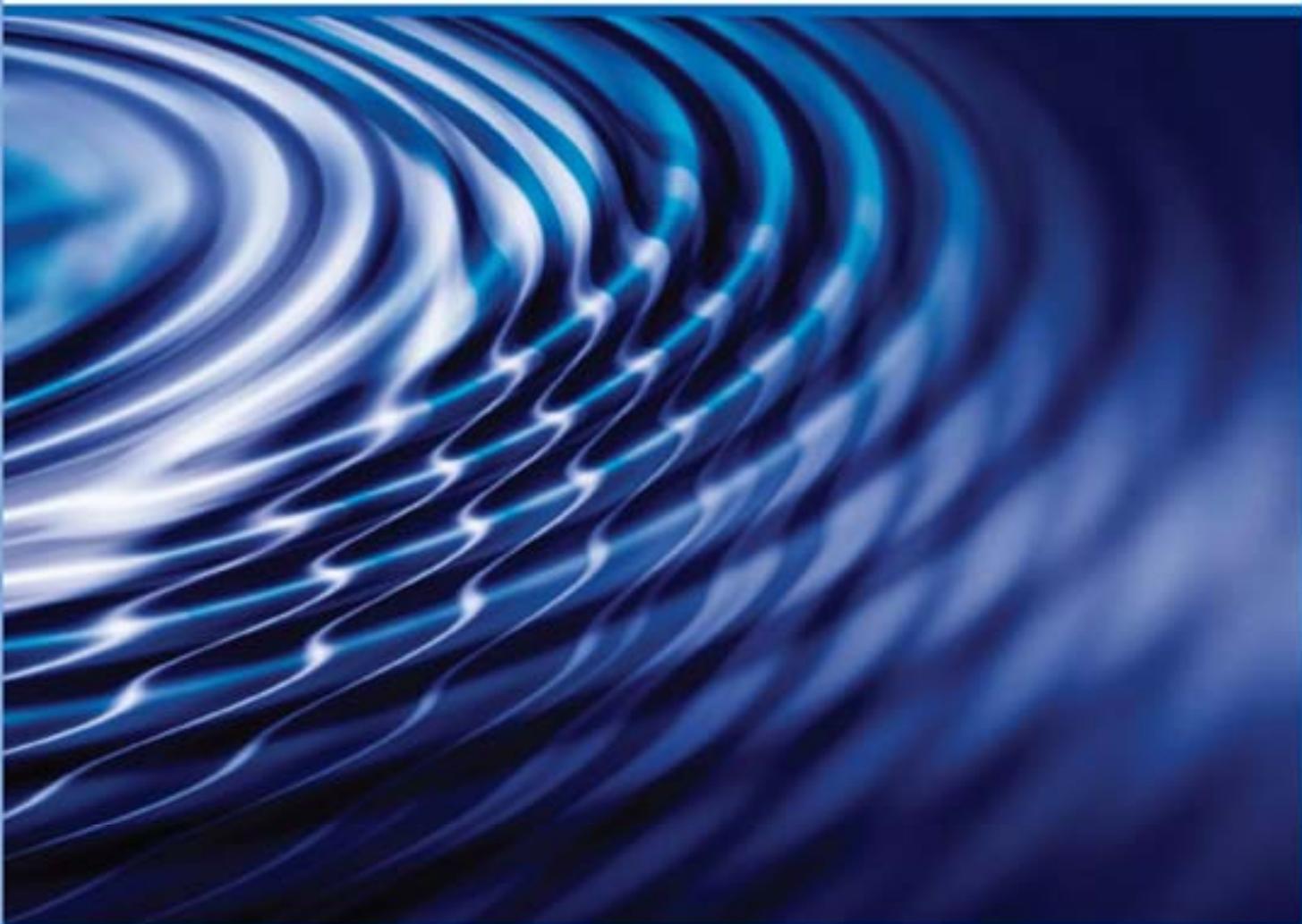


Deployment Guide  
Reflection X 2011  
Reflection Suite for X 2011



Attachmate®  
**Reflection®**  
**2011**



# Reflection X and Suite for X 2011



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## What You Need to Do

This guide shows how to deploy Attachmate Reflection X and Reflection Suite for X 2011.

You can use a variety of methods to deploy Reflection.

Deployment Methods	
If you are using this deployment method...	Follow these instructions...
The Attachmate setup tool or other deployment tools that support Microsoft MSI technology or Microsoft Group Policy	Follow the steps in <i>Performing a Deployment with Microsoft Installer Technology</i> (page <a href="#">5</a> ). For information about how you can customize Reflection, see <i>Customizing Reflection</i> (page <a href="#">17</a> ).
An installation image	Install Reflection as shown in <i>Install Reflection on a Workstation</i> (page <a href="#">9</a> ). For information about how you can customize Reflection, see <i>Customizing Reflection</i> (page <a href="#">17</a> ).
Citrix Presentation Server	To learn about how you can customize Reflection, see <i>Customizing Reflection</i> (page <a href="#">17</a> ). Then install and publish Reflection like any other application. The executable you need to publish to run the Reflection Workspace is <code>Attachmate.Emulation.Frame.exe</code> .
Java Web Start (This can be used only for Reflection X Advantage)	Follow the instructions in <i>Deploy with Java Web Start</i> Page <a href="#">24</a>

## What You Need To Know About Product Changes

Some of the administrative tools and features in Reflection X and Reflection Suite for X have changed from previous releases.

### Reflection X Advantage

Reflection X Advantage is Attachmate's "next generation" PC X server product. This multi-platform X server (HP-UX, MacOS, Linux, Solaris, and Windows) has two modes of operation:

- **Standalone mode** (installed by default) is similar to legacy Reflection X. You use one application, X Manager, to access X hosts and clients, configure and share sessions, and monitor session status.
- **Domain mode** provides access to distributed domain services that support centralized administration and control over authentication services. It also provides solutions that improve performance of slow connections, prevent loss of sessions during interruptions such as power outages, and allow users to leave (suspend) and join (resume) sessions. To use Domain mode, you must install Reflection X Manager for Domains on two or more computers, and set up a Reflection X domain.

## Legacy Reflection X

Legacy Reflection X in Attachmate Reflection X 2011 and Reflection Suite for X 2011 has the same features as legacy Reflection X in previous suites. However, its administrative toolset has changed:

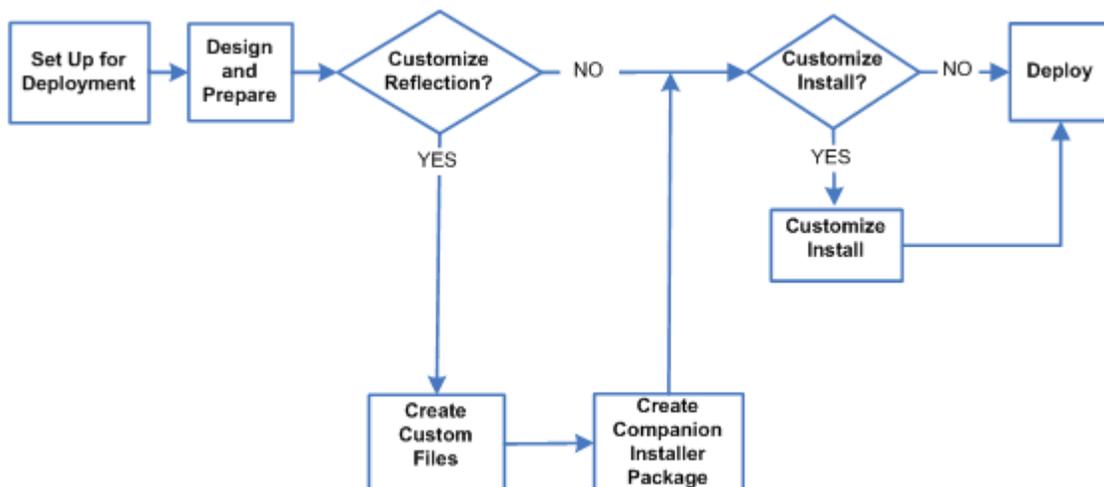
- The Reflection Profiler is not installed by default. To install it, select **Profiler** on the Feature Selection tab when you install Reflection.
- Group policy templates are not included. To get the .ADM templates required to lock down legacy Reflection X, download and unzip the ReflectionPolicy.adm file from:  
<http://download2.attachmate.com/fileinfo.asp?filename=ReflectionPolicy.zip>
- The Attachmate Customization Tool (ACT) replaces the Reflection Customization Manager. To use ACT to set up a customized deployment, follow the instructions in *Performing a Deployment with Microsoft Installer Technology* (page 5).

