Installation and Deployment Guide

Applies to all versions of Reflection 2011

September 25, 2012
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Chapter 1: Get Started

This guide shows how to prepare for your Reflection 2011 deployment. 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.

What you need to do | Where to get the information you need
--- | ---
1. First, set up for deployment by installing Reflection and setting up administrative tools. | Set up for Deployment on page 8 shows how to set up a system for customization, testing, and deployment.
2. Then, design and prepare for deployment. | Design and Prepare on page 13 lists the basic things to consider. For checklists, requirements, and best practices, see chapter 2.
3. If you want to customize Reflection, prepare configuration files and then “package” the custom files for deployment. | Customize Reflection, on page 13, shows the types of customization you can perform and how to package custom files for deployment. For detailed instructions, see chapters 3–7.
4. If you want to customize how Reflection is installed, modify the installation properties. | Customize How Reflection is Installed on page 24 shows how to specify installation settings and properties. For details, see Chapter 8.
5. Finally, deploy Reflection. | Deploy Reflection on page 26 shows basic command line options for deployment. For instructions that show how to deploy with Microsoft Active Directory or Microsoft Systems Management Server (SMS), see chapter 9.
Set up for Deployment

To prepare Reflection for deployment, 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 so that you can open and run Reflection. If you want to customize Reflection, you will use this installation to create session document files and other configuration files.

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 installation image. The workstation (or PC) installation enters the values in the registry required to run the product.

After you install Reflection, get familiar with the administrative tools that Attachmate provides to install, customize, and deploy Reflection.

Create an Administrative Installation Point

The first step in preparing your test environment is to create an administrative installation point. You do this by installing an administrative install image of Reflection on a network share (typically on a file server). An administrative install image is a source image of the application, similar to an image on a CD-ROM. It includes all the files required to install Reflection as well as the administrative tools used for customization.

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. 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.

Before you start
Download Reflection 2011 and extract the installer files to a folder.

To create an administrative install point

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.

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

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

5. Click **Continue.**
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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: `\share_name\administrative_install_point`).

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 use a command line instead of the Attachmate Installation Program graphical interface, you can create an administrative install point as follows:

```bash
path_to_setup_file\Setup.exe /install /admin
TARGETDIR=UNC_path_to_administrative_installation_point
```

If you prefer to install Reflection on your workstation first (see page 10), 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:

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

**Install Reflection on a Workstation**

After you create an administrative installation point, you will need to install Reflection on a workstation so that you can open and run Reflection. If you plan to customize Reflection, you will use this installation to create custom configuration files.

**To install Reflection on a workstation**

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. (Optional) To personalize the installation, click the **User Information** tab and enter the name, organization, and Volume Purchase Agreement (VPA) number (if you have a VPA). (VPA numbers, which are issued by Attachmate, are used by customer support to expedite service requests.)
4. (Optional) To change the default installation folder or the default user data directory, click the **File Location** tab and browse to the folder you want to use.

5. (Optional) To select which features, components, or languages are installed, click the **Feature Selection** tab.

6. Click **Install Now**.

**About the Attachmate Administrative Tools**

Attachmate provides several administrative tools that you can use to customize and deploy Reflection. These tools are automatically installed as part of the administrative install image.

Note: Reflection is installed and deployed with the Microsoft Windows Installer, Microsoft’s recommended tool for installation, maintenance, and removal of software on Windows systems.

The installation information used by the Windows Installer is contained in a relational database that is saved and deployed as a Microsoft MSI file. This information includes the paths to the files that you installed on the administrative installation point. When you deploy an MSI file to a user workstation, the Windows Installer on the workstation accesses the information in this file to perform the installation.

**The Attachmate Installation Program**

The Attachmate Installation Program (or `setup.exe`) is Attachmate’s recommended tool for installing and deploying Reflection. For more about this tool, see *Deploying Reflection* on page 26.

**The Attachmate Customization Tool (ACT)**

If you plan to customize Reflection or customize the way it is installed, you will need to use the Attachmate Customization Tool (ACT). This tool has two modes that are used for different customization tasks:

- If you want to customize Reflection (for example, change the appearance of the main Reflection window), you will need to create custom configuration files and then use ACT to “package” these files in your own MSI file (called a companion installer package). This MSI file can be deployed with the original installation or independently.

- If you want customize how Reflection is installed (For example, remove a command button in the Windows *Uninstall or change a program* list), you will need to use ACT to create a Microsoft transform (MST) file that modifies the primary installation performed by the Attachmate Reflection MSI file. When the transform is deployed along with the Attachmate Reflection MSI file, it changes the default installation settings to the settings specified in the MST file.

Note: The Windows Vista and Windows 7 *Uninstall or change a program* list is similar to the Windows *Add or Remove Programs* list in previous versions of Windows. It is accessed by selecting *Programs and Features* from the Control Panel.

**Set up a shortcut to ACT**

By default, ACT can be opened only from a command line but you can create a desktop shortcut and set the shortcut properties to open this tool. Although creating this shortcut is optional, you will find that it saves time when you are working with ACT.
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To set up a desktop shortcut that opens ACT

1. On your administrative installation point, open Windows Explorer, right-click on the setup.exe file, and then choose Create Shortcut.
2. Right-click on the shortcut and choose Properties.
3. In the Target field, add the /admin option to the end of the command line. For example: 
   \myServer\adminInstallPoint\setup.exe /admin

   CAUTION: Make sure the path in the Target field is referenced with a Uniform Naming Convention (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.

4. Rename the shortcut and save it on the desktop of your workstation.

To open ACT

1. Do one of the following:
   - On a command line, change to the administrative installation point and enter: setup /admin
     Or
   - On the administrative installation point, double click the ACT desktop shortcut.

2. In the Select Customization dialog box, choose which mode you want to open:
   - To use ACT to “package” configuration files in your own MSI file, choose Create a new companion installer.
   - To customize how Reflection is installed choose Create a new Setup customization file...

The Permissions Manager tool

Permissions Manager is used to restrict access to Reflection settings and features. It creates a special configuration file (an .access file) that can be deployed as part of an MSI package.

This tool opens from the ACT Modify User Settings panel, when you define an application settings file.
Design and Prepare

You will need to design your deployment to make sure you satisfy customer requirements and the Reflection product requirements.

At a minimum, you will need to:

- **Determine Whether You Need to Customize Reflection.**
  
  You will need to customize Reflection if you have requirements to deploy preconfigured sessions or related configuration files (such as custom keyboard maps), specify Reflection behavior and appearance, or restrict access to settings and controls. (See Planning Checklist in Chapter 2.)

- **Determine Whether You Need to Customize how Reflection is Installed.**
  
  This consists of creating a transform file to modify default installation settings (for example, the commands available to users in the Windows Uninstall or change a program list). (See The Customize the Install checklist in Chapter 2.)

- **Make Sure Workstations Meet the Reflection 2011 System Requirements.**
  
  This prevents installation and user problems, such as slow performance on old workstations. (See System Requirements in Chapter 2.)

Customize Reflection

You customize Reflection by creating custom configuration files. After you create these files, you bundle them together in a companion installer package MSI file that can be deployed to your users.

There are four ways to customize Reflection settings and controls:

- **Set up Session Document** Files that configure sessions to connect to specific hosts. You can set up traditional telnet connections or secure connections for SSL/TLS, SSH, Kerberos, SOCKS or HTTP proxy servers.

- **Configure Reflection Sessions** with preset settings and custom configuration files such as custom keyboard and mouse maps.

- **Customize Reflection Behavior and Appearance** by customizing the Reflection workspace files.

- **Restrict Access to Settings and Controls** so that they are available only to administrators or to users who can elevate their access to administrator. These settings are saved in .access files.

After you create the custom configuration files for sessions, workspaces, and access, you will need to:

- **Create and Deploy a Companion Installer** to package and deploy the configuration files you create.
Set up Session Document Files

Settings for Reflection 2011 sessions are saved in session document files that you can configure and deploy.

These session files can be pre-configured to work in your security environment. Depending on the types of terminals you are connecting to, you can configure secure connections with SSL/TLS, Secure Shell, Kerberos, or SOCKS or HTTP Proxy servers.

Note: To create a secure connection, you will need to configure the session for the protocol you are using and save these settings in the session document file as shown in Chapter 3.

The following example shows how to create a session document file.

Example: Create a session without a secure connection

1. On your workstation, open Reflection 2011.
2. In the Create New Document dialog box, under Built-in Templates, choose a type of session (for our example, we will choose 3270 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).
3. From the Reflection Quick Access toolbar, click the Save button and save the session as mySession.rd3x.
   This file is saved in the My Documents\Attachmate\Reflection folder.

Configure Reflection Sessions

After you create a session document, you can customize it to configure text input, appearance, macros, and other settings. You can also specify or customize the files referenced in a session document, such as keyboard maps, hotspots, and mouse maps.

Important! In Reflection 2011, custom settings for keyboard maps, themes, mouse maps, hotspots, and other items are saved in separate files that must be deployed with the session file.

To customize a session, you open the session and configure it with the settings you want. If you want to change settings that are saved in a separate configuration file (such as a keyboard map), you will need to create a custom file and configure the session to use that file.

The following example shows how to create the mykeyboard custom keyboard map file and set up the mySession session document file to use this keyboard map. This keyboard map assigns the Ctrl+E key combination to the EraseEOF Send Key.

Example: Configure a session with a custom keyboard map

1. With a session open in Reflection 2011 (for example, mySession.rd3x), on the Quick Access toolbar, click the Document Settings button.
2. In the Settings dialog box, under Input Devices, click Manage Keyboard Map.
3. In the Manage Keyboard Map dialog box, click **Create a new keyboard map from an existing keyboard map file**.

4. In the Create a New Keyboard Map file dialog box, select a keyboard map file to use as a template for your new file (for example, **Default 3270.xkb**) and then select **Use the new file in the current session document** and click **OK**.

5. In the Keyboard Mapper dialog box, click in the **Press the key or key combination that you want to map** box. Then hold down the Ctrl key and press the E key to enter Ctrl+E in this box.

6. Click the **Select Action** button.

7. In the Select Action dialog box, in the **Action** list, select **Send Key**.

8. Under **Action parameters**, in the **Key** list, select **Erase EOF** and click **OK**. (The Ctrl+E key combination is displayed as a key combination in the Keyboard Mapper table.)

9. Click **OK**. When prompted, save the new keyboard map in the **Keyboard Maps** folder as **myKeyboardMap.xkb**.

10. If you are prompted that this is not a secure location, click **Yes**. (The file is saved in your Documents\Attachmate\Reflection\Keyboard Maps folder.)
Customize Reflection Behavior and Appearance

You can change the appearance and basic functionality of the main Reflection window in a variety of ways. You can also specify trusted locations, privacy filters, startup macros, startup actions, whether to open Reflection with the Ribbon open or closed, and other options.

You will use the Attachmate Customization Tool (ACT) to configure most of the custom workspace settings.

