous exercise and click **OK**.

The session window opens on this computer with the started application visible. The second user can now view everything in the first user's session. Because you configured the session with **Allow users to take control of session** selected, the second user can take control of the shared session. Here's how:

#### To take control of the shared session as the second user

- 1 Under **Joined Sessions** in the left navigation pane, find the name of your joined session and right-click the session name.
- 2 Select **Take Control**. You now have control of the keyboard and mouse in the shared session.
- 3 The session owner, or any other allowed user, can regain control by doing the same thing: right-click the session name, and then select **Take Control**.

## Improve Performance over a Slow Network

You can use the Reflection X Advantage **Remote Session Services** when your network configuration causes delays that make running a remote X client application difficult. To support this feature from the standalone X Manager, you can install the **Remote Session Services** feature on your X client host, as described below.

---

**NOTE:** The steps below use the standalone X Manager. You can also configure X Manager for Domains to address problems with high latency or bandwidth. Once you've set up a Reflection X Advantage domain, this support is available without the extra step of installing Reflection X Advantage on the X client host. For domain setup information, search on "Domain Setup: Improve Performance Over a Slow Network" in the Reflection X Advantage Help.

---

With remote session services enabled, when you start a session, Reflection X Advantage creates two X servers. An X server display runs on your Windows workstation (shown on the left below) and a second "headless X server" runs on the X client host (shown on the right). In high latency networks,



this configuration improves performance by short circuiting some of the data exchange over the network. With the headless X server running on the client host (or on a nearby host), client/server exchanges that don't change the display pass between the client and the headless X server, but aren't sent over the network to the X server display on the workstation. This eliminates round trip network messages and dramatically improves the response time you see on your workstation. In addition, if the network exhibits low bandwidth, the protocol is compressed between the remote session and the X server display.



The first procedure installs the Remote Session Services feature on your X client host to support this kind of connection.

### Before you begin

- ♦ Use any of the procedures described under [“Starting an X Client” on page 2](#) to test an X client connection to your UNIX host. In the procedures that follow you'll modify the client definition to use the Remote Session Services feature.

### Configure your X client host to support remote session services

- 1 Return to the Download library page, download the package for the UNIX system on which you run your X clients, and copy this file to the X client host.

- 2 Unzip the download file. For example:

```
unzip rX-advantage-5.0.nnn-eval-linux.zip
```

The expanded download file contains binary files (\*.bin) for installing on different platforms. Locate the appropriate file for your UNIX platform. (You don't need the file that begins with `rx_help`. This installs optional local help files that aren't used in this configuration.)

- 3 Log on as root and navigate to the directory that contains the installation file.
- 4 Change the permissions of the installation package to give execute permissions. For example:

```
chmod 744 rxa-5.0.0.nnn-eval-i586-linux.bin
```

- 5 Start the installation program. For example:

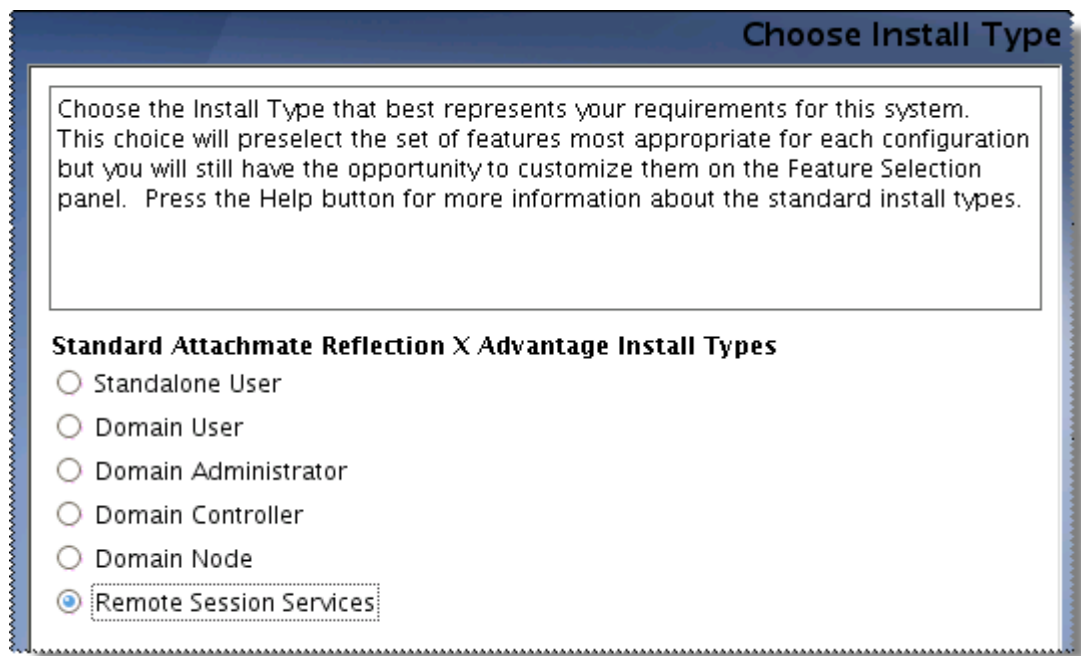
```
./rx-5.0.0.nnn-eval-i586-linux.bin
```

---

**NOTE:** The command above launches the InstallAnywhere installation program which requires an X11 Windows display. If a graphical display is not available the installation will run in console mode.