## Reflection 2011

Reflection 2011 has a new user interface with the look-and-feel of Windows 7 and Microsoft Office 2010, including the Ribbon user interface and integrated search. It also supports features such as Recent Typing, Spell Check, and Screen History. And it includes a .NET API and a VBA development environment that can be used to add functionality to terminal sessions and Web pages.

## Performing a Deployment with Microsoft Installer Technology

Use this process if you are using the Attachmate setup tool, deployment tools that support Microsoft Installer (MSI) technology, or Microsoft Group Policy. You can choose from several different approaches for installing and deploying Reflection, ranging from "out-of-the-box" installations to heavily customized deployments. Regardless of which approach you use, your deployment will follow the workflow shown below.



## Performing a Deployment with MSI Technology

What you need to do	Where to get the information you need
First, set up for deployment by installing Reflection.	<i>Set up for Deployment</i> (page <a href="#">6</a> ) shows how to set up an environment that you can use for customization, testing, and deployment.
Then, design and prepare for deployment.	<i>Design and Prepare</i> (page <a href="#">11</a> ) lists the basic things to consider for deployment.
Deploy Reflection out of the box or customized.	<p><i>Deploy an "Out-of-the-Box" Version of Reflection</i> (page <a href="#">11</a>) shows how to deploy Reflection without customization.</p> <p><i>Deploy Files that Customize Reflection</i> (page <a href="#">12</a>) shows how to create a custom configuration file, "package" it in a companion installer MSI file, and deploy the file. See <i>Customizing Reflection</i> (page <a href="#">17</a>) to find other ways you can customize Reflection and <i>Table 1: Where to Deploy Customized files</i> (page <a href="#">27</a>).</p> <p><i>Customize the Install</i> (page <a href="#">14</a>) walks through an example deployment that shows how to specify which features are installed.</p> <p><i>Deploy a Customized Version of Reflection along With a Customized Installation</i> (page <a href="#">15</a>) shows how to deploy customized files and a customized install on a single command line.</p> <p><i>Remove an Installation</i> (page <a href="#">17</a>) shows how to remove Reflection.</p>

## Set up For Deployment

To prepare Reflection for deployment with the Attachmate administrative tools, you will need to set up an environment for customizing and testing your installation.

First, create an administrative installation point that you can use to deploy Reflection. The administrative installation point is a network share that has an administrative install image (a source image of Reflection) and contains all of your custom configuration files. From this installation point, you will access all of the files required to install and deploy Reflection.

Then, install Reflection on a workstation.

---

**Note:** There are two types of Reflection installations. The **Administrative install image** installs the files required for installation but does not install any values in the registry required to open and run Reflection. You cannot run Reflection from an Administrative install image. The **Workstation installation** enters the values in the registry required to run the product.

---

## Create an Administrative Installation Point

### Before you start

- Download Reflection and extract the installer files to a folder.

You create an administrative installation point by installing an administrative install image of Reflection on a network share (typically on a file server).

---

Note: Attachmate's recommended practice is to create an administrative installation point before you install Reflection on a workstation. This allows you to use the administrative installation point for the workstation installation.

---

- 1 Create a network share on a network file server.
- 2 From the folder that includes the installer files, double-click `Setup.exe`.

This starts the Attachmate Installation Program, Attachmate's recommended tool for installing and deploying Reflection (see *The Attachmate Installation Program (setup.exe)* (page 9)).



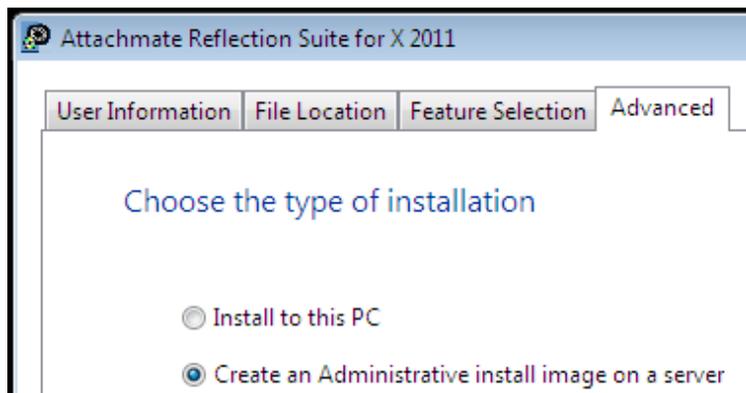
If "This product cannot be installed because incompatible products were found" is displayed, perform the install with `msiexec` as follows:

```
msiexec /a [packagename].msi  
TARGETDIR=[path_to_administrative_installation_point]
```

- 3 Click **Continue** and accept the license.

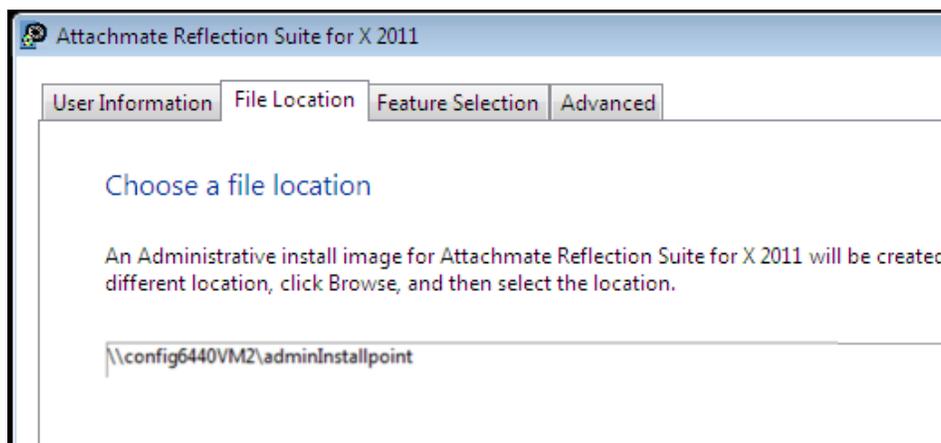
## 8 Reflection X and Suite for X 2011

- 4 From the **Advanced** tab, click **Create an Administrative install image on a server**.



- 5 Click **Continue**.

The File Location tab is selected.



- 6 Browse to the network share you want to use for the administrative install image.

---

**Important!** Be sure to specify the path to the network share as a UNC path (for example: \\server\_name\share\_name).

---

- 7 Click **Install Now**.

---

Notes:

- Administrative install images are typically created in a file server folder but you can create them in any folder on a local hard disk. This is useful for testing purposes.
- If you prefer to install Reflection on your workstation first, you cannot use the installation program graphical interface to create the administrative install image. Instead, you must install it from the command line as follows:

```
path_to_setup_file_on_your_workstation\Setup.exe /install /admin  
TARGETDIR=UNC_path_to_administrative_installation_point
```

---

## Install Reflection on a Workstation

---

Note: If you are setting up the administrative point and the workstation installation on a single workstation for testing purposes, you must perform the administrative installation first.

---

- 1 On the workstation, navigate to the network share on which you have created the administrative installation point and double-click the setup.exe file.
- 2 From the Attachmate Installation Program, click **Continue**, and then accept a license.
- 3 To change the default installation folder, click the **File Location** tab and browse to the folder in which you want to install Reflection.
- 4 To change the default user data directory, click the **File Location** tab and browse to the directory you want to use. (The user data directory must be a trusted location.)

---

Note: The user data directory does not apply to Reflection X Advantage.

---

- 5 To select which features, components, or languages are installed, click the **Feature Selection** tab.
- 6 Click **Install Now**.

## The Attachmate Administrative Tools

Attachmate provides the Attachmate Installation Program (setup.exe) and the Attachmate Customization Tool (ACT) that you can use to customize and deploy Reflection.