The following example shows how to configure a workspace so that multiple sessions are displayed in separate windows instead of in a single window with tabs (the default).

Example: Create a custom workspace

1. On a workstation on which you have installed Reflection, open the Attachmate Customization Tool from a desktop shortcut (if you set up a shortcut as shown on page 11) or from a command line as follows:

   `path_to_setup\setup.exe /admin`

2. From the Select Customization dialog box, select **Create a new Companion installer**, and then click **OK**.

3. From the navigation pane, click **Specify install locations**.

4. Under **Installation type**, select how to install the configuration file (the `Application.settings` file) that specifies your workspace settings:
   - **Installs to all users of a machine** installs the file in a common folder so that the settings apply to all users of the machine. (The first version of Reflection 2011 does not support this option.)
   - **Installs only for the user who installs it** installs the file in a personal folder so that the settings apply only to a single user.
5. On the navigation pane, click **Modify user settings**.

6. In the Make changes to user settings... panel, under **Application – Settings**, select Reflection 2011-Workspace Settings and then click Define.

7. In the Settings – Reflection Workspace Settings dialog box, under **Workspace Settings**, click **Configure Workspace Settings**.
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8. In the Configure Workspace Settings dialog box, under UI Preferences, in the Arrange documents as list, select Windows and click OK.

9. Save the companion file and close the Attachmate Customization Tool. The settings are automatically saved in the Application.settings file and the companion installer file is automatically configured to deploy this file to one of the following folders:

   - If you selected **Installs only for the user who installs it**, the file is deployed to the \[AppDataFolder\]\Attachmate\Reflection\Workspace\<data_folder> folder.
   - If you selected **Installs to all users of a machine**, the file is deployed to the \[CommonAppDataFolder\]\Attachmate\Reflection\Workspace\<data_folder> folder.

**Notes:**

The name of the last folder (<data_folder>) in this directory is specific to the version of Reflection. For Reflection 2011 R1, this folder is R2011. For subsequent versions, it is R2011_versionName. (For example, the folder name in Reflection 2011 R2 is R2011_R2.)

The first version of Reflection 2011 does not support deployment of the Application.settings file to all users of a machine.

You can deploy the companion file as shown in Deploy a Companion Installer Package Independently on page 28 or you can edit it to add additional files.

**Restrict Access to Settings and Controls**

You can restrict user access to almost any of the Reflection settings or controls. On Windows XP systems, the features and settings that you restrict access to are not visible to users. On Windows Vista or Windows 7 systems, they are inactive (grayed out).
Restrict Access to Settings

You can restrict access to session document settings and other configuration file settings.

Restricted settings are delineated as shown in the following example, where the **Host name/IP address**, **Port**, and **Device name** settings on the 3270 Terminal Document Settings window are restricted. The fields are grayed out and a security shield is positioned at the top of the window.

Users cannot enter data in these fields unless they elevate their access level to administrator.

Restrict Access to Controls

You can also prevent the user from using a particular control by restricting access to the control. In the following example, the security shield over the **Auto Complete** icon indicates that the "action" associated with this option is "restricted".

You can restrict access to Reflection controls and settings with the Attachmate Permissions Manager tool or through Microsoft Windows Group Policy settings:

- The Permissions Manager tool is an Attachmate administrative tool that is provided with Reflection and automatically installed on your administrative installation point when you create an administrative install image. It is accessed through the Attachmate Customization Tool. With this tool, you can create and deploy .access files that restrict access to controls or settings.

- Microsoft Group Policy provides another method for restricting access that is supported by Attachmate. If you are using Group Policy, you can import the Reflection ADM or ADMX files into your environment and modify the settings in the Group Policy Editor. (See **Restrict Access with Group Policy** in Chapter 6.)

The following example shows how to use the Permissions Manager tool to restrict access to the Auto Complete control.

**Example: Use Permissions Manager to restrict access to Auto Complete**

1. On a workstation on which you have installed Reflection, open the Attachmate Customization Tool from a desktop shortcut (if you set up a shortcut as shown on page 11) or from a command line as follows:

   ```bash
   path_to_setup\setup.exe /admin
   ```

2. In the Select Customization dialog box, choose one of the following:
Chapter 1: Get Started

- If you have created a companion file, select **Open an existing Setup file or Companion installer** and click **OK**. Then, in the Open dialog box, in the **Files of type** list, select **Companion Files** and browse to the file (for example, myConfigFiles.msi).

- If you have not created a companion file, select **Create a new Companion Installer**.

ACT opens in the mode used to create or edit companion installer packages (MSI files). This mode is also used to access the Permissions Manager tool that is used to restrict access.

3. From the ACT navigation pane, click **Specify install locations**.

4. Under **Installation type**, select **Installs only for the user who installs it**.

Note: If you are deploying the first version of Reflection 2011, the .access files configured by Permissions Manager can be deployed only to individual users. If you deploy an access file to a computer that has more than one user, you will need to deploy it more than once. (You will need to deploy the .access file for each user on the computer.)

If you are deploying Reflection 2011 R2, the .access files can be deployed to all users.

5. From the ACT navigation pane, click **Modify user settings**.
6. Under **Application – Settings**, select **Reflection 2011 – actions.access** and then click **Define**.

   Note: The access file templates in the Application-Settings list are grouped by function. Features such as Auto Complete are in the **actions** group. Workspace settings are in the **application.access** group. Session Settings are in the **3270**, **5250**, and **VT terminal** groups.

The Permissions Manager Tool opens in a separate window. This tool displays all of the controls (actions) and settings that you can restrict.

7. In the items list, scroll down to **showAutoCompleteSettingsAction**. Then, under **Accessibility**, on the drop-down menu, choose **Restricted**.

8. Click **Next**, accept the default values, and then click **Finish**.

   The settings are automatically saved in the **actions.access** file and the companion installer file is automatically configured to deploy this file to the **[AppDataFolder]\Atachmate\Reflection\Workspace\<data_folder>** folder.

   Note: The name of the last folder (**<data_folder>**) in this directory is specific to the version of Reflection. For Reflection 2011 R1, this folder is **R2011**. For subsequent versions, it is **R2011_versionName**. (For example, the folder name in Reflection 2011 R2 is **R2011_R2**.)

9. From the ACT **File** menu, choose **Save As** and save the companion installer package file on the administrative installation point as **myConfigFiles.msi**. Then, from the **File** menu, choose **Exit**.
Create a Companion Installer Package

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

The MSI file that you create can be deployed with the original installation or independently. You can use companion installer packages to deploy and maintain configuration files between Reflection software updates without removing Reflection.

To create a companion installer package, you will need to use the Attachmate Customization Tool (ACT).

The following example shows how create and deploy a companion installer package to install the configuration files created in the previous four examples on pages 14—21.

Example: To create a companion installer package MSI file that includes configuration files

1. Make sure you know where the files you want to add are located. If you walked through the examples for creating a session document file and a custom keyboard map, you will need to add the following files.

   Note: The following directories are Windows Vista and Windows 7 file paths. If you are using an older version of Windows, the files are placed in different directories.

<table>
<thead>
<tr>
<th>Add this file</th>
<th>That you saved in this directory</th>
</tr>
</thead>
<tbody>
<tr>
<td>mySession.rd3x</td>
<td>C:\Users\yourUserName\MyDocuments\Attachmate\Reflection</td>
</tr>
<tr>
<td>myKeyboardMap.xkb</td>
<td>C:\Users\yourUserName\MyDocuments\Attachmate\Keyboard Maps</td>
</tr>
</tbody>
</table>

   Note: You do not need to add the actions.access or Application.settings files that you created earlier (on pages 16 - 21). The ACT tool automatically configured the companion installer package to deploy these files when you created them.

2. On your administrative workstation, open the Attachmate Customization Tool from a desktop shortcut (if you set up a shortcut as shown on page 11) or from a command line as follows:

   path_to_setup\setup.exe /admin

3. In the Select Customization dialog box, select one of the following options:

   • If you created a companion installer package as shown in Customize Reflection Behavior and Appearance on page 16 or Restrict Access to Settings and Controls on page 18, select Open an existing Setup file or Companion installer and click OK. Then, in the Open dialog box, in the Files of type list, select Companion Files and browse to the file (for example, myConfigFiles.msi) on the administrative installation point.

   • If you have not created a companion installer package, select Create a new Companion installer.
ACT opens in the mode used to create companion installer packages.

4. From the ACT navigation pane, click **Specify install locations**. Then, under **Installation type**, select **Installs only for the user who installs it**.

   *Note: If you are deploying Reflection 2011 R2, you can choose **Installs to all users of a machine** to deploy the files to all users.*

5. In the ACT window, click **Add files**.

6. In the **Specify files to add to the user’s computer during installation** panel, in the **Add files to list**, select **[PersonalFolder]**. Then type in `\Attachmate\Reflection\Keyboard Maps`. When you are done, the list entry is:```
[PersonalFolder]\Attachmate\Reflection\Keyboard Maps.
```

   *Note: If you are deploying Reflection 2011 R2 and you chose to deploy the files to all users, you will need to use **[CommonAppDataFolder]** instead of **[PersonalFolder]**.*

7. Click **Add**. Then browse to the configuration file (**myKeyboardMap.xkb**) and click **Open**.

8. Repeat steps 6 and 7 to add the **mySession.rd3x** file to the ```
[PersonalFolder]\Attachmate\Reflection\Keyboard Maps.
```

   *Important! Be sure to specify the correct location for each file you add. Reflection looks for configuration files in specific locations. To find the correct file locations for any type of file, see **Table 1: Where to deploy customized files** in Chapter 7.*

When you are finished adding files, the panel should look similar to the following:

```
<table>
<thead>
<tr>
<th>File name</th>
<th>Shortcut</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>actions.access</td>
<td>No</td>
<td>[AppDataFolder]\Attachmate\Reflection\Workspace\RD2011</td>
</tr>
<tr>
<td>Application.settings</td>
<td>No</td>
<td>[AppDataFolder]\Attachmate\Reflection\Workspace\RD2011</td>
</tr>
<tr>
<td>myKeyboardMap.xkb</td>
<td>No</td>
<td>[PersonalFolder]\Attachmate\Reflection\Keyboard Maps</td>
</tr>
<tr>
<td>mySession.rd3x</td>
<td>No</td>
<td>[PersonalFolder]\Attachmate\Reflection\Keyboard Maps</td>
</tr>
</tbody>
</table>
```
9. From the ACT navigation pane, click **Specify package information**.
   - In the **Add/Remove name** box, enter the name for the package that you want to appear in the Windows *Uninstall or change a program* list.
   - In the **Organization name** box, enter the name of your department.

10. From the File menu, save the file as *myConfigFiles.msi* on the administrative installation point.

### Customize How Reflection is Installed

You can customize how Reflection is installed by specifying desktop shortcuts, the installation directory, which commands are available in the Windows *Uninstall or change a program* list, and other options.

To change how Reflection is installed, you can 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."