---

- 6 When you reach the **Choose Install Type** screen, select **Remote Session Services**.



7 Complete the installation using defaults.

The next procedure creates a new session definition that you can use to test the Remote Session Services feature.


#### Create a new session definition that uses remote session services

- 1 Return to the Windows computer on which you created and tested an X client definition and start X Manager.
- 2 Under **Session Definitions**, click **+** to create a new session. For **Session Name**, enter "RSS Session."
- 3 Select the display option appropriate for your X client:
  - ◆ If you want your client application to run on your desktop, select **Show clients on my desktop**.
  - ◆ If your client command launches a desktop environment such as KDE, CDE or GNOME, select **Show clients on X terminal desktop**.
- 4 (Optional) If you want the session to stop when you exit your client, change **On last client** to **Stop session**.
- 5 Under **Remote session services**:
  - ◆ Select **High-latency network performance**.
  - ◆ For **Host name**, specify the name of the X client host on which you installed the Remote Session Services feature.
  - ◆ For **User name** and **Password**, specify your credentials on the X client host.

The next procedure configures your client to connect using this new session.

#### Start a client using your new session and view the session statistics

- 1 In X Manager, under **X Clients**, select your X client definition.
- 2 For **Default session**, use the drop-down list to select the "RSS Session" you just configured.
- 3 Double-click the X client definition and log onto your host. You should see your X client display.

- 4 In X Manager, under Session Definitions, select your running session, which is identified with this icon: 
- 5 In the Session Status pane, view the **X Servers** section. Depending on the latency in your network, you will see either one or two X servers listed:
  - ◆ If latency is not a problem, you see a single X display server (running on your X Manager workstation). In this case, all protocol is forwarded directly to this X server display.
  - ◆ If latency is a problem (greater than 10 ms), you'll see two servers – the display server running on the X Manager workstation and a second "headless server" running on the UNIX host. This configuration improves performance by short circuiting many protocol queries. This reduces the number of round trips and the amount of data that needs to pass over the network to the X server display on your workstation.

## Create Shortcuts

If you are running on Windows, you can create desktop shortcuts to launch your clients. The example below creates a shortcut to an X client definition. You can use the same approach to create shortcuts to launch other definition types.

### To create a shortcut

- 1 In X Manager, under **My Clients**, right-click on a definition and select **Create shortcut**.  
A shortcut is created on your desktop.
- 2 Close the X Manager window.
- 3 Use your new shortcut to launch your session. (X Manager starts and runs in the background. You can right-click the X Manager icon in the system tray to open the X Manager window.)

---

**NOTE:** Administrators can configure and deploy shortcuts to simplify startup for new users. The command line utilities for starting the standalone X Manager (`rxmgr.exe`) and X Manager for Domains (`rxmgrdomains.exe`) are documented in the Reflection X Help.

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# 1 Using Domain Mode

You've seen how to use the X Manager in standalone mode to start and work with a session. Now, let's look at how your enterprise can benefit from some of the powerful features available when you run Reflection X Advantage in domain mode. You'll find features that benefit both administrators and individual users.

As an administrator, you can:

- ◆ Configure settings and make them available to users in the domain. All of the settings required by end users can be centrally controlled and managed.
- ◆ Configure distributed sessions, which can provide several advantages, including session persistence and improved performance in slow networks.
- ◆ Leverage an established authentication system to control access to the domain.
- ◆ Configure load balancing of the computers in the domain to make the best use of system resources.
- ◆ View the status of all of the sessions running in the domain, and view domain system resources.

As a user, you can:

- ◆ Start a session, leave it, close X Manager, and then join the session later from the same computer or from a different computer.
- ◆ Use public definitions provided by the administrator to run pre-defined sessions and/or create and run your own customized private sessions.
- ◆ Easily share sessions with other users in the domain. (In standalone mode, you have to send a URL to other users to share a session. In domain mode, no such URL exchange is required.)