### The Attachmate Installation Program (setup.exe)

The Attachmate Installation Program (setup.exe) is Attachmate's recommended tool for installing and deploying Reflection. This tool uses the primary Attachmate Reflection MSI file to install Reflection and has several features that provide a smoother deployment than installing directly with the Attachmate MSI file.

## Using the Attachmate Installation Program (setup.exe) vs. MSI

When you install with setup.exe	When you install directly with MSI
setup.exe determines whether each workstation has the .NET Framework and Microsoft Windows Installer version 3.1 (or later) and automatically installs them if necessary.	The MSI installer determines whether the workstation has the .NET Framework and Microsoft Windows Installer version 3.1 (or later), but it does not install them.
setup.exe removes previous versions of Reflection.	MSI does not remove any previous versions of Reflection. If the workstation does not have all of the required software or if it has a previous version of Reflection, the installation fails.
setup.exe automatically uses the correct language for the installation. (Language transforms are provided for Japanese, French, and German.)	MSI uses English for the installation unless you specify another language on its command line.
setup.exe has a command line interface that can be run from a command line, a batch file, or a deployment tool. (You can view the command-line options by entering <code>setup.exe /Help</code> .)	MSI has a similar command line.

## The Attachmate Customization Tool

To customize Reflection or how it is installed, use the Attachmate Customization Tool (ACT).

- To customize Reflection, you will create custom configuration files and then use ACT to "package" these files in your own MSI file that can be deployed with the original installation or independently.
- To customize how Reflection is installed (For example, install non-default features), use ACT to create a Microsoft transform (MST) file that modifies the primary installation.

By default, ACT can be opened only from a command line as follows:

```
path_to_administrative_installation_point\setup.exe /admin
```

To create a shortcut that opens ACT:

- 1 On your administrative installation point, create a shortcut to `setup.exe`
- 2 Right-click on the shortcut and choose **Properties**. Then, in the **Target** field, add the `/admin` option to the end of the command line. For example:

```
path_to_administrative_installation_point\setup.exe /admin
```

**CAUTION:** Make sure the path in the Target field is referenced with a UNC format. Do not use drive letters in the path name. Using drive letters can cause problems when you try to use the shortcut on other workstations.

## Design and Prepare

Be sure to design your deployment to satisfy customer requirements and the Reflection system requirements. At a minimum, you will need to answer the following questions:

- **Do you need to deploy custom files such as preconfigured sessions or related configuration files, specify Reflection behavior and appearance, or restrict access to settings and controls?**
- **Do you need to customize the installation to modify default installation settings?**  
For example, you may need to install features not installed by default.
- **Do user workstations meet the Reflection system requirements?**  
This prevents installation and user problems, such as slow performance on old workstations (see *Technical Note Number 2529: Reflection X 2011 Supported Platforms and System Requirements* (<http://support.attachmate.com/techdocs/2529.html>)).

## "Walkthroughs" of Common Deployments

The following walkthroughs show how to perform the four most common types of Reflection deployments with Microsoft Installer Technology.

These examples show how to deploy from the Attachmate `setup.exe` command line and from the MSI command line.

You can use companion MSI files and transform MST files (created as shown in these walkthroughs) to deploy Reflection with Group Policy or with deployment tools that support MSI technology.

For more information, see "Deploy" in the *Reflection 2011 Installation and Deployment Guide* (<http://docs.attachmate.com/Reflection/2011/R1/Deploy/DeploymentGuide.pdf>).

## Deploy an "Out-of-the-Box" Version of Reflection

When you deploy Reflection X or Reflection Suite for X with default settings, the following are installed:

- Reflection X Advantage X Manager (Standalone)
- Reflection for UNIX and OpenVMS 2011
- Reflection F'FTP Client

Reflection Suite for X also includes Reflection for IBM 2011.

### Deploy Reflection "out-of-the-box" with the Attachmate Installation Program

- At a command prompt or the Start menu Run command, enter:  
`path_to_administrative_installation_point\setup.exe /install`

## Deploy Reflection "out-of-the-box" directly with MSI

- At a command prompt or the Start menu Run command, enter:

```
msiexec /i path_to_administrative_installation_point\ReflectionMSI.msi
```

## Deploy Files that Customize Reflection

To customize Reflection, you will need to create and deploy configuration files. You can deploy these custom files when you install Reflection or separately after you deploy Reflection.

This walkthrough shows how to deploy the customized files separately, after you deploy Reflection.

---

**Note:** To deploy customized files with the Reflection installation, see *Deploy a Customized Version of Reflection along With a Customized Installation* (page [15](#)).

---

In this walkthrough, you will use Attachmate's administrative tools and Microsoft technology to:

- Create a custom file (in this case, a session document file) for a terminal session.
- Include the customized file in a companion installation file.
- Deploy the companion installation file.

### Create a session document file for a terminal session

- On your workstation, open Reflection 2011.
- In the **Create New Document** dialog box, under **Built-in Templates**, choose a type of session (for example, **VT terminal**) and click **Create**.
- In the **Create New Terminal Document** dialog box, in the **Host name/IP** address box, enter the host name (for example, **IBM390** or **10.9.1.151**).
- From the Reflection Quick Access toolbar, click the **Save** button and save the session as `mySession.rdox`.

This file is saved in the `My Documents\Attachmate\Reflection` folder.

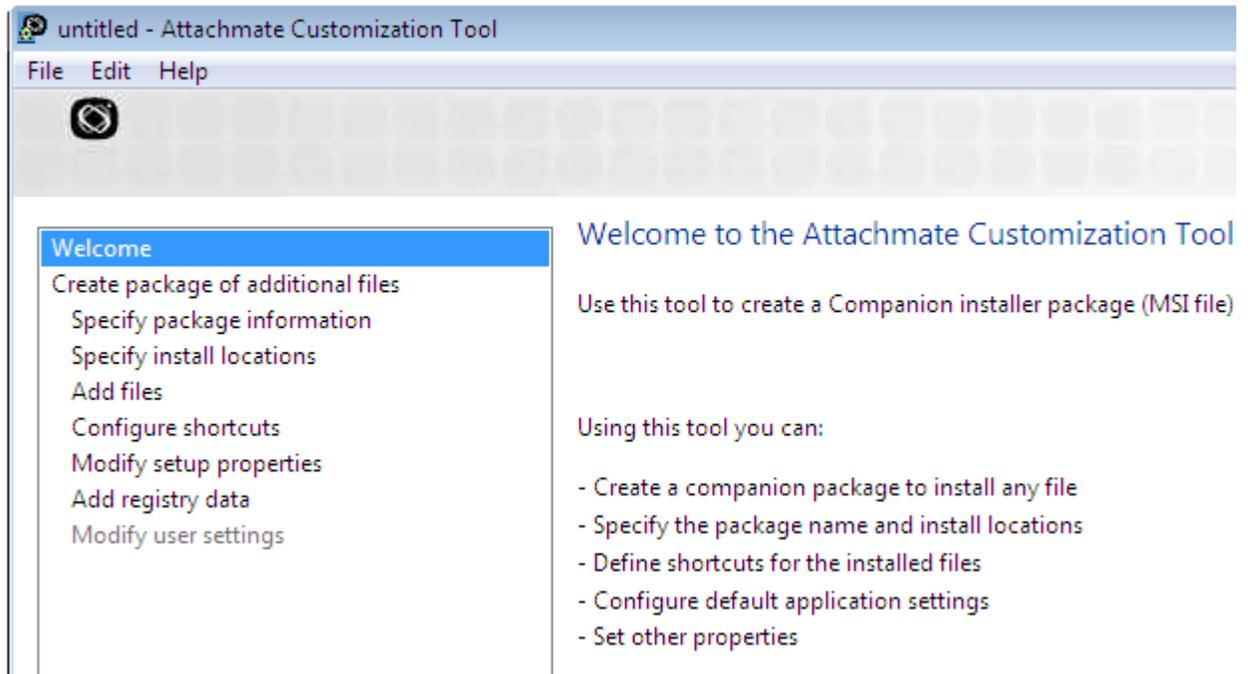
### Include the session document file in a companion installation file

After you create a custom configuration file (for example, a session document file), you will need to create a companion installer package that "bundles" the file into your own MSI file.