The following example Reflection installation was performed with a transform that added a Reflection Workspace shortcut to the user’s desktop and removed the Change button from the *Uninstall or change a program* list.
Example: Create a transform

Note: This example shows how to set up a transform that can be applied to an install on a command line. You can also set up a transform so that it is deployed automatically when you perform an installation with setup.exe, (see Apply a Transform to Your Installation on page 112).

1. On your administrative workstation, open the Attachmate Customization Tool from a desktop shortcut (if you have set up a shortcut as shown on page 11) or from a command line as follows:

   path_to_setup\setup.exe /admin

2. In the Select Customization dialog box, select Create a new setup customization file for the following product.

ACT opens in the mode used to create transforms.

3. From the ACT navigation pane, click Licensing and session metering and then select I accept the terms of the Software License Agreement.

4. From the ACT navigation pane, click Modify setup properties.

5. In the Set properties for Setup to apply during the installation panel, Click Add.

6. In the Add/Modify Property Value dialog box:

   - In the Name box, select ARPNOMODIFY.
   - In the Value box, enter 1.

7. From the ACT navigation pane, click Configure shortcuts.

8. Under Modify shortcuts for this product, select Reflection workspace and click Modify.
Chapter 1: Get Started

9. In the **Modify shortcut** dialog box, in the **Location** field, select [DesktopFolder] and click **OK**.

10. From the **File** menu, save the transform on the administrative installation point as **myCustomInstall.mst**.
    
    To apply this transform to your install, explicitly add it to your installation as shown in *Deploy Reflection with a Transform* on page 28.

**Deploy Reflection**

You can deploy reflection in a variety of ways. From a command line, you can:

- **Deploy an “Out-of-the-Box” Version of Reflection** to deploy an uncustomized version of Reflection.
- **Deploy Silently** to deploy an installation that is not visible to the user. **Deploy** Reflection with a Transform that customizes how Reflection is installed.
- **Deploy a Companion Installer Package** Independently of the Reflection installation to install customized configuration files.

When you are testing a deployment package, be sure that the package can be cleanly removed.

- **Remove a Reflection Installation** shows how to uninstall Reflection. It also shows how to uninstall companion installer package files.

You can also “chain installations” to deploy a transform, a companion installer package (or packages), and other executables on one command line.

Reflection can be deployed with Active Directory, Microsoft Systems Management Server, or other Windows Installer compatible deployment tools. It can also be installed in a Citrix environment. (For more about these options, see Chapter 9.)

**Deploying Reflection**

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 but it also installs prerequisite software (if needed) and has several other features that provide a smoother deployment than installing directly with the primary Attachmate Reflection MSI file.

When the Attachmate Installation Program installs Reflection, it determines whether each workstation has the required .NET Framework and Microsoft Windows Installer version 3.1 (or later) and automatically installs them if necessary. It also automatically uses the correct language for the installation and removes previous versions of Reflection. (This is required to install the new version.) If the Visual Basic 6.5 feature is selected, the Attachmate Installation Program also installs the Visual Basic 6.5 core MSI, along with the appropriate VB6.5 language MSI.

---

**Note:** If you install with MSI directly, you will need to install the .NET Framework and Microsoft Windows Installer version 3.1 (or later) directly and remove any previous versions of Reflection. The MSI installer uses English for the installation unless you specify another language on its command line. The Reflection MSI does not install Visual Basic 6.5. If you install with MSI directly, you must run the VB6.5 core and language MSIs (in the Prerequisites folder) directly.
The Attachmate Installation Program (setup.exe) also has a command line interface that can be run from a command line, a batch file, or a deployment tool. From this command line, you can include command-line options to preset installation parameters and limit user interaction while Reflection is installing. You can even suppress installation dialog boxes to provide an unattended installation. You can also use command-line options to prepare Reflection for installation by users. In general, any of the MSI command-line options can be used from the Attachmate Installation Program (setup.exe) command line.

Note: To view a list of the command-line options for customizing installations, change to the administrative installation point and enter:
setup.exe /Help

The following sections show command-line options commonly used for deployment with ACT. (MSI command-line options are also shown for each option.)

**Deploy an “Out-of-the-Box” Version of Reflection**

You can deploy Reflection with default settings as follows:

**To deploy Reflection “out-of-the-box” with the Attachmate Installation Program**

- At a command prompt on a test workstation, enter:
  
  path_to_administrative_installation_point\setup.exe /install

**To deploy Reflection “out-of-the-box” directly with MSI**

- At a command prompt on a test workstation, enter:
  
  msiexec /i path_to_administrative_installation_point\yourVersion.msi

  where yourVersion.msi is the specific version of the reflection MSI that you downloaded (for example, SE11R1c.msi).

**Deploy Silently**

A silent installation proceeds without the end user being able to intervene or, in some cases, even see that the installation is occurring.
Chapter 1: Get Started

To perform a silent installation

- At a command prompt, change to the directory in which the setup.exe file resides and do one of the following:

<table>
<thead>
<tr>
<th>To perform</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>A silent install that displays a progress bar and disables the <strong>Cancel</strong> button</td>
<td><code>setup.exe /install /passive</code></td>
</tr>
<tr>
<td>A silent install with no display</td>
<td><code>setup.exe /install /quiet</code></td>
</tr>
</tbody>
</table>

**Deploy Reflection with a Transform**

If you have created a transform to customize how reflection is installed, you will need to deploy the transform with the primary installation.

**To deploy Reflection and a transform with the Attachmate Installation Program**

- At a command prompt, enter:

  `path_to_administrative_installation_point\setup.exe /install TRANSFORMS=myCustomInstall.mst`

*Note: You can also set up the Attachmate Installation Program (setup.exe) to deploy a transform automatically. (See Chain Installations to run Companion Installer Packages, Transforms, and other programs in chapter 9.)*

**To deploy Reflection and a transform directly with MSI**

- At a command prompt, enter:

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

  where `yourVersion.msi` is the specific version of the Reflection MSI that you downloaded (for example, `SE11R1c.msi`).

**Deploy a Companion Installer Package Independently**

You can deploy configuration files that are “packaged” in a companion installer package separately from Reflection. This allows you to deploy and maintain these files between Reflection software updates without removing Reflection.

**To deploy a companion installer file directly with MSI**

- At a command prompt, enter:

  `msiexec /i path_to_administrative_installation_point\ myConfigFiles.msi`
Remove an Installation

After you deploy your installation in your test environment, uninstall it to make sure all of the program files and registry modifications are cleanly removed.

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
Chapter 2: Design & Prepare For Deployment

Before you deploy Reflection, design and prepare for your deployment just as you would for any large-scale project.

Design and Prepare: What you need to do

<table>
<thead>
<tr>
<th>To</th>
<th>Go to</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Determine your customization and installation requirements</td>
<td>page 31</td>
</tr>
<tr>
<td>☐ Make sure your system meets hardware and software requirements</td>
<td>page 34</td>
</tr>
</tbody>
</table>

Determine Your Customization and Installation Requirements

Use the following planning checklist to help determine your customization requirements and plan your deployment.
Planning Checklist

Create Secure Sessions

If you are using a secure connection, you will configure your session for the protocol you are using and save these settings in a session document file. The supported protocols depend on the connection type you are configuring.

<table>
<thead>
<tr>
<th>Connection Type</th>
<th>Supported Protocols</th>
</tr>
</thead>
<tbody>
<tr>
<td>3270 terminal or printer, 5250 terminal or printer</td>
<td>SSL/TLS, SOCKS</td>
</tr>
<tr>
<td>VT terminal or FTP Client</td>
<td>SSL/TLS, Secure Shell, Kerberos, SOCKS, HTTP</td>
</tr>
</tbody>
</table>

To...

- Set up a session without security  
  Go to page 40
- Set up a Secure SSL/TLS connection  
  Go to page 41
- Set up a Secure Shell Connection  
  Go to page 43
- Set up a Kerberos Secure Session  
  Go to page 44
- Set up a SOCKS or HTTP Proxy Server Session  
  Go to page 46

Customize Sessions

After you create a session document, you can customize it to configure text input, appearance, connection macros, and other settings. You can also specify or customize the files referenced by session files, such as keyboard maps, hotspots, and mouse maps.

To...

- Control keyboard input and text handling  
  Go to page 54
- Customize mouse button behavior  
  Go to page 57
- Define hotspots (virtual buttons that appear in terminal sessions).  
  Go to page 58
- Configure which controls appear on the Ribbon and define their actions.  
  Go to page 59
- Control the appearance of the session (e.g., background and text color).  
  Go to page 61
- Set up connection macros  
  Go to page 62
- Configure host connection options such automatic connection handling of an unexpected termination of a session.  
  Go to page 63
- Customize Microsoft Office Productivity features in Reflection  
  Go to page 63
- Configure non-FTP File Transfer  
  Go to page 64
- Set up a default Windows printer for the session  
  Go to page 64
- Encrypt a session file  
  Go to page 64
Customize Reflection Behavior and Appearance

The Reflection Workspace is the main window that contains all of the terminal sessions and Web page documents opened in Reflection 2011. Workspace configuration settings control Reflection startup behavior, security, file locations, user interface, and other settings related to Reflection 2011. Workspace settings are stored in the Application.Settings file. Using a companion package, workspace settings can be deployed as part of your installation.

To...

- Specify which dialog box to open when Reflection starts  
  Go to page 70
- Set up to run a startup macro  
  Go to page 70
- Define a series of actions that Reflection performs when a workspace starts  
  Go to page 71
- Specify common settings such as whether to run Help from the Web or locally, and whether to use the Ribbon or classic mode  
  Go to page 72
- Set up Workspace Security, including trusted locations, privacy filters and API access (from the application or from macros)  
  Go to page 72
- Set up Reflection to Open with the Ribbon  
  Go to page 76
- Create layouts to automatically open multiple terminal or Web session documents when Reflection opens  
  Go to page 76
- Customize the Quick Access Toolbar  
  Go to page 78

Limit Access to Features or Settings

You can choose from three methods to create files that restrict access: Group Policy, Permissions Manager, and Permissions Manager with the ACT tool.

To restrict access using...

- Restrict Access with Permissions Manager  
  Go to page 84
- Restrict Access with ACT  
  Go to page 86
- Restrict Access with Group Policy  
  Go to page 89

Create Companion Installer Packages

Create a companion installer package (also called a "companion database") to install any custom files you created when you customized Reflection. A companion installer package is a standalone MSI file that is independent of any Reflection installer package. You can deploy this package separately or along with the main Reflection installation package.

To...

- Create a Companion Installer Package  
  Go to page 96
Chapter 2: Design & Prepare For Deployment

- Add/Modify Registry Data  page 103
- Add/Modify Property Value Dialog Box  page 104

Customize the Install
Create and deploy a transform to customize how Reflection is installed on user workstations.