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- ◆ [“Setting up a Sample Domain” on page 1](#)
- ◆ [“The Administrative Console” on page 2](#)
- ◆ [“Authentication” on page 3](#)
- ◆ [“Creating and Using Public Session Settings” on page 4](#)
- ◆ [“Sharing Sessions in Domain Mode” on page 8](#)
- ◆ [“Using Remote Session Services in Domain Mode” on page 9](#)
- ◆ [“Optimizing Network Performance” on page 12](#)

## Setting up a Sample Domain

### Step 1: Install Reflection X Advantage

For this evaluation, you'll use two computers.

- ◆ **Computer 1:** For this evaluation, Computer 1 is both the domain controller and the administrator's workstation. Install the complete set of Reflection X Advantage features on this computer. If you've done the previous exercises, this computer is already configured.

Make a note of the name (or IP address) of this computer; *this is your Reflection X domain name*.

- ♦ **Computer 2:** This is the user workstation. Install X Manager for Domains on this computer. (This feature is not installed by default.) If you already installed X Manager on a second computer to test session sharing, you can modify that installation to include X Manager for Domains.

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**NOTE:** On all Windows systems, check to be sure you have included the **Java Runtime Environment (JRE)** feature when you select features to install.

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## Step 2: Identify user accounts

If you're testing in a Windows domain, we recommend that you evaluate using Windows user accounts. Valid Windows accounts can authenticate to the Reflection X Advantage domain using Windows credentials. To evaluate using this authentication option, you'll want to have access to two different Windows accounts, as follows:

- ♦ Domain administrator account: You can use your own Windows credentials to serve as the administrator account.
- ♦ Domain user account: For the sample user account, create a test user account in your Windows domain (or obtain the credentials of another user in your domain).

---

**NOTE:** If you don't have access to two different Windows domain accounts, see ["Using Reflection X Internal Authentication" on page 4](#), which describes how to add and authenticate users using the Reflection X Internal Authentication option.

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## Step 3: Configure your firewall

If you are running a firewall, configure it for the ports used by Reflection X Advantage. For details, open the Reflection X Advantage Help and search on "firewall" in the Search tab.

# The Administrative Console

In domain mode, all session information is maintained centrally on a domain controller. For this evaluation, the domain controller is already up and running on Computer 1 (the computer on which you installed all features).

## Start the Administrative Console and log on

- 1 From Computer 1, open the X Administrative Console:

**Start > All Programs > Attachmate Reflection > X Administrative Console - Reflection X Advantage**

You'll see a logon dialog box. When you're running in domain mode, you always begin by logging onto the Reflection X Advantage domain.

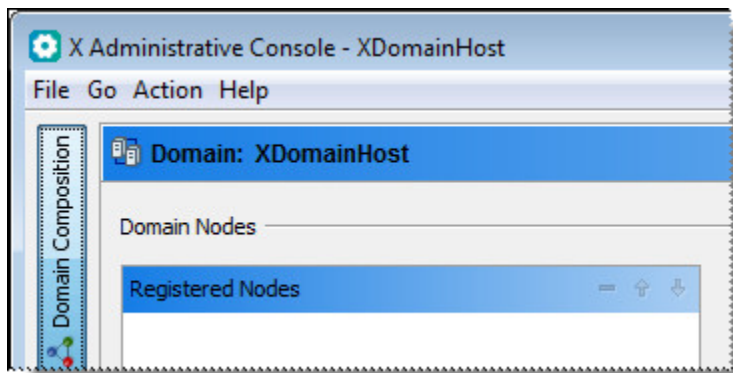
- 2 In the logon dialog box, for **User name** and **Password**, enter the same name and password that you use to log onto your computer. In the **Domain** field, enter the computer's name.

---

**NOTE:** The Reflection X Advantage domain name is always the name of the computer running the domain controller.

---

Once you're successfully logged onto the domain, you'll see your domain name displayed at the top of the console window:



## Authentication

A quick tour of the **Authentication** tab in the X Administrative Console will help you understand how easy it is to manage users in the Reflection X Advantage domain. Two authentication exercises follow. To test using the first option you should have access to logon credentials for two different Windows domain users. If you don't have access to multiple domain credentials, you can use Reflection X Advantage X Internal Authentication.

### In this Section

- ◆ [“Using Windows Credentials for Authentication” on page 3](#)
- ◆ [“Using Reflection X Internal Authentication” on page 4](#)

## Using Windows Credentials for Authentication

Use this procedure if you are running on Windows and have access to two Windows domain accounts. If you don't have access to multiple accounts, see [“Using Reflection X Internal Authentication” on page 4](#).

When you install Reflection X Advantage on a computer in a Windows domain, the only requirement for users to access the Reflection X Advantage domain is a successful logon using their Windows credentials. In this exercise, you'll see how this works by testing authentication for a sample user. In an actual installation, subsequent users would be added automatically whenever they log on successfully to your Reflection X Advantage domain using their Windows credentials.