- On a workstation on which you have installed Reflection, open the Attachmate Customization Tool from a desktop shortcut or from a command line as follows:

```
path_to_administrative_installation_point\setup.exe /admin
```

- 2 In the Select Customization dialog box, select **Create a new Companion installer**.



- 3 From the navigation pane, select **Specify package information**.
- 4 In the **Add/Remove** name box and the **Organization** name box, type a name for the installation and the publisher that you want to be displayed in the Microsoft Windows "Programs and Features" (or "Add/Remove Programs") panel.
- 5 From the navigation pane, select **Add files** and then click **Add** and browse to the `mySession.rd3x` file you created earlier.
- 6 Specify the destination directory for the file as follows:
  - a. In the table of files, select the file.
  - b. In the **Add files to** list (at the bottom of the panel), enter the destination directory. (You can choose a location from the list or edit the path by typing.)
  - c. Click **Update**. (The destination directory for the file is displayed in the table's **Location** column.)
- 7 Choose **File** > **Save** and save the companion file as `mycompanion.msi`.

#### Deploy the companion file

- At a command prompt, enter:

```
msiexec /i path_to_administrative_installation_point\myConfigFiles.msi
```

---

To deploy a companion file along with the product install, see *Deploy a Customized Version of Reflection along With a Customized Installation* (page [15](#)).

---

## Deploy a Customized Installation

You can customize how Reflection is installed to configure which features are installed, desktop shortcuts, the installation directory, which commands are available in the Windows "Programs and Features" (or "Add/Remove Programs") panel, and other options.

To customize the install, use the Attachmate Customization Tool to create a transform and then deploy the transform along with the base installation package.

---

Note: As defined by Microsoft, "a transform is a collection of changes applied to an installation. By applying a transform (\*.mst) to a base installation package, the installer can add or replace data in the installation database."

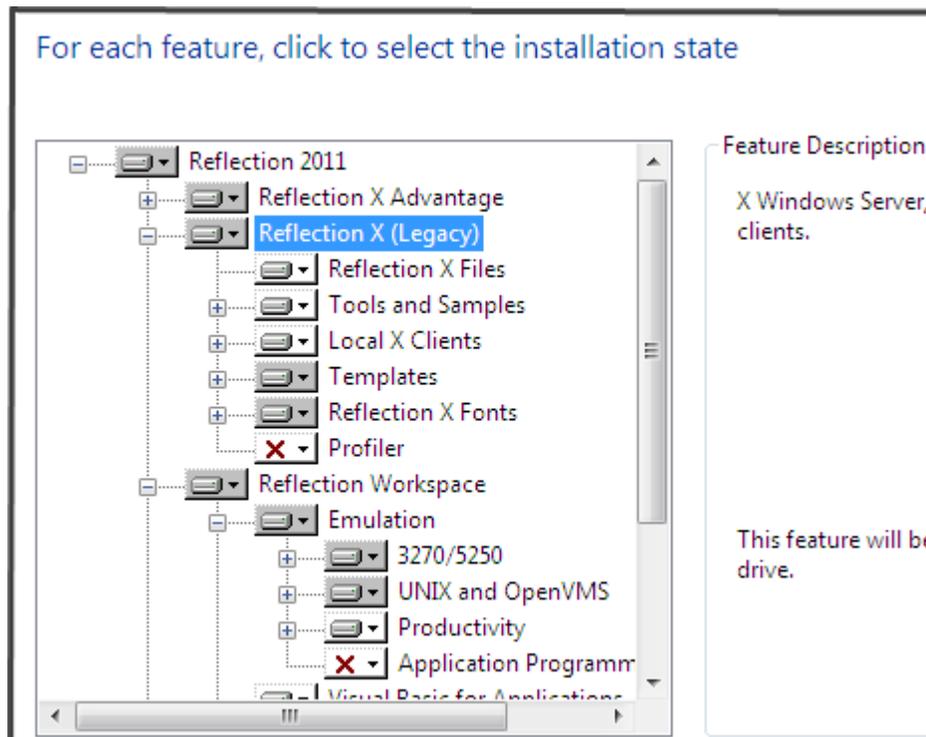
---

This walkthrough shows how to:

- Customize the install so that it includes the Legacy Reflection X application.
- Deploy the customized install either with the Attachmate setup.exe tool or by using the MSI command line.

### Create a transform

- 1 In the Attachmate Customization Tool navigation pane, select **Use this customization with interactive installs using setup.exe**.
- 2 From the Attachmate Customization Tool navigation pane, choose **Set Feature Installation States**.



- 3 Select to install the **Reflection X (Legacy)** feature.
- 4 Choose **File | Save As** and save the transform as `myCustomInstall.mst`.

#### To deploy with setup.exe

- From a command line, enter the following command to deploy the product and the companion file that includes the session file:

```
path_to_administrative_installation_point\setup.exe /install
```

#### To deploy directly with MSI

- At a command prompt, enter:

```
msiexec /i path_to_administrative_installation_point\yourVersion.msi  
TRANSFORMS= myCustomInstall.mst
```

where `yourVersion.msi` is the specific version of the Reflection MSI that you downloaded (for example, `SX11R1c.msi`).

## Deploy a Customized Version of Reflection Along with a Customized Installation

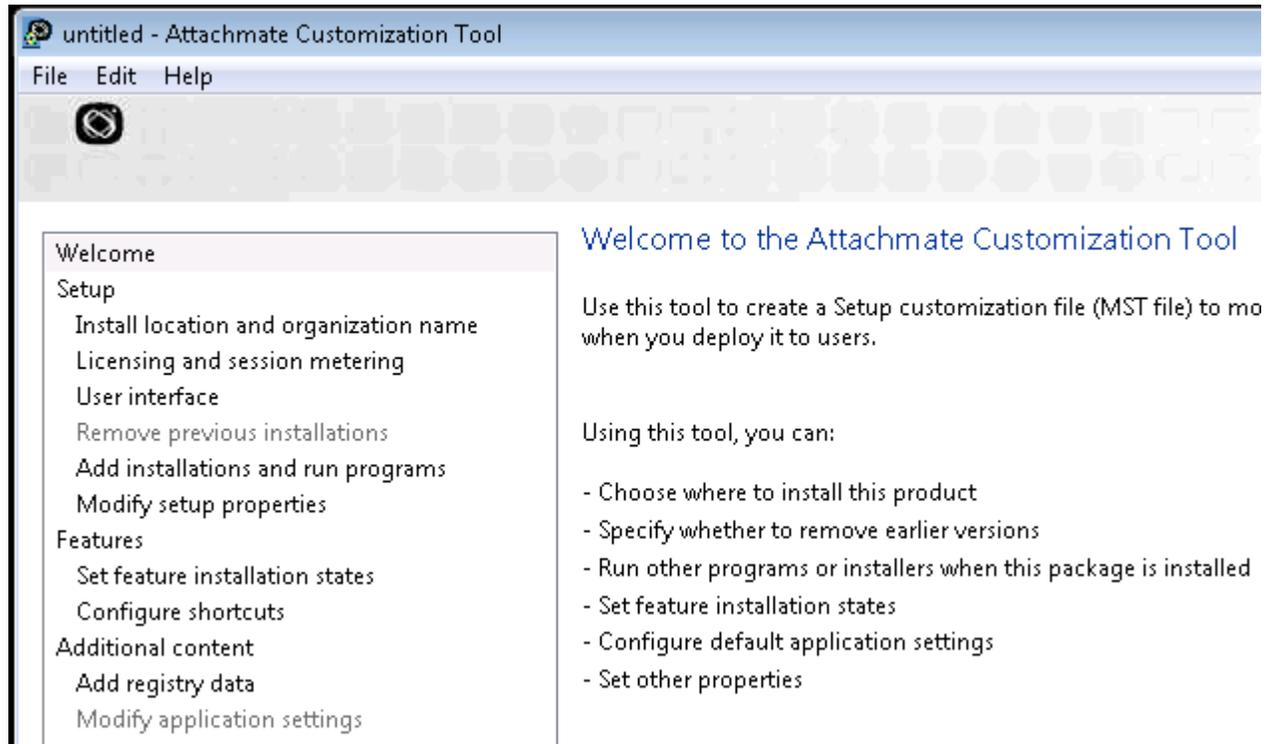
This example shows how to add a companion installer MSI file that contains a configuration file to a Microsoft transform and deploy the companion file along with the transform.