<table>
<thead>
<tr>
<th>To...</th>
<th>Go to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a Transform</td>
<td>page 106</td>
</tr>
<tr>
<td>Change the Add/Remove Programs Display</td>
<td>page 106</td>
</tr>
<tr>
<td>Select Feature Installation States, Components, and Languages</td>
<td>page 107</td>
</tr>
<tr>
<td>Set up Desktop Shortcuts</td>
<td>page 108</td>
</tr>
<tr>
<td>Choose How to Display the Installer User Interface</td>
<td>page 109</td>
</tr>
<tr>
<td>Change the Installation Directory</td>
<td>page 109</td>
</tr>
</tbody>
</table>

Deploy
You can choose from several tools to deploy Reflection. You can also deploy it silently from the command line. (A silent installation does not require user interaction and does not display any indication of its progress.)

<table>
<thead>
<tr>
<th>To deploy with...</th>
<th>Go to</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Attachmate Installation Program (Setup.exe)</td>
<td>page 112</td>
</tr>
<tr>
<td>The MSI command line</td>
<td>page 115</td>
</tr>
<tr>
<td>Microsoft System Center Configuration Manager</td>
<td>page 116</td>
</tr>
<tr>
<td>Microsoft Active Directory</td>
<td>page 116</td>
</tr>
</tbody>
</table>

Hardware and Software Requirements
Conduct a hardware and software inventory of the client workstations you plan to deploy Reflection to and make sure the clients meet the system requirements.

System Requirements
Specific requirements for Attachmate Reflection 2011 vary based on your hardware and other software components present.

Note: Attachmate cannot confirm the accuracy of performance, or any other claims related to non-Attachmate products. For questions or concerns regarding the capabilities of non-Attachmate products, please contact the suppliers of those products.
Installation and Deployment Guide

Processor
2 GHz, 32-bit or 64-bit (1.5 GHz or higher multi-core, 32-bit or 64-bit recommended)

System memory (RAM)
1 GB (2 GB recommended)

Operating system and platform support

Recommended operating system and platform support
One of the following:
- Microsoft Windows 7 Enterprise 32-bit and 64-bit
- Microsoft Windows 7 Ultimate 32-bit and 64-bit
- Microsoft Windows Vista Enterprise, SP1 32-bit and 64-bit
- Microsoft Windows Vista Ultimate, SP1 32-bit and 64-bit
- Microsoft Windows Server 2003 R2 with Windows Terminal Server (for multi-user environments) 32-bit and 64-bit
- Microsoft Windows Server 2008 R1 or R2 with Windows Terminal Server (for multi-user environments) 32-bit and 64-bit for R1 (64-bit only for R2)

Note: For information about deploying Reflection in virtualized environments and other supported platforms, see Technical Note 2511: Reflection 2011 Supported Platforms

Additional software requirements
To use the Office integration features in Reflection, Microsoft Office 2003 or later must be installed.

Prerequisite Software
Reflection 2011 has the following software requirements. Depending on your install method (using the Attachmate Installation Program, installing directly using MSI, or deploying from an administrative install), and the platform to which you are installing, this software is either installed or updated automatically, or you are prompted to install or perform an update.

Using the Attachmate Installation Program on Windows Vista or Windows 7
Reflection 2011 has the following .Net Framework requirements for Windows Vista and Windows 7:

<table>
<thead>
<tr>
<th>Release</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release 1</td>
<td>Requires .NET Framework 3.0 (or later) Runtime</td>
</tr>
<tr>
<td>Release 2</td>
<td>Requires .NET 4.0 (or later) Runtime</td>
</tr>
<tr>
<td>Release 3</td>
<td>Requires .NET 4.0 (or later) Runtime only for certain optional features.</td>
</tr>
</tbody>
</table>
Chapter 2: Design & Prepare For Deployment

By default, Windows Vista and Windows 7 or later have the necessary base level of the .NET Framework needed for installation. If you use the Attachmate Installation Program (setup.exe) to install Reflection 2011 on these platforms, it verifies whether the system has the appropriate .NET Framework and automatically installs it if necessary. (This applies only for installs that use the Attachmate Installation Program. It does not apply when Reflection 2011 is installed directly with MSI.)

For Reflection 2011 R3, some features require .NET 4.0 and some do not. If features requiring .NET 4.0 are selected for install, the Attachmate Installation Program will install the .NET 4.0 Framework after the primary installation is complete (if it’s not already installed). Both 32-bit and 64-bit versions of this software are distributed with Reflection 2011 R3.

Note: If you are using Microsoft Windows Server 2008 R1 and the .NET Framework 4.0 is required, you will need to make sure it is installed on the server. The Attachmate Installation Program does not install .NET on this server.

Installing Directly with MSI

If you install Reflection 2011 directly with MSI and the required .NET Framework is not installed, the Windows Installer will display a warning dialog box and terminate.

Note: If you are installing Reflection 2011 R3 and the product features you are installing do not require .NET 4, you may add the SKIPDOTNET=1 property to the command line to bypass this test condition.

Installing on Windows XP

If you are installing Reflection 2011 on Windows XP, you must make sure that the Microsoft .NET Framework 2.0 SP1 (or greater) is installed before installing Reflection. This applies to installs performed with either the MSI or setup.exe and regardless of which product features are to be installed. If this minimum requirement is not met when installing on Windows XP, a warning dialog will be displayed and the install will terminate. (The setup.exe program assumes the required .NET framework exists on Vista and Windows 7 or later). The section above describing installing with the MSI and handling the .NET 4 requirement also applies to installing on Windows XP.

Microsoft Windows Installer 3.1

The Microsoft Windows Installer (MSI) version 3.1 is distributed with Reflection. This is applicable to Windows XP only (Windows Vista and Windows 7 already include a later version).

If you use the Attachmate Installation Program on Windows XP, the wizard determines whether Windows Installer 3.1 is installed, and automatically updates it if necessary.

Microsoft Visual Basic for Applications (VBA)

Reflection 2011 R2 and R3 support Microsoft VBA 6.5. If you select to install this feature in the Attachmate Installation Program, it is automatically installed. For Reflection 2011 R2 and R3, if you install Reflection directly with MSI or with a deployment tool and you want to install this feature, you must install it directly, using the core VBA 6.5 MSI and an appropriate language specific MSI (these MSIs are in the Prerequisites folder, in the distribution media).

For the first version of Reflection 2011, the Attachmate Reflection MSI installs Microsoft VBA.
Deploying MSI Files Directly

If you install Reflection 2011 R1 or R2 directly with MSI or with a deployment tool, you must install the required .NET Framework first.

If you install Reflection 2011 R3 directly with MSI or with a deployment tool, you must determine whether any optional features you have selected require the Microsoft .NET Framework 4.0. If this framework is required, you will need to install it.

If you install with an MSI directly on Windows XP clients, make sure these clients have the Microsoft Windows Installer 3.1 before you deploy. Although Windows Installer 3.1 is optional, you should update your version of Windows Installer to take full advantage of the features available in Windows Installer 3.1. (Windows Vista and Windows 7 already include the new Windows Installer.)
Chapter 3: Set up Secure Sessions

If you are using a secure connection, you will need to configure sessions you want to deploy for the protocol you are using and save these settings in a session document file. Depending on the security protocol, you may also need to create and deploy additional files.

**What do you need to do?**

<table>
<thead>
<tr>
<th>To</th>
<th>Go to</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Set up a Session Document Without Security</td>
<td>page 40</td>
</tr>
<tr>
<td>☐ Set up a Secure SSL/TLS connection</td>
<td>page 41</td>
</tr>
<tr>
<td>☐ Set up a Secure Shell Connection</td>
<td>page 43</td>
</tr>
<tr>
<td>☐ Set up a Kerberos Secure Session</td>
<td>page 44</td>
</tr>
<tr>
<td>☐ Set up a SOCKS or HTTP Proxy Server Session</td>
<td>page 46</td>
</tr>
<tr>
<td>☐ Set up an SSL Security Proxy Server</td>
<td>page 48</td>
</tr>
</tbody>
</table>
Chapter 3: Set up Secure Sessions

Which Protocols are Supported?

The supported protocols depend on which connection type you are configuring.

<table>
<thead>
<tr>
<th>Connection Type</th>
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</thead>
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<td>SSL/TLS, SOCKS</td>
</tr>
<tr>
<td>VT terminal or FTP Client</td>
<td>SSL/TLS, Secure Shell, Kerberos, SOCKS, HTTP</td>
</tr>
</tbody>
</table>

Set up a Session Document (Without Security)

You can set up a session without security.

To create a new terminal session

1. On the Quick Access toolbar, click the New Document button.
2. From the Create New Document dialog box, select a session template.
3. In the Compatibility drop-down box, select the set of default settings you want to use for this session, if any.

   The compatibility settings include keyboard maps and themes similar to those of other emulation products, such as EXTRA!. The default Reflection 2011 compatibility setting is optimized for the new capabilities of Reflection 2011, including the Ribbon UI.

   Note: Compatibility settings for Legacy Reflection are installed by default. To use compatibility settings for EXTRA!, IBM Personal Communications, or Micro Focus RUMBA, you will need to select to install these settings when you install Reflection 2011.

4. Click Create.
5. In the Host Name/IP Address field, type a name or address.

   Note: Both IPv4 addresses (in the form 127.0.0.1) and IPv6 addresses (in the form 2001:0db8:3c4d:0015:0000:0000:abcd:ef12) are accepted.

6. Click OK. After a connection is established, click the Save button on the Quick Access toolbar and save the session document.
7. To deploy the session document, add the session file to a companion installer file and deploy the file as shown in Create a Companion Installer Package on page 96.

   Note: Session document files (rdox, rd3x, rd5x, urlx) are deployed to the following directories:

   For all users:
   Any trusted location that exists on the user 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\%
Set up a Secure SSL/TLS Connection

The Secure Sockets Layer protocol (SSL) and its compatible successor, the Transport Layer Security protocol (TLS), enable a client and server to establish a secure, encrypted connection over a public network. When you connect using SSL/TLS, the client authenticates the server before making a connection, and all data passed between Reflection and the server is encrypted. Depending on the server configuration, the server may also authenticate the client.

Note: Reflection 2011 supports SSL/TLS connections for IBM 3270, IBM 5250, and VT terminals.

Before you start

Make sure your system has an SSL/TLS host (server or servers) and that you know how certificates are handled for your server. For complete instructions on setting up SSL see Connect Using SSL/TLS in the ReflectionHelp.

The following instructions show how to configure a connection for a host that requires server authentication (but not client authentication) and uses a certificate from a trusted certification authority (CA).

This procedure shows how to import the certificate into the Reflection certificate store. To set up this connection, you need:

- The SSL/TLS host name.
- A User name and password.
- The Port used by the SSL/TLS server.
- Access to a CA certificate for the server.