### To test authentication using Windows credentials

- 1 From the tabs located along the left-hand side of the Administrative Console, click **Authentication**. Note the following:
  - ◆ Your name is already added to the list of user accounts, and the checkbox under **Administrator** is selected. By default, the first user to log on is set as a Reflection X domain administrator.
  - ◆ On a Windows system, **Authentication system** is set to “Windows” by default.
- 2 Click **Configure** to see the currently configured Windows domain. Click **Cancel** to close the dialog box without making any changes. When **Automatically create user account after successful logon** is selected (the default), any user who can authenticate to this Windows domain can automatically authenticate to the Reflection X domain.

- 3 Click **Test Authentication**. In the **Test User Authentication** dialog box, enter the name and password of your sample user account (this can be any user account that has access to the current Windows domain), then click **Test**.

If authentication is successful, Reflection X Advantage adds the user automatically to the **User Accounts** list.

To continue the evaluation, go to [“Creating and Using Public Session Settings” on page 4](#).

## Using Reflection X Internal Authentication



You can use Reflection X Internal Authentication to test in any environment. For this authentication option, you need to manually add users and set passwords.

---

**NOTE:** An administrator account was created when you first logged onto the domain, but the internal authentication database has no record of your password for this account because authentication was handled by Windows (or PAM on UNIX systems).

---

### To configure an administrator and user account using the Internal authentication system

- 1 From the tabs located along the left-hand side of the Administrative Console, click **Authentication**.
- 2 Set **Authentication** system to “Internal.”
- 3 Select your existing account name and click  (or select **Action > Set User's Password**) and enter a password for this account. This is saved in the internal authentication database. (The checkbox under **Administrator** should already be selected for this account.)
- 4 Click  (or select **Action > New User**) and enter a name and password for an additional sample user for this exercise.
- 5 Before you close the console, confirm that you can log on using your administrative account. To do this, click **Test Authentication**, enter the name and password for the administrator account, and then click **Test**.

You should see a message that says “Authentication successful.”

## Creating and Using Public Session Settings

As an administrator, you can use the Reflection X domain to create public session settings. This means that users are up and running quickly and easily, and you spend less time and money on training and support.

You'll use two computers:

- ♦ **Computer 1** (the computer on which you installed all features) is the administrative workstation and the domain controller. On this computer, you'll use X Manager for Domains to configure and test your settings, and you'll use the Reflection X Administrative Console to make these settings available to other domain users.
- ♦ **Computer 2** (the computer on which you installed only X Manager for Domains) is the user workstation. On this computer, you'll use X Manager for Domains to connect using the public session.

### In this Section

- ♦ [“Getting Started with X Manager for Domains” on page 5](#)




- ♦ [“Making your Settings Public” on page 5](#)
- ♦ [“Getting a New User Started with Your Public Settings” on page 7](#)

## Getting Started with X Manager for Domains

To configure public client and session definitions, we'll start with X Manager for Domains. Because you've already seen the standalone X Manager, this will be familiar territory.

### To start X Manager for Domains and create a client definition

- 1 From Computer 1 (the computer on which you installed all features), start X Manager for Domains.  
**Start > All Programs > Attachmate Reflection > X Manager for Domains - Reflection X Advantage**
- 2 Log on using the credentials of your administrator account. (If you're testing with Windows authentication, use your own Windows name and password. If you configured Reflection X Internal authentication, use the user name and password you set for the administrator account.) In the **Domain** field, enter your computer name.
- 3 In the **Import Migrated Settings and Templates** dialog box, select the settings you want to import.
- 4 Create and test an X client definition. The procedures are the same as for the Standalone client. See [“Starting an X Client” on page 12](#). For this connection, don't enter any value for **User name** in the client definition. In the next exercise you'll be sharing this session with other users. Leaving **User name** blank means that each user will be prompted to enter his or her own user name.
- 5 Log off the X client, or end the session by selecting the running session and clicking the red stop session button, , in the X Manager for Domains toolbar.

In the next procedure, you'll learn how to use the Administrative Console to share this client definition with other users.

---

**NOTE:** You can also create new clients using the Administrative Console. However, using X Manager for Domains is usually preferable because it lets you test the connection before you make your settings public.

---

## Making your Settings Public

Now that you've configured your settings, you're ready to make these settings available to any user in the domain. To do this, you'll use the Administrative Console.


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**NOTE:** You need to make both the client definition and the session definition public.