### Before you start

- Create a companion installer MSI file that includes configuration files that customize Reflection as shown in *Deploy a Customized Version of Reflection* (page [12](#)).
- Create a Microsoft transform MST file that customizes the installation as shown in *Deploy a Customized Installation* (page [14](#)).

### Add the companion file to the installation

- 1 In the Attachmate Customization Tool, choose **File | New**, select **Open a setup customization file for the following product**, and then browse to the `myCustomInstall.mst` file that you created earlier.



- 2 From the navigation pane, click **Add installation and run programs** and then click **Add**.

The Add/Modify Program Entry dialog box opens.

- 3 In the **Target** list, browse to the `myCompanion.msi` file that you created earlier.
- 4 Select **Run this program after the base product has been installed** and click **OK**.
- 5 Click **File > Save As** to save your transform.

---

**Note:** When you save your transform, the Customization Tool automatically updates the `Setup.ini` file, adding a `[RunPrograms]` section with instructions for installing your companion package.

---

### Deploy Reflection with the Attachmate Installation Program

- At a command prompt or the Start menu Run command, enter:

```
path_to_administrative_installation_point\setup.exe /install
```

## Remove an Installation

After you deploy your installation in your test environment, make sure that you can cleanly remove all of the program files and registry modifications with the Attachmate Installation Program or with MSI directly.

### To remove Reflection with the Attachmate Installation Program

---

**CAUTION:** If you use the following instructions to find the product code in the registry, make sure you do not change any registry values. Changing these values can damage an installation. If you prefer not to use the registry, you can get the product code by contacting Attachmate Technical Support.

---

- 1 Open the registry editor (regedit.exe) and find this key:

**32-bit platforms**

HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall

**64-bit platforms**

HKEY\_LOCAL\_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Windows\CurrentVersion\Uninstall

Each key under the `Uninstall` key is the product code or Globally Unique Identifier (GUID) for a product installed on the computer.

- 2 In the `Uninstall` key, search for `Attachmate Reflection` to find the `Attachmate Reflection` product code.
- 3 Verify that the `DisplayName` includes "`Attachmate Reflection ... 2011.`"
- 4 At a command prompt, change to the directory in which the `setup.exe` file resides and enter:

```
setup.exe /uninstall ProductCode
```

### To remove a companion installer package with MSI directly

- At a command prompt, change to the directory in which the companion installer package file resides and enter:

```
msiexec /x your_companion_file.msi
```

## Customizing Reflection

You can customize Reflection to help you save time, secure sensitive data, and simplify the end-user experience.

## Customize Installations

**Change the Windows "Programs and Features" (or "Add/Remove Programs") display, select which features to install, configure shortcuts, or change the installation directory**

Use the Attachmate Customization Tool to configure these settings and save them in a Microsoft transform file (see *Customize the Install with a Transform, in the Reflection 2011 Installation and Deployment Guide* (<http://docs.attachmate.com/Reflection/2011/R1/Deploy/DeploymentGuide.pdf>)). Then deploy Reflection with the transform as shown in *Deploy a Customized Installation* (page [14](#)).

**Control what the user sees during the installation**

If you deploy Reflection with the Attachmate Installation Program (setup.exe), you can create a Microsoft transform file that specifies to display no interface, only a progress bar, or the full Attachmate Installation Program interface. You can also set up the transform so that the install cannot be cancelled after it begins. For more information, see *Choose User Interface Options in the Reflection 2011 Installation and Deployment Guide* (<http://docs.attachmate.com/Reflection/2011/R1/Deploy/DeploymentGuide.pdf>).

Another way to do this is to use command line options to control the installation interface when you deploy Reflection, as follows:

- To perform a silent install that displays a progress bar and disables the Cancel button, enter: `setup.exe /install /passive`
- To perform a silent install with no display, enter: `setup.exe /install /quiet`

## Customize Legacy Reflection X

**Set up application startup behavior**

Legacy Reflection X supports starting sessions directly from a configurable `runrx.exe` command line (see "RunRX Utility" in the Legacy Reflection X Help).

**Lock down settings and controls so that users cannot change them without administrative access**

Legacy Reflection X provides two ways of locking down settings—you can use the Reflection Profiler or configure Reflection Group Policy settings.

*To lock down Legacy Reflection X settings using the X Profiler:*

- 1 Install Reflection X (Legacy) on your administrative workstation. Include the **Profiler** feature, which is not included by default.
- 2 Start the X Profiler. From the **Start** menu, go to **All Programs** > **Attachmate Reflection** > **Utilities** > **X Profiler**.

---

Note: On newer Windows systems that support User Account Control (UAC), you may see an error message. If this happens, modify the X Profiler shortcut as follows: Right-click and select **Properties**. On the **Compatibility** tab, select **Run this program as an administrator**.

---

- 3 Use the profiler tabs to modify your settings and save your changes to `rx.ini`.

- 4 Add `rx.ini` to your Reflection installation as shown in *Deploy Files that Customize Reflection* (page 12).

*To lock down Legacy Reflection X settings using Group Policy:*

- 1 Download and unzip the `ReflectionPolicy.adm` file from <http://download2.attachmate.com/fileinfo.asp?filename=ReflectionPolicy.zip>
- 2 Add the `ReflectionPolicy.adm` template to a group policy object and then configure the settings you want to lock down.

### **Preconfigure Reflection settings for connecting to host systems so that users are ready to connect as soon as Reflection is installed**

You can save sessions as RX client files (`*.rxc`) and add these files to a companion file as shown in *Deploy Files that Customize Reflection* (page 12). See *Table 1: Where to Deploy Customized files* (page 27) to get the required location for these files.

### **Centrally control configuration**

You can centrally manage and control sessions in two ways:

- You can centrally deploy sessions with the Attachmate Administrative Webstation (see *Deploying Session Documents with the Administrative WebStation* in the *Reflection 2011 Installation and Deployment Guide* (<http://docs.attachmate.com/Reflection/2011/R1/Deploy/DeploymentGuide.pdf>)).
- You can use the Attachmate Customization Tool (ACT) to add these files to companion MSI files and then deploy the companion files as shown in *Deploy Files that Customize Reflection* (page 12).

### **Configure for Secure authentication**

Legacy Reflection X client connections use Telnet by default; passwords provide user authentication, the host is not authenticated, and data in transit is not encrypted. You can configure clients to use either Secure Shell or Kerberos to provide additional authentication options and to provide data encryption.

*To configure client sessions to use Secure Shell:*

- 1 Under Client connection settings, set **Method** to **SECURE SHELL**.
- 2 Specify a host name.
- 3 (Optional) Click **Advanced** to modify Secure Shell settings.

*To configure client sessions using Kerberos:*

- 1 Under Client connection settings, set **Method** to **KERBERIZED TELNET**.
- 2 Click **Advanced**.
- 3 Click **Configure Kerberos**.

*To configure security for the X server:*

- From the Settings menu, go to **Security**.

## Customize Reflection X Advantage

### For Reflection X Advantage standalone and domain modes

#### Set up application startup behavior

You can start sessions directly from configurable `rxmgr.exe` and `rxmgrdomains.exe` command lines. See *rxmgr Command Line - Standalone X Manager* or *rxmgrdomains Command Line - X Manager for Domains* in the Reflection X Advantage Help.

#### Configure for Secure authentication

Reflection X Advantage is configured to create secure sessions by default:

- **User-based authorization** using MIT-MAGIC\_COOKIE-1 is enabled by default.
- The default Connection method for X client connections is Secure Shell.

The Secure Shell protocol provides a secure alternative to Telnet and other unsecured protocols commonly used to connect to X Windows hosts. Secure Shell connections require both server and user authentication, and all communications pass between hosts over an encrypted communication channel. New Reflection X client sessions are configured to use Secure Shell by default, and X Manager also includes tools for managing host and user keys.