To configure an SSL/TLS secure terminal session that uses a CA certificate for server authentication

1. From the Quick Access toolbar, click the New Document button.
2. From the Create New Document dialog box, select a session template and click Create.
3. In the Host Name/IP Address field, type a name or address that exactly matches the host name as it appears in either the CommonName or the SubjectAltName field of the host's certificate.
4. In the Port box, set the port your host uses for SSL/TLS connections.
5. Select Configure additional settings, and then click OK.
6. Do one of the following:
   - If you are setting up a 3270 and 5250 terminal session, under Host Connection, click Set Up Connection Security. Then, in the Configure Advanced Connection Settings dialog box, click Security Settings.
   - If you are setting up a VT terminal session, click Set Up Connection Security.
7. From the Security Properties dialog box, on the SSL/TLS tab, select Use SSL/TLS security.
Chapter 3: Set up Secure Sessions

8. (Optional) To specify the minimum allowable level of encryption for SSL/TLS connections, select a level in the **Encryption strength** list. The connection fails if this level cannot be provided.

   Note: If you select **Default**, any encryption level is permitted, and Reflection negotiates with the host system to choose the strongest encryption level supported by both the host and the PC.

9. Click **Configure PKI** and then, in the PKI Configuration dialog box, click **Reflection Certificate Manager**.

10. In the Reflection Certificate Manager dialog box, select the **Trusted Certificate Authorities** tab.

11. Click **Import** and browse to select the CA certificate for the server.

12. Modify default settings as required. (For example, to use only the Reflection store, you might choose to clear **Use System Certificate Store for SSL/TLS connections**. When this option is selected, Reflection looks for certificates in both the Reflection store and the Windows certificate store.)

    When you customize any of the default PKI settings, the **pki_config** file is created.

13. Close the Certificate Manager dialog box and click **OK** to close the other open dialog boxes.

    The imported certificate is saved in the **trust_store.p12** file.

14. After a connection is established, click the **Save** button on the Quick Access toolbar and save the session document.

15. To deploy the session, add the session file and the SSL **trust_store.p12** and **pki_config** files to a companion installer file and deploy the file as shown in **Create a Companion Installer Package** on page 96.

Note: Session document files and SSL files are deployed to the following directories:

For all users:
Session document files (rdox, rd3x, or rd5x) are deployed to 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

SSL files (trust_store.p12 and pki_config) are deployed to a .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.) For example: [CommonAppDataFolder]\Attachmate\Reflection\pki

For only the user who installs:
Session document files (rdox, rd3x, or rd5x) are deployed to:
[PersonalFolder]\Attachmate\Reflection

The SSL files (trust_store.p12 and pki_config) are deployed to:
[PersonalFolder]\Attachmate\Reflection\pki
Set up a Secure Shell Connection

You can configure Secure Shell connections when you need secure, encrypted communications between a trusted host and your PC over an insecure network. Secure Shell connections ensure that both the client user and the host computer are authenticated and that all data is encrypted. Passwords are never sent over the network in a clear text format as they are when you use Telnet, FTP, or rlogin.

Note: Secure Shell connections are available for VT terminal sessions.

**Before you start**

By default, Secure Shell connections use public key authentication for the host and username/password authentication for the user. To configure a connection using these defaults, you need to make sure your system has a Secure Shell server or servers and that you know the following information:

- The host name.
- The User name and password.
- The port used by the Secure Shell server (the default is 22).

Note: Host authentication (performed with public key authentication) enables the Secure Shell client to reliably confirm the identity of the Secure Shell server. If the host public key is not installed on the client, the host fingerprint is displayed and users are prompted to contact the system administrator to verify the fingerprint. This confirmation prevents risk of a “man-in-the-middle” attack, in which another server poses as the host. After the host key is added to the client, Reflection 2011 can authenticate the server without requiring user confirmation, and the unknown host prompt does not appear again.

**To create a Secure Shell terminal session**

1. From the Quick Access toolbar, click the **New Document** button.

2. From the Create New Document dialog box, select **VT Terminal** and then click **Create**.

3. In the Create New VT Document dialog box, under **Connection**:
   - Select **Secure Shell**.
     - The **Port** value changes to 22, which is the standard port for Secure Shell connections. If you need to connect to a different port, you can configure this later in step 6.
   - Enter the **Host name/IP address**.
   - Enter your **User name**.

4. At the bottom of this dialog box, select **Configure additional settings** and click **OK**.

5. Under **Host Connection**, click **Set up Connection Security**.

6. In the Reflection Secure Shell Settings dialog box, configure any non-default settings and then click **OK**.

   Note: Changes to the default settings are saved in the Secure Shell config file in [PersonalFolder]\Attachmate\Reflection\.ssh

7. In the Settings for VT dialog box, click **OK**.

8. When prompted, verify the host key fingerprint and select **Always**.
Chapter 3: Set up Secure Sessions

The **known_hosts** file is created in the folder

```
personal_documents_folder\Attachmate\Reflection\ssh
```

9. When prompted, enter your password.

10. After a connection is established, click the Save button on the Quick Access toolbar and save the session document.

The file is saved in [PersonalFolder]\Attachmate\Reflection.

11. To deploy the session, add the session `.rdox` file and the Secure Shell files to a companion installer file and deploy these files as shown in Create a Companion Installer Package on page 96.

---

**Notes:**

For all users:

The session file (`.rdox`) can be deployed to 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
```

Before deploying to all users, rename the **config** file to **ssh_config** and the **known_hosts** file to **ssh_known_hosts**. These files must be deployed to [CommonAppDataFolder]\Attachmate\Reflection.

For only the user who installs:

The session file (`.rdox`) is deployed to:

```
[PersonalFolder]\Attachmate\Reflection
```

Secure Shell User-specific files (**config** and **known_hosts**) are deployed to:

```
[PersonalFolder]\Attachmate\Reflection\ssh
```

---

**Set up a Kerberos Secure Session**

Kerberos is a protocol that uses a trusted third party to enable secure communications over a TCP/IP network. The protocol uses encrypted tickets rather than plain-text passwords for secure network authentication and also supports encryption of the data stream.

After you configure a session using Kerberos, you can export these settings to an XML file in order to deploy them. The first time a user opens a Reflection Kerberos session, these settings are imported into the registry.

Note: Kerberos connections are available for VT terminal sessions.

**Before you start**

Make sure you know the following information:

If you are configuring Kerberos using Windows credentials:

- You must be logged into a Windows domain.
- You must know the fully qualified name of a host that is running a kerberized server application (such as telnetd or ftpd) and that has been joined to the Windows domain.

If you are configuring Kerberos using a KDC, Make sure your system has a KDC server and that you know:
The fully-qualified name of a host that is properly configured and running a kerberized server application (such as telnetd or ftpd).

The fully qualified KDC host name.

The Kerberos principal (and password) with which you will be authenticating.

The Kerberos realm.

To configure a secure terminal session using Kerberos

1. From the Quick Access toolbar, click the New Document button.
2. In the Create New Document dialog box, select VT terminal and click Create.
3. For Host Name/IP Address, enter the fully qualified host name.
4. Select Configure additional settings and then click OK.
6. From the Security Properties dialog box, click the Kerberos tab, and select Reflection Kerberos.

Note: Unless your PC has a Kerberos Manager configuration file installed, the Reflection Kerberos Initial Configuration dialog box is displayed the first time you use Reflection Kerberos. You must specify default Kerberos settings in this dialog box before you can make a connection.

7. Do one of the following:
   - Select Use Windows logon values.
   - or-
   - Enter values for Default Principal, Default Realm, and KDC host name.
8. Click OK to close the Reflection Kerberos Initial Configuration dialog box.
9. Configure any additional Kerberos options that you want to use for this connection and click OK to close the Security Properties dialog box.
10. Click OK to close the Settings for VT dialog box and initiate the connection. When prompted, enter your password.
11. After a connection is established, click the Save button on the Quick Access toolbar and save the session document.

To export Kerberos settings

1. From the Start menu, under Programs > Attachmate Reflection > Utilities, choose Kerberos Manager.
2. From the Reflection Kerberos Manager, choose Tools > Export Settings > As Configuration File.
3. In the Export Kerberos Configuration File dialog box, click OK.
4. To deploy the session, add the Rsckrb5.xml file to a companion installer file and deploy the file as shown in Create a Companion Installer Package on page 96.

Notes: Kerberos settings are deployed to the following directories:
Chapter 3: Set up Secure Sessions

For all users:
The session file (.rdox) is deployed to 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

The global Kerberos configuration file (Rscrb5.xml) must be deployed to:
[CommonAppDataFolder]\Attachmate\Reflection

For only the user who installs:
Session files (.rdox) are deployed to: [PersonalFolder]\Attachmate\Reflection

The Rscrb5.xml file is deployed to a Reflection folder located in the user application data folder. By default, this folder is: [AppDataFolder]\Attachmate\Reflection

Set up a SOCKS or HTTP Proxy Server Session

You can configure sessions to connect through a SOCKS proxy server or an HTTP server.

Notes:
- SOCKS is supported for VT, 3270, and 5250 terminals.
- HTTP is supported only for VT terminals.

Before you start
Make sure your system has a proxy server or servers and that you know the following information:

- If you are setting up a connection to a SOCKS server, know the proxy server address, protocol version, port number, and user credentials.
- If you are setting up a connection to an HTTP server, know the proxy server address, port number, and user credentials.

To set up a session to connect through a SOCKS proxy server or an SSL/TLS server

1. From the Quick Access toolbar, click the New Document button.
2. From the Create New Document dialog box, select a document template and click Create.
3. In the Create New Terminal Document dialog box, under Connection, enter the Host name/IP address.
4. Click Configure additional settings and then click OK.
5. In the Settings dialog box, under Host Connection, click Setup Connection Security.
6. If you are configuring a 3270 or 5250 terminal session, in the Configure Advanced Connection Settings dialog box, Under Security, click Security Settings.
7. On the Security Properties dialog box Proxy tab, select Use proxy server and then select the proxy type:
• SOCKS (supported for VT, 3270, and 5250 terminals).
• HTTP (supported only for VT).

8. Click **Configure** to open the Configuration dialog box.

9. If you want to designate only one HTTP proxy server, configure the session for
the proxy server as follows:

To configure... | Do this
--- | ---
SOCKS | Enter the **Server address** and the **Protocol version**.
HTTP | Enter the server **Address** and **Port**.

If you want to use authentication that requires a user name and password,
select **Basic authentication** and enter the user name for the proxy server. (If
this is not selected, no authentication is used.)

10. If you want to configure more than one proxy server or configure specific
destination routes, leave the fields in the **HTTP (or SOCKS) proxy** group blank and click **Advanced**.

11. After you have configured the session, click the Save button ![Save button](image) on the
Quick Access toolbar and save the session.

12. Add the session file to a companion installer file as shown in *Create a Companion Installer Package* on page 96.

13. If you are configuring an IBM 3270 or 5250 session, open the registry
editor (**regedit.exe**) and export the following key to create a registry
settings file:

HKEY_CURRENT_USER\Software\Reflection\Network Protocols.

Then set up the registry settings file to run after the session file is installed
as shown in *Chain Installations to Run Companion Installer Packages and Other Programs* on page 113.

14. If you are configuring an open systems (VT) session, add the registry key
HKEY_CURRENT_USER\Software\Reflection\Network Protocols to the
companion file as shown in *Add/Modify Registry Data* on page 103.

**Note:** Session document files (rdox, rd3x, or rd5x) are deployed to the following directories:

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\n
For only the user who installs:
[PersonalFolder]\Attachmate\Reflection\
Set up an SSL Security Proxy Server

You can use the Reflection security proxy to configure a secure SSL/TLS connection. This allows you to use SSL/TLS for hosts that are not running an SSL/TLS Telnet server. For example, you can use the proxy server if you are connecting to a host using VT-MGR and you want to configure secure SSL/TLS connections. Data transmitted between Reflection and the proxy server is encrypted; data sent from the proxy server to the destination host is unencrypted.

**Note:** This feature is available only if you have purchased and configured Reflection for the Web Administrator.

To support these proxy SSL connections, you must:

- Install and configure the Security Proxy server as shown in your Reflection for the Web documentation.
- Provide a server certificate for all workstations that will connect through the server as shown in your Reflection for the Web documentation.
- Install Reflection 2011 on the administrative and end-user workstations.
- Install the Reflection Management server as shown in your Reflection for the Web documentation.
- Make sure you have administrative credentials for the Reflection Management server.
- Create a Reflection settings file configured to connect through the proxy server as shown in the following instructions.

**Important!**

You can use the Management server to deploy any of your sessions, including those that do not use SSL. This allows you to centrally control access to your sessions.

You cannot use the Reflection for the Web security proxy when you are connecting to a host that is configured to support SSL. This proxy server should be used only for hosts that do not support SSL.
To configure an SSL/TLS secure session document that uses a Reflection Security Proxy Server

1. In a Web browser, launch Reflection for the Web as an administrator, and then click **Administrative WebStation**.

2. In the Administrative WebStation navigation pane, select **Session Manager**.
3. In the Session Manager, click **Add** to open the Add New Session page.

![Session Manager Add New Session](image)

4. In the Add New Session page, select a session type, enter a session name, and click **Continue**.

    **Note:** To create a terminal session (IBM 3270, IBM 5250, or VT) with Reflection 2011, select Reflection Workspace.

5. Specify your preferences for where to save the session file on the user workstations and how to copy files to the workstations, and then click **Launch**.

   This opens a new Reflection session document on your workstation in Administrative WebStation mode.

   **Important:** If you specify a location for saving files, make sure it is a trusted location. Users will not be able to open the session unless it is in a trusted location.

6. Create a new session document as follows:
   a. In the Create New Document dialog box, choose the type of session and then click **Create**.
   b. Enter the IP Address or Host name, configure other settings as required, and then select **Configure additional settings**.
   c. In the **Settings...** dialog box, under **Host Connection**, click **Set Up Connection Security**.
   d. In the Configure Advanced Connection Settings dialog box, click **Security Settings**.
e. In the Security Properties Dialog box, select **Use SSL/TLS security** and then select **Use Reflection security proxy**.

7. If you are prompted for a certificate, accept it, wait until the session connects, and then close the session.

8. When prompted, confirm that you want to send the settings to the Administrative WebStation.

   In the WebStation Session Manager page, a message indicates that the session is saved.

9. Click **Map session access** and use Access Mapper to configure which users have access to the session document.

10. Point users to the Reflection URL (for example http://myserver/rweb) to access Reflection sessions.
Chapter 4: Customize Sessions

After you create a session document, you can customize it to configure text input, appearance, connection macros, and other settings. You can also specify or customize the files referenced by session files, such as keyboard maps, hotspots, and mouse maps.

**What do you need to do?**

<table>
<thead>
<tr>
<th>To</th>
<th>Go to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Keyboard Input and Text Handling</td>
<td>page 54</td>
</tr>
<tr>
<td>Customize Mouse Button Behavior</td>
<td>page 57</td>
</tr>
<tr>
<td>Define Hotspots (virtual buttons that appear in terminal sessions)</td>
<td>page 58</td>
</tr>
<tr>
<td>Configure which Controls Appear on the Ribbon and Define Their Actions</td>
<td>page 59</td>
</tr>
<tr>
<td>Control the Appearance of the Session (e.g., background and text color)</td>
<td>page 61</td>
</tr>
<tr>
<td>Set up Connection Macros</td>
<td>page 62</td>
</tr>
<tr>
<td>Configure Host Connection Options, such as automatic connections</td>
<td>page 63</td>
</tr>
<tr>
<td>Customize Microsoft Office Productivity features in Reflection</td>
<td>page 63</td>
</tr>
<tr>
<td>Configure non-FTP File Transfer</td>
<td>page 64</td>
</tr>
<tr>
<td>Set up a Default Windows Printer for the session</td>
<td>page 64</td>
</tr>
<tr>
<td>Encrypt a session file</td>
<td>page 64</td>
</tr>
</tbody>
</table>
Chapter 4: Customize Sessions

Caution: If you specify a custom file or a macro for a session, you will need to deploy it with your session file. Be sure to maintain the same file name and file path (relative to the session document file) when you deploy the files. If Reflection 2011 cannot find the custom file when it starts a session, it prompts to use a built-in file. Always save documents and templates to a trusted location — Reflection 2011 does not open documents from nontrusted locations (unless it is configured to do so).

Note: As defined by Microsoft, "a trusted location is typically a folder on your hard disk or a network share. Any file that you put in a trusted location can be opened without being checked by the Trust Center security feature." See Create, remove, or change a trusted location for your files at http://office.microsoft.com.

Before you start
Create a session file as shown in Chapter 3: Set up Secure Sessions. Then open this file to customize it as shown in this chapter.

Control Keyboard Input and Text Handling With a Keyboard Map

A keyboard map lists host terminal keys and their definitions, as well as all defined keystrokes (shortcuts).

If the default keyboard map doesn’t meet your session requirements, you can select another built-in Reflection keyboard map or create your own custom keyboard map.

Create a custom keyboard map

Host terminal and PC keyboards have different sets of keys; for example, many terminal keyboards have a TRANSMIT key, but PC keyboards do not. Reflection 2011 pre-configures each session document with a built-in “keyboard map,” substituting a PC key (or combination of keys) for the terminal function, so that a PC can communicate with a host in the same way as a terminal. You can create a custom keyboard map by adding, removing, or redefining keystroke combinations from an existing keyboard map.

To create a custom keyboard map

1. Open a terminal session.
2. From the Quick Access Toolbar, click (the Document Settings button.)
3. Under Input Devices, click Manage Keyboard Map.
4. Click Create a new keyboard map from an existing keyboard map file.
5. Select a keyboard map file to use as a template for your new file.

If you want to use the new keyboard map file in your current session, choose **Use the new file in the current session document.**

6. Click **OK**.

7. Do one of the following:

<table>
<thead>
<tr>
<th>To</th>
<th>Do this</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add a keystroke definition</td>
<td>Under <strong>Map Keys</strong>, enter a key combination (keystroke) in the box, click Select Action, and then choose Send Key. From the Key drop-down box, choose the host terminal key to which you want to map, and then click OK.</td>