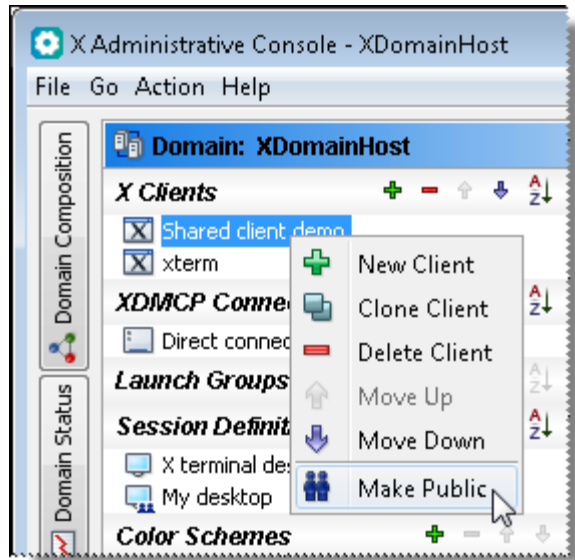
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### To make your settings public

- 1 From the same computer you used to create your session (Computer 1) start the X Administrative Console:  
**Start > All Programs > Attachmate Reflection > X Administrative Console - Reflection X Advantage**
- 2 Log on using your administrator's credentials.
- 3 Click the **Domain Definitions** tab. Under **X Clients**, find the client definition you just tested.

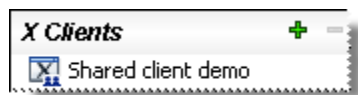
For now, this client is still private. A private client definition can be viewed, used, and modified only by the user who created it. Private clients are identified with this symbol: 

- 4 Right-click on the client definition name and select **Make Public**.



A public client is available to everyone who is logged into the domain, but only the administrator can modify it. Public clients are identified with this symbol: 

Your client definition should now display the public definition icon, as shown here:

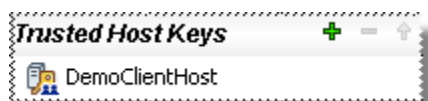


- 5 Under **X Sessions**, right-click the session definition used by this client and make this definition public.

The session definition icon changes to indicate that it is now public, as shown here:



- 6 (Optional) If your client uses the Secure Shell connection type, you can make the host key public. By doing this, an administrator can ensure that the host is correctly authenticated without requiring users to respond to the **Host Key Unknown** dialog box. If you've already tested your connection, a copy of the host key is already in the domain database. To make your key public, scroll down to view **Trusted Host Keys** in the left panel. Right-click the host key and select **Make Public**. The key icon changes to show that this is now a public host key:



# Getting a New User Started with Your Public Settings

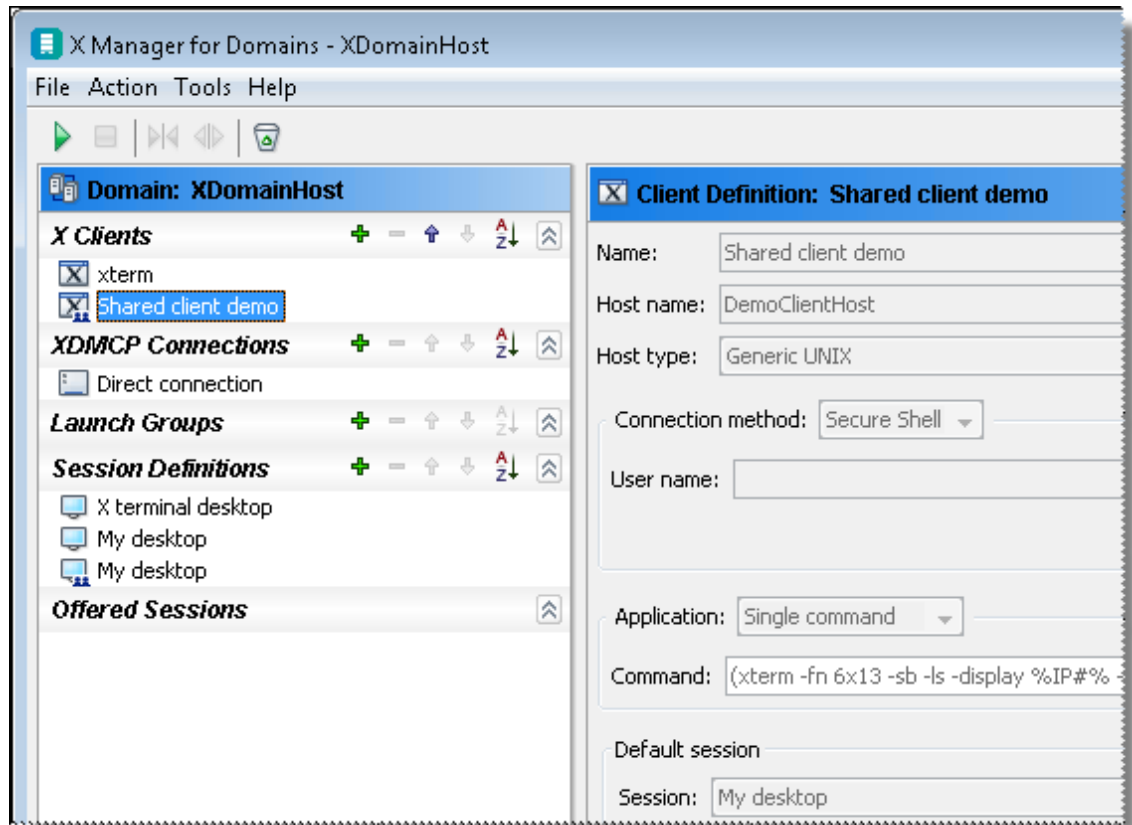
Now that you have everything set up, imagine that you have just received a call from a new user who needs to get started with your host application. The public definitions you just created make this easy.