For additional information about configuring Secure Shell sessions and working with host and user keys, see *Secure Shell* in the index of the *Reflection X Advantage Help* (<http://docs.attachmate.com/reflection/RXA/3.0/en/help/>). For information about configuring Reflection X Advantage for use with a Public Key Infrastructure (PKI), see *certificate authentication* in the Help index.

### For Reflection X Advantage domain mode only

To use Reflection X Advantage domain mode, you will need to set up and configure a Reflection X domain as shown in *Domain Setup: Centralize Session Configuration in the Reflection X Advantage Planning and Installation Guide* ([http://docs.attachmate.com/reflection/RXA/3.0/en/install/rxa\\_plan\\_install\\_guide\\_enu.pdf](http://docs.attachmate.com/reflection/RXA/3.0/en/install/rxa_plan_install_guide_enu.pdf)). You will also need to customize your installation to deploy X Manager for Domains as shown in *Deploy a Customized Installation* (page 14). (X Manager for Domains is not installed by default.) All computers in your domain must have the same version of Reflection X Advantage.

#### Configure host connection options

Set up a Reflection X Advantage domain and then configure connection options for public sessions. See *Configure a Session* in the Reflection X Advantage Help.

#### Set up X sessions to improve performance, allow users to suspend and resume sessions, and avoid losing work

Configure a Reflection X Advantage domain so that sessions can be configured to:

- Improve performance for slow connections. See "Domain Setup: Improve Performance over Slow Networks" in the *Reflection X Advantage Planning and Installation Guide* ([http://docs.attachmate.com/reflection/RXA/3.0/en/install/rxa\\_plan\\_install\\_guide\\_enu.pdf](http://docs.attachmate.com/reflection/RXA/3.0/en/install/rxa_plan_install_guide_enu.pdf)).

- Allow users to suspend a session at work, log off, and then resume work at home from another computer. See "Working Remotely Using Domain Services" in *Evaluating Reflection X Advantage* ([http://docs.attachmate.com/reflection/RXA/3.0/en/RXA\\_eval\\_guide.pdf](http://docs.attachmate.com/reflection/RXA/3.0/en/RXA_eval_guide.pdf)).
- Prevent users from losing work in running sessions. See "Enabling Extra Session Protection" in *Evaluating Reflection X Advantage* ([http://docs.attachmate.com/reflection/RXA/3.0/en/RXA\\_eval\\_guide.pdf](http://docs.attachmate.com/reflection/RXA/3.0/en/RXA_eval_guide.pdf)).

### Centrally control configuration of sessions

You can set up, monitor, and manage Reflection X Advantage domains that provide pre-configured public session definitions used to access X hosts and clients. Users on the domain can connect to these centrally managed session definitions to create sessions. See "Domain Setup: Centralize Session Configuration" in the *Reflection X Advantage Planning and Installation Guide* ([http://docs.attachmate.com/reflection/RXA/3.0/en/install/rxa\\_plan\\_install\\_guide\\_enu.pdf](http://docs.attachmate.com/reflection/RXA/3.0/en/install/rxa_plan_install_guide_enu.pdf)).

### Preconfigure Reflection settings for connecting to host systems so that users are ready to connect as soon as Reflection is installed

If you set up a public session definition with a public server on a domain, you can set up a shortcut to open the session.

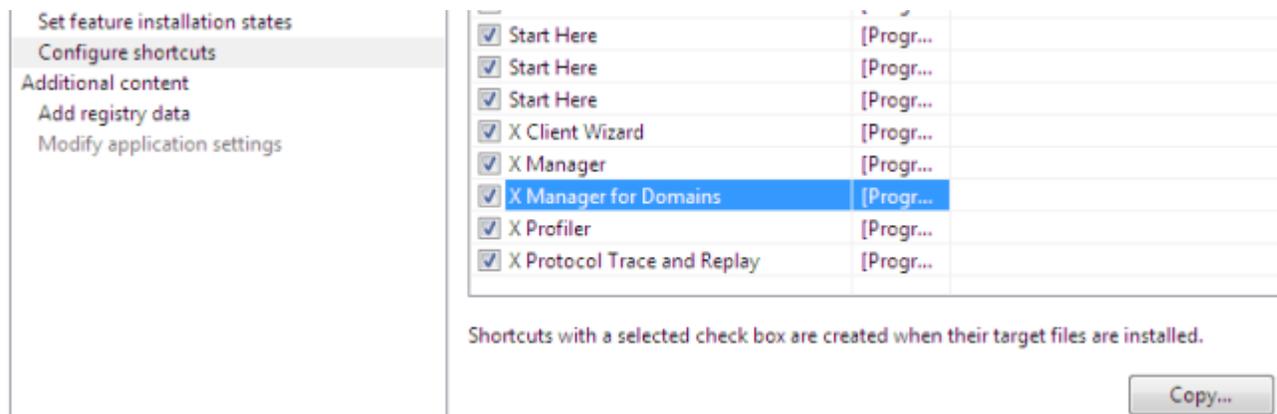
---

Note: If you use public sessions, both the session definition and the server definition must be public.

---

#### *To deploy a session definition with a shortcut*

- 1 Open ACT to create a transform as shown in *Deploy a Customized Installation* (page 14).
- 2 In the ACT navigation pane, select **Configure shortcuts**.
- 3 In the shortcut list, select **X Manager for Domains** and then click **Copy**.



- 4 In the Modify shortcut dialog box, enter the shortcut name and location (for example, [DesktopFolder]). Then enter the following arguments:

```
-session "Your Session" -sessionOwner "OwnerWindowsUserName" -domain
"RXADomainName" -trayOnly
```

## 5 Deploy Reflection with the transform.

This installs a shortcut in the designated location (the desktop in this example). Clicking this shortcut launches the public session named "Your Session", which is defined in the Reflection X Advantage domain whose domain controller is running on `RXADomainName`.

## Customize Terminal Emulation (Reflection 2011)

### Change the user data directory where user files are saved by default

Use the ACT tool to customize the user data directory and deploy this setting in a companion file. To do this, follow the instructions in *Setting up Workspace Settings With ACT* in the *Reflection 2011 Installation and Deployment Guide* (<http://docs.attachmate.com/Reflection/2011/R1/Deploy/DeploymentGuide.pdf>) to open the Reflection workspace from ACT. Then, in the Workspace window, set the default user directory. Save the setting in a companion file and deploy it to users as shown in *Deploy Files that Customize Reflection* (page [12](#))

### Create configuration files to customize settings for keyboard maps, themes, or the user interface

Create customized files as shown in *Customize Sessions* in the *Reflection 2011 Installation and Deployment Guide* (<http://docs.attachmate.com/Reflection/2011/R1/Deploy/DeploymentGuide.pdf>). Then create a companion file to deploy these files as shown in *Deploy Files that Customize Reflection* (page [12](#)). Refer to *Table 1: Where to Deploy Customized Files* (page [27](#)) to find out where (which directory) to deploy each file.

### Set up application startup behavior

You can specify which dialog box to open on startup, set up to run a startup macro, or set up a startup action sequence (See *Setting up Workspace Settings with ACT* in the *Reflection 2011 Installation and Deployment Guide* (<http://docs.attachmate.com/Reflection/2011/R1/Deploy/DeploymentGuide.pdf>)).

### Change the interface to set which controls are visible

Hide the ribbon or customize the Quick Access toolbar as shown in *Customize Workspace Settings*, in the *Reflection 2011 Installation and Deployment Guide* (<http://docs.attachmate.com/Reflection/2011/R1/Deploy/DeploymentGuide.pdf>). For individual Reflection 2011 sessions, you can configure which controls appear on the Ribbon, and define hot spots as shown in *Customize Sessions* in this guide.

### Configure host connection options

You can specify whether to automatically connect to the host when a session document is opened. You can also specify whether to reconnect to a host after disconnections occur that are not initiated from Reflection. See *Configure Host Connection Options* in the *Reflection 2011 Installation and Deployment Guide* (<http://docs.attachmate.com/Reflection/2011/R1/Deploy/DeploymentGuide.pdf>).