</tr>
<tr>
<td>Change the definition of a keystroke</td>
<td>Select the key combination you want to change and click Modify. Specify an action for the keystroke, and then click OK.</td>
</tr>
<tr>
<td>Remove a keystroke definition</td>
<td>Select the key combination you want to remove, and then click <strong>Delete.</strong></td>
</tr>
</tbody>
</table>

8. When you are done making changes, click **OK**, and then save your changes to a new keyboard map file.

**Note:** You will need to deploy the custom keyboard map (.xkb) file to the user \[PersonalFolder\]\Attachmate\Reflection\Keyboard Maps folder and deploy the session file that specifies it to the [PersonalFolder]\Attachmate\Reflection folder as shown in Chapter 7: Create a Companion Installer Package.

Optionally, you can deploy these files to a common directory for all users (see Table 1: Where to Deploy Customized Files on page 98).

### Add a Keyboard Shortcut to a keyboard map

You can create keyboard shortcuts that perform any assignable action during a Reflection 2011 session. For example, using the **Keyboard Mapper**, you can select a standard action, such as **Send Text** or **Launch Application**, or you can create a macro or complex sequence of actions that you assign to a keystroke.

**To add a keyboard shortcut**

1. Open a terminal session.

2. From the **Quick Access Toolbar**, click **(the Document Settings button.)**

3. Under **Input Devices**, click **Manage Keyboard Map**.

4. Click **Create a new keyboard map from an existing keyboard map file**.

5. Select a keyboard map file to use as a template for your new file.

   If you want to use the new keyboard map file in your current session, choose **Use the new file in the current session document**.

6. Under **Map Keys**, enter a keystroke (for example, CTRL+K).
Chapter 4: Customize Sessions

7. Assign an action by doing one of the following:
   - From the Select Action menu, choose a task (for example, Launch Application).
   - or -
   - Click the Select Action button, and from the Select Action dialog box, specify an action or action sequence.

8. Enter parameters for the action, if required, and then click OK.

9. Save your changes to a custom keyboard map file.

   The new keyboard shortcut appears in the table under Keyboard Mapper.

---

Note: Avoid using keystrokes already defined in the keyboard map.

---

Configure a session with a Keyboard Map

Reflection 2011 pre-configures all session documents to use a built-in keyboard map file. You can choose to use a different built-in map or a custom map that you’ve created.

To select a keyboard map

1. Open a session document.

2. From the Quick Access Toolbar, click the Document Settings button.

3. Under Input Devices, click Manage Keyboard Map.

4. Click Select another keyboard map file.

5. Do one of the following:

<table>
<thead>
<tr>
<th>To</th>
<th>Do this</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select a built-in keyboard map</td>
<td>Click Built-in, and then select a map from the list; for example, Default 5250 en.xkb.</td>
</tr>
<tr>
<td>Select a custom keyboard map</td>
<td>Click Custom, and then browse to a custom keyboard map file. Note: The file must be in a trusted location.</td>
</tr>
</tbody>
</table>

---

Note: You will need to deploy the custom keyboard map (.xkb) file to the user [PersonalFolder]\Attachmate\Reflection\Keyboard Maps folder and deploy the session file that specifies it to the [PersonalFolder]\Attachmate\Reflection\ as shown in Chapter 7: Create a Companion Installer Package.

Optionally, you can deploy these files to a common directory for all users (see Table 1: Where to Deploy Customized Files on page 98).
Customize Mouse Button Behavior with a Mouse Map

A mouse map is a configuration file that shows all of the defined mouse clicks and mouse/key combinations for your mouse. Even though session documents are pre-configured to use the built-in mouse map, you can configure the mouse to help you perform a variety of functions in Reflection 2011. For example, you can add mouse actions that connect to hosts, start applications, and perform commands on the Reflection 2011 graphical interface.

Create a custom mouse map

Using the Mouse Mapper, you can assign an action to a mouse click, or to a mouse click and keystroke combination. Each time you perform that mouse click in Reflection 2011, the specified action occurs.

To add a mouse action

1. Open a session document.
2. Click the Tools tab, and then click Mouse Mapper.
3. Under Map Mouse Click, place your pointer over the image, and then do either of the following:
   - Click a mouse button.
   - or-
   - Click a mouse button while pressing a modifier key (for example, CRTL).
4. Assign an action by doing one of the following:
   - From the Select Action menu, choose a task (for example, Launch Application).
   - or-
   - Click the Select Action button, and from the Select Action dialog box, specify an action or action sequence.
5. Enter parameters for the action, if required, and then click OK.
6. Save your changes to a custom mouse map file, if necessary.

Note: You will need to deploy the mouse map (.xmm) file to the user [PersonalFolder]\Attachmate\Reflection\Mouse folder and deploy the session file that specifies it to the [PersonalFolder]\Attachmate\Reflection\ as shown in Chapter 7: Create a Companion Installer Package. Optionally, you can deploy this file to a common directory for all users (see Table 1: Where to Deploy Customized Files on page 98).

Select the Mouse Map for a Session

Reflection 2011 pre-configures all session documents to use a built-in mouse map file. You can choose to use a different built-in map, or a custom map that you've created.
To select a mouse map

1. Open a session document.

2. From the **Quick Access Toolbar**, click the **Document Settings** button.

3. Under **Input Devices**, click **Manage Mouse Map**.

4. Click **Select another mouse map file**.

5. From the **Select a Mouse Map File** dialog box, do one of the following:

<table>
<thead>
<tr>
<th>To</th>
<th>Do this</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select a built-in mouse map</td>
<td>Click <strong>Built-In</strong>, and then select a map from the list; for example, mouse.xmm.</td>
</tr>
<tr>
<td>Select a custom mouse map</td>
<td>Click <strong>Custom</strong>, and then browse to a custom mouse map file. Note: The file must be in a trusted location for Reflection 2011 to use it.</td>
</tr>
</tbody>
</table>

**Note:** You will need to deploy the session file that specifies the mouse map to the [PersonalFolder]\Attachmate\Reflection\ as shown in Chapter 7. Optionally, you can deploy these files to a common directory for all users (see Table 1: Where to Deploy Customized Files on page 98.)

---

**Define Hot Spots**

Hotspots are virtual buttons that appear over text in terminal sessions. By using hotspots, you can control your terminal session with the mouse instead of the keyboard. Typically, clicking a hotspot transmits a terminal key or command to the host, but you can also configure hotspots to open a Web page, launch a macro, or perform a variety of other actions.

**To Create and Configure a Customized Hotspots File**

1. Open your terminal session.

2. From the **Quick Access Toolbar**, click the **Document Settings** button.

3. Under **Terminal Appearance**, click **Manage Hotspots**.

4. Click **Create a new hotspots file from an existing hotspots file**.

5. In the **Create a New Hotspots File** dialog box, select the type of hotspots file (built-in, Custom, or the new file for the current session) to use as a template for creating a new hotspots file.

6. In the Modify Hotspots dialog box, under **Hotspot text** enter the text for the hotspot.

7. Under **Select an action to map to the hotspot**, select an action to map to and configure the action.

8. Click **OK** to close the Modify Hotspots dialog box. When prompted, save the new hotspot file.

9. In the lower left corner of the Manage Hotspots dialog box, select **Set Up Hotspot Display Settings**.
10. Select **Enable all defined hotspots**.

11. From the Reflection File menu, choose **Save** to save the session.

The session document file is configured to use the new hotspot file.

---

**Configure which Controls Appear on the Ribbon and Define Their Actions**

In the area between the Quick Access Toolbar and the document window is the Ribbon, a dynamic, collapsible device that organizes commands, buttons, and other controls on tabs for each task area.

Using the **UI Designer**, you determine which controls to include and what they do, from simple task to complex routines. In addition to creating new controls, you can modify existing controls, remove controls you don't use, or relocate controls to other tabs.

After customizing the Ribbon, you can save it to a .xuml file that you can deploy with your session document.

**Note:** The .xuml file is saved in [PersonalFolder]\Attachmate\Reflection\CustomUI

With the **UI Designer**, you can add tabs, groups, buttons, and menus to the Ribbon. You can implement most tasks as a button control, a menu item, or as a combination of the two.

**Add a Ribbon Control**

You can add a control and assign actions to it.

**To add a control**

1. Open a session with the session document file you are configuring.
2. Select the **Appearance** tab.
3. From the **Menus** group, click the **UI Designer** button to open the **UI Designer**.
Chapter 4: Customize Sessions

The Ribbon Designer opens in a separate window. The designer is a simulated version of the actual Reflection interface.

4. On the Ribbon UI Designer, select the tab and group to which you want to add the control.
   For example, to add a button to the Macros group, click the Session tab and then click the Macros group.

5. On the Insert Controls pane, click the control to add (for example, Button).

6. From the Settings pane, click the Select Action button.

7. From the Action category menu, choose the type of action you want the control to perform (for example, Macro).

8. In the Action list, choose the action (for example, Run Reflection Workspace Macro).

9. Under Action parameters, specify the appropriate parameters as needed:

10. Click OK.

11. If prompted, type a new filename for the custom ribbon and then save the .xuml file that you can deploy with your session documents. The session is automatically mapped to use the custom file.

---

Note: You will need to deploy the .xuml file to the user [PersonalFolder]\Attachmate\Reflection\CustomUI folder and deploy the session file that specifies it to the [PersonalFolder]\Attachmate\Reflection\ folder as shown in Chapter 7. Optionally, you can deploy these files to a common directory for all users (see Table 1: Where to Deploy Customized Files on page 98).
Remove Controls from the Ribbon

You can delete tabs, groups, and individual buttons from the Ribbon.

Note: To simplify your workspace temporarily, hide the Ribbon by double-clicking any tab on the Ribbon, or by clicking the Full Screen button from the status bar.

To remove a control

1. On the Design View pane of UI Designer, right-click on the control you want to remove and click Delete.
2. To view your changes before saving them click Preview.
3. Click OK to accept the changes.

Control the Appearance of the Session by Specifying a Theme file

Theme files control the colors, shape of the cursor, and other details about the appearance of your terminal sessions. When you create a terminal session document, it includes a pointer to a default, built-in theme file. You can choose to use a different built-in theme, or a custom theme that you've created.

To Create a New Theme File

1. Open the terminal session.
2. From the Quick Access Toolbar, click the Document Settings button.
3. Under Terminal Appearance, click Manage Themes.
4. Click Create a new theme from an existing theme file and then select the theme file to use as a template for creating a new theme file.

<table>
<thead>
<tr>
<th>Select</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Built-In</td>
<td>Show the theme files distributed with Reflection 2011.</td>
</tr>
<tr>
<td>Custom</td>
<td>Show the theme files that you’ve previously modified and saved. If the file you want doesn't appear in the list, click Browse to select it. Note: The file must be in a trusted location for Reflection 2011 to use it.</td>
</tr>
</tbody>
</table>

5. If you want to use the file you are about to create with the current session, select Use the new file in the current session document.
6. In the Modify Theme dialog box, select the settings for the theme file and then save the file.

Note: You will need to deploy the theme (\themex) file to the user [PersonalFolder]\Attachmate\Reflection\Themes folder and deploy the session file that specifies it to the [PersonalFolder]\Attachmate\Reflection\folder as shown in Chapter 7: Create a Companion Installer Package. Optionally, you can deploy these files to a common directory for all users (see Table 1: Where to Deploy Customized Files on page 98).
To specify the theme for a session

1. Open your terminal session.

2. From the **Quick Access Toolbar**, click the **Document Settings** button.

3. Under **Terminal Appearance**, click **Manage Themes**.

4. Click **Select another theme file**.

5. In the Select a Theme file dialog box, select Built-in to choose a standard Reflection theme or Custom to use a theme that you have created.


7. On the Reflection Button, choose **File** and then choose **Save**.

   The session file references the theme file.

---

### Set up Connection Macros

In Reflection, you can create and run Visual Basic for Applications (VBA) macros to simplify and automate routine tasks. You can create these macros two ways:

- Click **Record Macro**, perform the tasks you want to automate, and then save the recorded steps in a macro. Use this method to create simple macros that automate interaction with host applications. (You cannot record interaction with Web applications or interaction with Reflection settings.)

- Open the Visual Basic Editor and type in the commands for the macro. Use this method to create complex macros that perform Reflection actions and interact with other applications.

A common approach for creating a macro is to record it and then fine-tune it using the Visual Basic Editor. For more information about editing and programming macros, see the Reflection VBA Guide (**Help > VBA Guide**).

**Set up Macros that run before or after a host connection**

If you have created a macro for your session or workspace, you can set up the session to run a connection macro.

**To set up a startup macro**

1. Open a terminal session.

2. From the **Quick Access Toolbar**, click the **Document Settings** button.