All the new user needs to know is the name of your domain, the client definition, and his or her logon credentials on the UNIX host.

## To get a user started with a public session

- 1 From the user's computer (Computer 2), launch X Manager for Domains. (**Start > All Programs > Attachmate Reflection > X Manager for Domains - Reflection X Advantage.**)
- 2 Log on with the test user's credentials. Click **Cancel** in the **Import Migrated Settings and Templates** dialog box. For this first log on, the user needs to know the name of your X domain. After the first successful logon, the domain name appears in the list of available domains.
- 3 Under **X Clients**, you'll see the public X client definition ("Shared client demo" in this example) as well as the default settings. The user can modify private definitions, but not public definitions.

**NOTE:** Administrators who want users to see only public definitions can modify the Reflection X Advantage installation so that it doesn't include any sample templates.



- 4 Select the public X client and click  (or select **Action > Start**).

Because this is the connection you've already configured and tested, your sample user is up and running immediately.

# Sharing Sessions in Domain Mode

In the previous exercise, you learned how to provide users with easy access to new sessions on your host. Now imagine that your sample user is already hard at work and ready to show you something he's working on. Any user running X Manager for Domains can easily share a session with any other user in the same domain.

The next procedures demonstrate how session sharing works in domain mode.


## In this Section

- ♦ [“Making Your Session Available to Other Users” on page 8](#)
- ♦ [“Joining an Offered Session” on page 9](#)

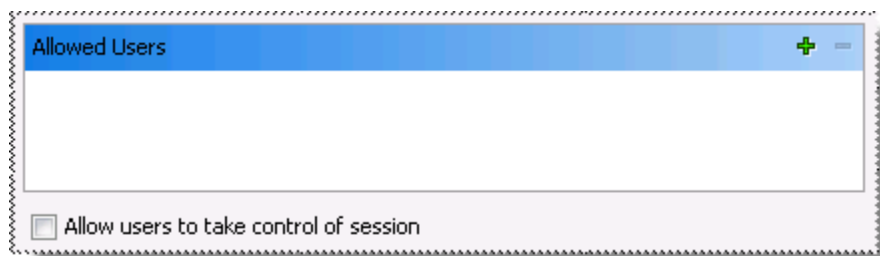
## Making Your Session Available to Other Users

In this example you'll see how your sample user can share his running session with another user. To share a running session in domain mode, all you need to do is add one or more users to your **Allowed Users** list.

### To share a session from X Manager for Domains

- 1 On the user computer (Computer 2), launch X Manager for Domains. For this exercise, and log in using the test user account credentials (not the administrator account). You don't need to be an administrator to share a session.
- 2 Start the public client definition from the previous exercise, or configure and launch a new client definition that starts any X client application you work with. (Your client and session definitions do not need to be public to support session sharing.)
- 3 In the X Manager for Domains window, under **Session Definitions**, select the running session, which is identified with this icon: 

In addition to information about the active session, you'll find a configurable area called **Allowed Users**.



- 4 Click the green plus sign (+) to the right of **Allowed Users**.
- 5 In the **Share with Users** dialog box, you'll see the name of your administrative user (and other users if you have tested with additional user accounts). Select your administrative user name in this list and click **OK**.

The selected name shows up in the **Allowed Users** list.

- 6 (Optional) select **Allow users to take control of session**.

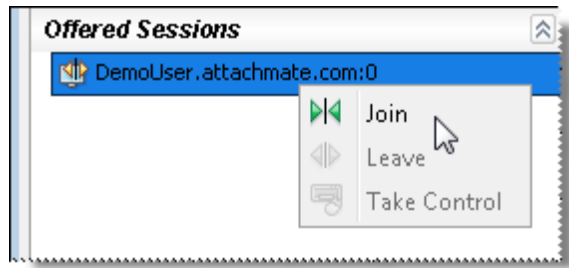
Now you're ready to join the session from your administrative workstation (Computer 1).