### Set up security options for masking sensitive data or using trusted locations

From the Reflection Trust Center, you can set up workspace security to protect your data using the following methods:

- Set up trusted locations, from which users can safely open (and store) documents.
- Mask sensitive data (such as credit card numbers) with privacy filters.

- Set up API and macro security to control access to the Reflection API and control the execution of actions invoked by a macro or API call.

See *Setting up Workspace Security* in the *Reflection 2011 Installation and Deployment Guide* (<http://docs.attachmate.com/Reflection/2011/R1/Deploy/DeploymentGuide.pdf>).

### **Preconfigure Reflection settings for connecting to host systems so that users are ready to connect as soon as Reflection is installed**

You can set up and deploy session documents and associate them with shortcuts so that users can open a session with the shortcut. See *Deploy Files that Customize Reflection* (page 12) and *Configure Shortcuts* in the *Reflection 2011 Installation and Deployment Guide* (<http://docs.attachmate.com/Reflection/2011/R1/Deploy/DeploymentGuide.pdf>).

### **Lock down settings and controls so that users cannot change them without administrative access**

You can lock down features with the ACT tool or with Group Policy. When you use the ACT tool to restrict access, you save the settings in an `.access` file and then deploy the file to users. To use Group Policy, you import the `.ADM` or `.ADMX` files included with Reflection 2011 and then use these templates to set the access permissions. (See *Restrict Access to Features and Settings* in the *Reflection 2011 Installation and Deployment Guide* (<http://docs.attachmate.com/Reflection/2011/R1/Deploy/DeploymentGuide.pdf>))

### **Set up connection macros**

You can set up macros that run before or after a host connection.

*To set up a connection macro*

- 1 With a terminal session open, click the Document Settings button on the Quick Access Toolbar.
- 2 On the Settings... dialog box, click **Configure Connection Settings (VT)** or **Configure Advanced Connection Settings (3270 or 5250)**.
- 3 Under **Connection Action**, select whether to run the macro before or after the initial connection. Then click **Select Action** and select the macro to run.
- 4 Save the session and deploy it along with the macro as shown in *Deploy Files that Customize Reflection* (page 12).

### **Launch a configuration that involves multiple sessions so that users can run several sessions at a time**

In Reflection 2011, the size, location, and arrangement of the workspace and any open terminal or Web session documents can be saved to a layout file. When opened, a layout automatically opens and arranges all documents saved to the layout and connects session documents to configured hosts.

*To create a layout*

- Open the sessions you want to include in a workspace and arrange them as you would like. Then, from the main Reflection menu, choose **Save Layout**. (See *Create Layouts* in the *Reflection 2011 Installation and Deployment Guide* (<http://docs.attachmate.com/Reflection/2011/R1/Deploy/DeploymentGuide.pdf>).

### **Centrally control configuration for macros, sessions, and configuration files**

You can centrally manage and control sessions in two ways:

- You can centrally deploy sessions with the Attachmate Administrative Webstation (see *Deploying Session Documents with the Administrative WebStation* in the *Reflection 2011 Installation and Deployment Guide* (<http://docs.attachmate.com/Reflection/2011/R1/Deploy/DeploymentGuide.pdf>)).
- You can use the Attachmate Customization Tool (ACT) to add these files to companion MSI files and then deploy the companion files as shown in *Deploy Files that Customize Reflection* (page [12](#)).

### Configure Reflection for secure authentication and data encryption

Reflection provides a variety of features to ensure the security of your communications. The security protocols available to you depend on which connection type you are configuring.

Connection Type	Supported Protocols
3270 terminal and printer or 5250 terminal and printer	SSL/TLS, SOCKS
VT terminal	Secure Shell, Kerberos, SSL/TLS, SOCKS, HTTP

Detailed information about configuring and deploying secure terminal session settings is available in *Set up Secure Sessions* in the *Reflection 2011 Installation and Deployment Guide* (<http://docs.attachmate.com/Reflection/2011/R1/Deploy/DeploymentGuide.pdf>).

### Lock down Reflection so that only encrypted connections are allowed

Use the ACT tool to set encrypted connections as shown in *Restrict Access with ACT* in the *Reflection 2011 Installation and Deployment Guide* (<http://docs.attachmate.com/Reflection/2011/R1/Deploy/DeploymentGuide.pdf>).

### Set up Security for Federal Information Processing Standards (FIPS)

To run Reflection in FIPS mode, follow the instructions in *Technical Note 2216: How to Enable FIPS in Reflection 2011, 2008, or 2007* (<http://support.attachmate.com/techdocs/2216.html>).

## Deploy Reflection X Advantage with Java Web Start

You can use Java Web Start to deploy X Manager for Domains on user workstations running on Windows, UNIX or Mac.

Before you start, you should be familiar with the basic components of a Reflection X domain. If you're just getting started with Reflection X Advantage, you can find complete information about Reflection X domain configuration in the *Reflection X Advantage Planning and Installation Guide* ([http://docs.attachmate.com/reflection/RXA/3.0/en/install/rxa\\_plan\\_install\\_guide\\_enu.pdf](http://docs.attachmate.com/reflection/RXA/3.0/en/install/rxa_plan_install_guide_enu.pdf)). Topics covered in that guide include *Getting Started with Reflection X Domains* and *Planning a Reflection X Domain*.

Use Java Web Start technology to deploy X Manager for Domains to user workstations from a Web server. This approach has the following advantages:

- The deployment process is simple — after the Web server is set up, users can run X Manager for Domains by opening a Web page and clicking a button.

- Deploying updates and configuration changes is easy, because configuration is centrally administered in one set of files on a Web server. When the user launches X Manager for Domains, Web Start determines whether updates are required, and installs them, if necessary.
- The same Web server and files support both Windows and UNIX environments.

Web Start deployments have the following limitations and requirements:

- Because Web Start cannot automatically start a service on a user workstation, it is not appropriate for installing Reflection X on computers that are intended to host permanent domains or function as domain nodes.
- A remote Reflection X domain must be set up on another computer (preferably one that runs continuously).

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Note: Before you start, make sure that you:

- Install X Manager for Domains on your workstation.
  - Set up a domain.
- 

### To deploy X Manager for Domains with Web Start

Configure your Web server so that all files with the extension `.jnlp` are set to the `application/x-java-jnlp-file` MIME type as follows:

- If you are using an Apache Web server, add the following line to the `.mime.types` configuration file (typically found in the `.../conf/default` folder):

```
application/x-java-jnlp-file jnlp
```

-or-

- If you are using another type of Web server, consult your Web server documentation for instructions on adding MIME types.
- 1 Navigate to the folder in which you installed X Manager for Domains, and then from the installation folder, copy the `webstart` folder (and all of its contents) to a folder on your Web server.
  - 2 Change the name of the new folder on the Web server to `rxwebstart`.
  - 3 Copy the `images` and `help` folders from the Reflection X Advantage folder to the `rxwebstart` folder on your Web server.
  - 4 Copy all of the `.jar` files in the `Reflection X Advantage\lib` folder to the `rxwebstart\lib` folder on your Web server.

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Note: There are two `lib` folders in the installation folder: the `Reflection X Advantage\webstart\lib` folder and the `Reflection X Advantage\lib` folder.