## Joining an Offered Session

In the preceding exercise, your sample user offered you a shared session. Here's how to view this session.

### To join an offered session

- 1 From Computer 1, launch Reflection X Manager for Domains and log into your domain using your administrator's credentials.
- 2 Under **Offered Sessions**, find the running session that was shared from the user's computer. (It's identified using the computer name of the user's workstation.) Right-click the offered session and select **Join**.



- 3 A new session window opens. As the second user, you can now view everything in the first user's session.

### Taking Control of a Session

As long as the session owner adds a user to a session with **Allow users to take control of session** selected, all the user has to do to take control of a session is right-click the session name under **Offered Sessions**, and select **Take Control**.

The session owner, or any other allowed user, can regain control by doing the same thing: right-click the session name, and then select **Take Control**.

## Using Remote Session Services in Domain Mode

When you use remote session services in domain mode, Reflection X Advantage creates a distributed session, which means that some session components run on a remote domain node, not on the workstation running X Manager for Domains. This configuration enables some features that are not available in a basic session including:

- ♦ The ability to suspend and resume sessions.
- ♦ Improved performance in high latency or low bandwidth networks
- ♦ Fault tolerance to ensure that a session remains running even if a workstation is disconnected due to a power or network failure.

To support any of these options, you need to configure a domain node, as described in the next procedure.

## Setting up a Domain Node

To configure a domain node, you need to install the feature called **Domain Services**. For this evaluation, you will create a node on Computer 1, which already has this feature installed. When you plan your actual domain, you can create nodes on any supported system, including the UNIX hosts that run your X clients.

### To configure a domain node

- 1 From Computer 1 (the computer on which you installed all features) open a Command Prompt window (**Start > All Programs > Accessories > Command Prompt**).

---

**NOTE:** On all Windows systems newer than XP, you need to specify that you want to run the command prompt as an administrator. (This step is required even if you are already logged in as an administrator.) To do this, right-click the **Command Prompt** shortcut in the Start menu, and select **Run as administrator**.

---

- 2 Enter the following command, where "domainname" is the name of the computer running the domain controller (Computer 1).

```
rxsconfig join domainname
```

- 3 You'll be prompted for Administrator credentials. Enter the user name and password of the Reflection X Advantage domain administrator. You'll see a message saying that node was successfully created, as shown in this example:

```
C:\>rxsconfig join domainname
Initializing crypto library...
Performing the join...
Administrative user for domain: joe
Password:
Created node 0.0.0.0:22001 for domain domainname.
```

- 4 On Computer 1, start the X Administrative Console and log on using your domain administrator credentials.
- 5 Click the **Domain Composition** side tab.

You should see the node you just created listed under **Registered Nodes**.

## Working Remotely Using Remote Session Services

Even if you don't work with other users, you can benefit from Reflection X Advantage remote session services. Imagine that you want to use the same X session from both your home computer and your work computer. You'd like your transitions to be seamless, and you want to be able to shut down your home computer without terminating your session.

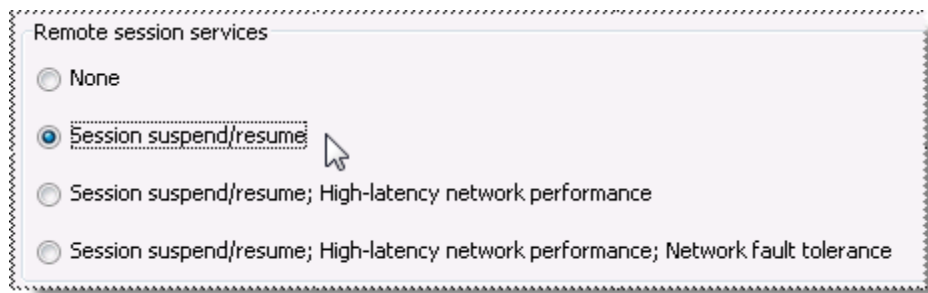
The steps that follow build on what you learned and created in the previous scenarios. For the purposes of this exercise:

- ♦ Computer 1 (on which you installed all features and configured a domain node) is your "work" computer. Before you do the procedure below, [set up a domain node \(page 10\)](#) on this computer.
- ♦ Computer 2 (on which you installed X Manager for Domains) is your "home" computer.

### To leave a session on one computer and rejoin it on another

- 1 On both computers, stop any sessions you have running and close all Reflection X Advantage applications.