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- 5 In the Web server folder `rxwebstart`, edit the following files as noted:

In this file	Do this
<code>jsafe.jnlp</code>	<p>Set the <code>codebase</code> attribute to reference the <code>rxwebstart</code> folder on your Web server:</p> <pre>&lt;jnlp spec="6.0+" codebase="http://localhost/rxwebstart" href="jsafe.jnlp"&gt;</pre>
<code>atmXManager.jnlp</code>	<p>Move the following two lines outside the commented block in which they reside by default:</p> <pre>&lt;argument&gt;-domain&lt;/argument&gt; &lt;argument&gt;domainComputerName&lt;/argument&gt;</pre> <p>Edit the domain name argument (<code>domainComputerName</code>) to specify the network name of the computer running your domain controller.</p> <p>Set the following <code>codebase</code> attribute to reference the <code>Webstart</code> folder on your Web server:</p> <pre>&lt;jnlp spec="6.0+" codebase="http://localhost/rxwebstart" href="atmXManager.jnlp"&gt;</pre>
<code>jogl.jnlp</code>	<p>Change <code>localhost</code> in the following line to your host name.</p> <pre>&lt;jnlp codebase="http://localhost/rxwebstart/" href="jogl.jnlp" &gt;</pre>
<code>gluegen-rt.jnlp</code>	<p>Change <code>localhost</code> in the following line to your host name.</p> <pre>&lt;jnlp codebase="http://localhost/rxwebstart/" href="gluegen-rt.jnlp"&gt;</pre>

- 6 (Optional) Edit the file `atmXManager.jnlp` to specify user name, password, and other configurable options. By defining these options, you can set up a Web Start link that automatically logs the user on to a domain and launches a session. Instructions are included in the `atmXManager.jnlp` file.
- 7 In a Web browser, navigate to the URLs you assigned to the variables `codebase` and `href`, and make sure that the files `rxadvantage.jar` and `atmXManager.jnlp` are accessible.
- 8 Distribute to users the link to the `StartReflectionX.html` page.

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#### Notes:

- Web browsers, when determining how to handle content returned from the Web server, typically use the MIME type. To open Web Start, the server must return the following MIME type for `.jnlp` files:

```
application/x-java-jnlp-file
```
  - Java Web Start is an application launcher for Java applications that are written for Web deployment. Java Web Start caches resources locally on the disk, but also provides a secure execution environment and virtually transparent updating facility for applications. It is not necessary for the end user to initiate a software update manually, because the application is updated each time it is used.
-

## Where to Deploy Customized Files

When you create a companion package using the Attachmate Customization Tool, you specify the destination location for added files. You can enter a specific path, use pre-defined Windows folders (which are shown in brackets), or combine the two. The default locations for pre-defined folders shown in this table are:

[AppDataFolder]:  
 (Windows 7 and Vista) Users\userID\AppData\Roaming\  
 (Window XP) Documents and Settings\userID\Application Data\

[PersonalFolder]:  
 My Documents

[CommonAppDataFolder]:  
 C:\Program Data

Where to Deploy Customized Files		
If you have created files to...	Deploy these files	To these folders
<b>Configure Secure Connections</b> (The files in this group apply to Reflection terminal sessions, legacy Reflection X sessions, and Reflection FTP Client sessions.)		
Install Kerberos settings	Rscrb5.xml	For all users: [CommonAppDataFolder]\Attachmate\Reflection  Only for the user who installs the package: [AppDataFolder]\Attachmate\Reflection  These locations are required if you want the Kerberos settings to be configured automatically the first time a user uses Reflection Kerberos.
Set up user-specific Secure Shell settings	config known_hosts	[PersonalFolder]\Attachmate\Reflection\.ssh
	Reflection Certificate Manager settings: .pki_config	[PersonalFolder]\Attachmate\Reflection\.pki
Set up user-specific PKI settings for Secure Shell and SSL sessions	Reflection Trusted Certificate Authorities: trust_store.p12	[PersonalFolder]\Attachmate\Reflection\.pki

Where to Deploy Customized Files		
If you have created files to...	Deploy these files	To these folders
Set up global Secure Shell settings	global Secure Shell client configuration file:  ssh_config  global known hosts file:  ssh_known_hosts	[CommonAppDataFolder]\Attachmate\Reflection
Set up global PKI settings for Secure Shell and SSL sessions	pki_config  trust_store.p12	The .pki subdirectory of the data directory. If a shared store exists, trusted roots are read exclusively from the shared store. Trusted roots you have configured for individual user accounts no longer have any effect.  [CommonAppDataFolder]\Attachmate\Reflection\.pki
Configure the Reflection Workspace and Terminal Sessions		
Set up templates	User templates .rsft	[AppDataFolder]\Attachmate\Reflection\Workspace\R2011\templates
Open multiple sessions when Reflection opens	Layout file  .rwsp	For all users: Any trusted location that exists on the users workstations and is defined as the data directory in the Reflection workspace (Application.settings) file. For example:  [CommonAppDataFolder]\Attachmate\Reflection\  For only the user who installs:  [PersonalFolder]\Attachmate\Reflection\  
Customize the workspace	Application.settings	Only for the user who installs the package:  [AppDataFolder]\Attachmate\Reflection\Workspace\R2011
Minimize the ribbon	frame.settings	
Add controls to the quick access toolbar	Application.settings  frame.settings  Reflection2007.Application.Ribbon.xuml	

Where to Deploy Customized Files		
If you have created files to...	Deploy these files	To these folders
Set up connection macros Configure host connect and disconnect options Configure non-FTP File Transfer Set up a default Windows printer for the session Encrypt a session file	Session (rdox, rd3x, or rd5x, urlx)	For all users: Any trusted location that exists on the users workstations and is defined as the data directory in the Reflection workspace (Application.settings) file. For example: [CommonAppDataFolder]\Attachmate\Reflection\  For only the user who installs: [PersonalFolder]\Attachmate\Reflection\
Customize the behavior of Microsoft Office Productivity features included with Reflection	Word and PowerPoint templates .dotx or .ppt	
Control access to Reflection features	.access	Only for the user who installs the package: [AppDataFolder]\Attachmate\Reflection\Workspace\R2011
Control Reflection Workspace Input		
Control keyboard input and text handling	Custom keyboard map file .xkb	For all users: A Keyboard Maps folder in a trusted location that exists on the users workstations and is defined as the data directory in the Reflection workspace (Application.settings) file. For example: [CommonAppDataFolder]\Attachmate\Reflection\Keyboard Maps  For only the user who installs: [PersonalFolder]\Attachmate\Reflection\Keyboard Maps
Customize mouse button behavior	Custom mouse map file .xmm	For all users: A Mouse Maps folder in any trusted location that exists on the users workstations and is defined as the data directory in the Reflection workspace (Application.settings) file. For example: [CommonAppDataFolder]\Attachmate\Reflection\Mouse Maps  For only the user who installs: [PersonalFolder]\Attachmate\Reflection\Mouse Maps

<b>Where to Deploy Customized Files</b>		
<b>If you have created files to...</b>	<b>Deploy these files</b>	<b>To these folders</b>
Define hotspots (virtual buttons in terminal sessions)	Hotspot files  .xhs	For all users:  A Hotspots Maps folder in any trusted location that exists on the users workstations and is defined as the data directory in the Reflection workspace (Application.settings) file. For example:  [CommonAppDataFolder]\Attachmate\Reflection\Hotspots Maps  For only the user who installs:  [PersonalFolder]\Attachmate\Reflection\Hotspots Maps
<b>Customize the Reflection Workspace Interface and Controls</b>		
Customize the ribbon	Ribbon files  .xuml	For all users:  A CustomUI folder in any trusted location that exists on the users workstations and is defined as the data directory in the Reflection workspace (Application.settings) file. For example:  [CommonAppDataFolder]\Attachmate\Reflection\CustomUI  For only the user who installs:  [PersonalFolder]\Attachmate\Reflection\CustomUI
Control the appearance of the session	Theme files (if you use a custom file)  .themex	For all users:  A Themes folder in any trusted location that exists on the users workstations and is defined as the data directory in the Reflection workspace (Application.settings) file. For example:  [CommonAppDataFolder]\Attachmate\Reflection\Themes  For only the user who installs:  [PersonalFolder]\Attachmate\Reflection\Themes
<b>Configure FTP Client Sessions</b>		
Setup FTP user-specific site settings	settings.rfw	For only the user who installs:  [PersonalFolder]\Attachmate\Reflection\
Setup FTP global files	rftp.xml	For all users:  [AppDataFolder]\Attachmate\Reflection

Where to Deploy Customized Files		
If you have created files to...	Deploy these files	To these folders
<b>Configure Legacy Reflection X Sessions</b>		
Configure a connection to an X client host	.rxo	For only the user who installs: [PersonalFolder]\Attachmate\Reflection\
Lock down features and/or modify default server settings	rx.ini	For all users: [CommonAppDataFolder]\Attachmate\Reflection\x  For only the user who installs: [AppDataFolder]\Attachmate\Reflection\x