- 2 On your work computer (Computer 1), launch X Manager for Domains and log on to the domain using your administrator's credentials.
- 3 Under **Session Definitions**, click **+** to create a new session. For **Session Name**, enter "Suspend test."
- 4 Select the display option appropriate for your X client:
  - ♦ If you want your client application to run on your desktop, select **Show clients on my desktop**.
  - ♦ If your client command launches a desktop environment such as KDE, CDE or GNOME, select **Show clients on X terminal desktop**.
- 5 (Optional) If you want the session to stop when you exit your client, change **On last client** to **Stop session**.
- 6 Under **Remote session services**, select **Session suspend/resume**.



- 7 Under **X Clients**, select any client definition that you have already tested. Under **Default session**, select the "Suspend test" session you just created.
- 8 Double-click the client definition to start this client using the new session. Log onto your client host and interact with your client application. (For example, if you started the xterm client, enter an ls command.)
- 9 Under **Session Definitions**, right-click the running session and select **Leave**. The icon for this session changes to show that the session display is no longer visible:
- 10 Close X Manager for Domains.
 

Although your session is no longer visible, it is still actively running on the domain node.
- 11 Now, switch to your home computer (Computer 2) and start X Manager for Domains. Log on using the same user name, password, and domain name that you used when you logged onto your work computer.
 

You'll find the running session you just left listed under the "Suspend test" session definition.
- 12 Right-click the running session name and click **Join**.
 

The application you left running is waiting for you — you don't need to spend any time reestablishing your connection or redoing the work you started.
- 13 Imagine that your task is still incomplete before you head back to work, click the **Leave** button on your home computer. Now you can shut down your home computer and you'll still be able to rejoin the session back at work.

---

**NOTE:** When you are running X Manager for Domains, you can configure any session to use remote session services — it can be a private session available only to you, or a public session you share with others.

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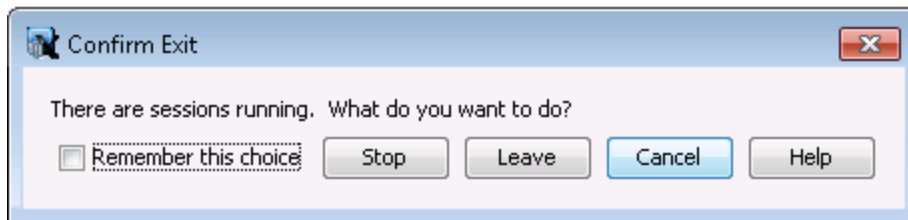
## Enabling Extra Session Protection

The previous exercise demonstrated one way to suspend a session and rejoin it from another computer. The configuration in that exercise requires that your work computer remain running because the domain node is running on this computer. You can configure Reflection X Advantage to provide an even higher level of session protection that enables you to return to your session even if the computer you're working on loses network connectivity or shuts down unexpectedly.

To provide this level of session protection Reflection X Advantage maintains your session on a remote domain node. The remote node can be a Windows or UNIX system. To configure a remote domain node, run the Reflection X Advantage installer on the remote system and select the feature called **Domain Services** (without including the **Domain Controller** feature). Once you've installed this feature, you can use the [rxsconfig command line utility \(page 10\)](#) to create a domain node on this computer.

When a remote domain node is available, you can select the option under **Remote session services** called **Session suspend/resume; High-latency network performance; Network fault tolerance**.

With this option, if you close X Manager for Domains while the session is running, you'll see the following prompt:



If you choose **Leave**, the session remains active on the remote node even if you shut down this computer. You'll be able to join it again when you start X Manager for Domains from any computer with access to this Reflection X Advantage domain.

If your session is configured with **Network fault tolerance**, and your computer shuts down unexpectedly – so you don't have an opportunity to respond to the **Confirm Exit** prompt – the session remains active as long as the computer running the remote domain node has not shut down.

## Optimizing Network Performance

Reflection X Advantage domain mode, like standalone mode, can be configured to significantly improve performance in networks where high latency or low bandwidth cause delays that make running a remote X client application difficult.

For detailed information, open the Reflection X Advantage Help (Help > Help Topics). From the Contents tab, go to Domain Administration > Sample Domain Configurations > Domain Setup: Improve Performance Over a Slow Network.



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# 4 Upgrading from Reflection X version 13 or 14

The first time that you start X Manager and X Manager for Domains, local settings from legacy Reflection X products (v. 13 or 14) are migrated automatically and saved to a Reflection X definition file (\*.rxd). Your legacy Reflection X files are not changed. On this first start-up, the **Import Migrated Settings and Templates** dialog box opens and includes an option to import your migrated settings. This option is selected by default. Click **Import** to import your settings into Reflection X Advantage.

Your Reflection X client files (\*.rxc) are imported as definitions under **X Clients** and/or **XDMCP Connections**. Starting these migrated clients is easy:

- ◆ Double-click a migrated definition.

-or-

- ◆ Select a definition, then click the start button: 

Your prior version server settings are migrated to a session definition named "config," which is configured to start automatically when you start X Manager.