3. On the **Settings...** dialog box, do one of the following
   - (VT) click Configure Connection Settings.
   - (3270 or 5250), click Configure Advanced Connection Settings.

4. Under **Connection Action**, select whether to run the macro before or after the initial connection.

5. Click **Select Action** and select the macro to run.
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.

To set up Host connection options

1. Open a 3270 terminal session.

2. From the Quick Access Toolbar, click the Document Settings button.

3. Under Host Connection, click Configure Connection Settings.

4. Under Host Connection Options, specify how to connect and what to do when a connection is terminated:
   - To set up the session to establish a host connection as soon as the associated session document is opened, select **Automatically connect to the host**.
   - To specify whether to reconnect after any disconnection that is not initiated from Reflection, select an option in the **When connection is terminated** list.

Note: You will need to deploy the session file that specifies these settings to the `[PersonalFolder]\Attachmate\Reflection\` folder as shown in Chapter 7: Create a Companion Installer Package. Optionally, you can deploy this file to a common directory for all users (see Table 1: Where to Deploy Customized Files on page 98).

Customize Microsoft Office Productivity Features

1. Open a terminal session.

2. From the Quick Access Toolbar, click the Document Settings button.

<table>
<thead>
<tr>
<th>Select</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity defaults</td>
<td>Configure whether Recent Typing, Auto Complete, Auto Expand, and Spell Check are enabled by default.</td>
</tr>
<tr>
<td>Screen History</td>
<td>Set the maximum screens to capture, whether to capture manually only, and whether to clear screen history when disconnected.</td>
</tr>
<tr>
<td>Office tools</td>
<td>Specify PowerPoint presentation and Word templates. Note: If you specify templates, you will need to deploy the template files.</td>
</tr>
<tr>
<td>Recent Typing</td>
<td>Set the number of words to remember and whether to clear the list when disconnected.</td>
</tr>
<tr>
<td>Auto Complete</td>
<td>Configure Suggestions and whether to overwrite or insert suggestions.</td>
</tr>
<tr>
<td>Auto Expand</td>
<td>Set definitions for abbreviations you want to expand.</td>
</tr>
<tr>
<td>Spell Checking</td>
<td>Specify a custom dictionary and other options.</td>
</tr>
</tbody>
</table>
Chapter 4: Customize Sessions

Configure non-FTP File Transfer

You can manually configure file transfer settings in the Transfer Settings dialog box. Any configuration you perform is saved with your session document.

However, using the automated preset configurations is recommended.

**To configure file transfer**

1. Open your terminal session.
2. On the Session ribbon, from the Transfer group, click File Transfer.
3. Click the Settings button, and configure the file transfer settings.

For most situations, you can configure for file transfers by selecting a preset configuration in the Protocol tab (For example, AS/400).

Set up a Default Windows Printer

You can specify which Windows printer to use for the session.

**To set up printing**

1. Open a terminal session.
2. From the Quick Access Toolbar, click the Document Settings button.
3. Under Printer Settings, select Configure Printer Settings.
4. On the Print Setup dialog box, select the printer to use.

Encrypt a Session File

You can encrypt 3270, 5250, and Open Systems session documents to protect them against unauthorized changes. Encryption effectively scrambles the data in a session document, helping to prevent unauthorized users from reading and changing the file's contents. For best results, use document encryption in conjunction with the encryption options in the Permissions Manager.
In Reflection 2011, you can easily encrypt sessions by saving them in the Encrypted Session Document format.

Note: This optional format is available in the Save As dialog box, in the Save as Type list.

Alternatively, you can encrypt documents using a command-line program installed with Reflection 2011, FileEncrypt.exe. With this program, you can also determine whether session documents are encrypted, and if they are, you can decrypt them.

To encrypt a session in Reflection 2011

1. Open a session document.
2. From the Reflection 2011 button, choose Save As.
3. From the Save as Type menu, choose the available encryption format, and then click Save.

To encrypt, decrypt, or test sessions using FileEncrypt.exe

- From a command line, enter any of the following commands:

<table>
<thead>
<tr>
<th>To</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encrypt a document</td>
<td>fileencrypt /e [file_in] [file_out]</td>
</tr>
<tr>
<td>Decrypt a document</td>
<td>fileencrypt /d [file_in] [file_out]</td>
</tr>
<tr>
<td>Test a document for encryption</td>
<td>fileencrypt /t [file_in]</td>
</tr>
</tbody>
</table>

where:

[file_in] = The filename, including the extension and relative path.

[file_out] = (Optional) A new name for the output file.

For example: fileencrypt /e Session.rd3x SessionEncrypted.rd3x

Note: FileEncrypt.exe searches only the current directory for session files, and requires administrative credentials to encrypt or decrypt a file. You will need to deploy the session file that specifies these settings to the [PersonalFolder]\Attachmate\Reflection\ folder as shown in Chapter 7: Create a Companion Installer Package. Optionally, you can deploy this file to a common directory for all users (see Table 1: Where to Deploy Customized Files on page 98).
Chapter 5: Customize Workspace Settings

Workspaces apply to all terminal session and Web page documents opened in Reflection 2011. Workspace configuration settings include Reflection startup security behavior, file locations, and other settings related to Reflection 2011.

**What do you need to do?**

<table>
<thead>
<tr>
<th>To</th>
<th>Go to</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Specify which dialog box to open when Reflection starts</td>
<td>page 70</td>
</tr>
<tr>
<td>☐ Set up to Run a Startup Macro</td>
<td>page 70</td>
</tr>
<tr>
<td>☐ Set up a Startup Action Sequence</td>
<td>page 71</td>
</tr>
<tr>
<td>☐ Specify other Common Settings such as whether to run Help from the Web or locally, and whether to use the Ribbon or classic mode.</td>
<td>page 72</td>
</tr>
<tr>
<td>☐ Set up Workspace Security, including trusted locations, information privacy and API access (from the application or from macros)</td>
<td>page 72</td>
</tr>
<tr>
<td>☐ Set up Reflection to Open with the Ribbon</td>
<td>page 76</td>
</tr>
<tr>
<td>☐ Create layouts to automatically open multiple terminal or Web session documents when Reflection opens</td>
<td>page 76</td>
</tr>
<tr>
<td>☐ Customize the Quick Access Toolbar</td>
<td>page 78</td>
</tr>
</tbody>
</table>
Chapter 5: Customize Workspace Settings

Setting up Workspace Settings With ACT

When you use the Attachmate Customization Tool (ACT) to configure workspace settings, the settings are automatically saved in the Application.settings file. If you select to deploy the file to everyone who uses the machine, the companion installer file is automatically configured to deploy this file to [CommonAppDataFolder]\Attachmate\Reflection\Workspace\<data_folder>. If you select to deploy the file only for one user, it is configured to deploy this file to the [AppDataFolder]\Attachmate\Reflection\Workspace\<data_folder>.

Notes:
If you are deploying the first version of Reflection 2011, the Application.settings file can be deployed only to individual users. If you deploy an .access file to a computer that has more than one user, you will need to deploy it more than once. (You will need to deploy the .access file for each user on the computer.)

The name of the last folder (<data_folder>) in this directory is specific to the version of Reflection. For Reflection 2011 R1, this folder is R2011. For subsequent versions, it is R2011_versionName. (For example, the folder name in Reflection 2011 R2 is R2011_R2.)

Settings for layouts, the Ribbon, and the Quick Access Toolbar cannot be configured from the ACT tool.

To configure workspace file settings from ACT

1. On a workstation on which you have installed Reflection, open the Attachmate Customization Tool from a desktop shortcut (if you set up a shortcut as shown on page 11) or from a command line as follows:
   
   path_to_setup\setup.exe /admin

2. From the Select Customization dialog box, select Create a new Companion installer, and then click OK.

3. From the navigation pane, click Specify install locations.

4. Under Installation type, select whether to deploy the file to all users or only one.
   - To deploy the file to everyone who uses the machine, select Installs to all users of a machine.
   - To deploy the file only for one user, select Installs only for the user who installs it.
5. From the navigation pane, click **Modify user settings**.

6. In the Make changes to user settings... panel, under Application – Settings, select Reflection 2011-Workspace Settings and then click Define.

7. In the Workspace Settings window, configure the workspace as shown in the following procedures:
   - Specify Which Dialog Box to Open When Reflection Starts (page 70)
   - Set up to Run a Startup Macro (page 70)
   - Set up a Startup Action Sequence (page 71)
   - Specify Other Common Settings (page 72)
   - Set up Workspace Security (page 72)
   - Set up Reflection to Open with the Ribbon (page 76)
   - Create layouts (page 76)
Chapter 5: Customize Workspace Settings

Customize the Quick Access Toolbar (page 78)

8. Save and deploy the companion file as shown in Chain Installations to Run Companion Installer Packages and Other Programs on page 113 or Deploy from the MSI command line on page 115.

Specify Which Dialog Box to Open When Reflection Starts

By default, the Create New Document dialog box is displayed when you open the Reflection workspace.

To specify which dialog box to display when Reflection opens

1. Open ACT and then open the Reflection workspace as shown in Setting up Workspace Settings on page 68.
2. Under Workspace Settings, click Configure Workspace Settings.
3. At the When starting workspace box, select one of the following options.

<table>
<thead>
<tr>
<th>Select this</th>
<th>To do this</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show New dialog</td>
<td>Display the New dialog box used to choose which type of session to configure.</td>
</tr>
<tr>
<td>Show Open dialog</td>
<td>Display the Open dialog box used to choose a session document file.</td>
</tr>
<tr>
<td>Show nothing</td>
<td>Open the workspace without displaying a dialog box.</td>
</tr>
</tbody>
</table>

Note: This setting is automatically saved in the Application.settings file, which can be deployed to [AppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> (for a single user) or to [CommonAppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> (for all users). You can deploy this file to all users only if you are deploying Reflection 2011 Version R2 or greater. The first version of Reflection 2011 does not support deployment of this file to all users.

The name of the last folder (<data_folder>) in this directory is specific to the version of Reflection. For Reflection 2011 R1, this folder is R2011. For subsequent versions, it is R2011_versionName. (For example, the folder name in Reflection 2011 R2 is R2011_R2.)

Set up to Run a Startup Macro

You can set up a Visual Basic for Applications (VBA) macro to run when a Reflection 2011 workspace starts, rather than when a session opens and connects to the host.

This allows you to gather information about how users will connect and then use that information to configure session settings.

For example, you can create a startup macro to perform tasks such as:

- displaying a VBA UserForm to gather information from the user before connecting to the host
- reading from an .ini file
- checking for host or router availability
- configuring Reflection 2011 settings
Caution: You can configure only macros in the Common project to run when the workspace starts. Do not configure the "Run Reflection Workspace Macro" action to run a macro present in a session document (rd0x, rd3x, rd5x). This prevents Reflection 2011 from starting properly.

To set up a startup macro

1. Open ACT and then open the Reflection Workspace as shown in Setting up Workspace Settings With ACT on page 68.
2. Under Workspace Settings, click Configure Workspace Settings.
3. Under Workspace and Documents, in the When starting workspace list, select Run Startup action.
4. Click Select Action.
5. Under Action, select Run Reflection Workspace Macro.
6. Under Action parameters, choose Select macro.
7. In the Select a macro box, select the macro you want to run when Reflection 2011 starts.

Set up a Startup Action Sequence

You can set up Reflection 2011 to perform a series of actions when a workspace starts, rather than when a session opens and connects to the host.

This allows you to automate actions that are independent of a session. For example, if you are creating Visual Basic for Application (VBA) macros, you can set up an action sequence that opens the VB Project Editor, the VBA Help, and the VBA Guide when you open a workspace.

To set up a workspace startup action sequence

1. Open ACT and then open the Reflection Workspace as shown in Setting up Workspace Settings With ACT on page 68.
2. Under Workspace Settings, click Configure Workspace Settings.
3. Under Workspace and Documents, in the When starting workspace list, select Run Startup action.
4. Click Select Action.
5. On the left pane of the Select Action dialog box, under Map To, select Action Sequence.
6. Under Run Startup Action, click Add and, in the Action list, choose an action.
7. Repeat Step 6 to add additional actions and complete the action sequence.

Note: This setting is automatically saved in the Application.settings file, which can be deployed to [AppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> (for a single user) or to [CommonAppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> (for all users). You can deploy this file to all users only if you are deploying Reflection 2011 Version R2 or greater. The first version of Reflection 2011 does not support deployment of this file to all users.
Chapter 5: Customize Workspace Settings

Specify Other Common Settings

1. From the Reflection 2011 button, choose Reflection Workspace Settings.
2. Under Workspace Settings, click Configure Workspace Settings.

<table>
<thead>
<tr>
<th>To set up Reflection to</th>
<th>Select</th>
</tr>
</thead>
<tbody>
<tr>
<td>Save changed settings when a document is closed.</td>
<td>When closing a document</td>
</tr>
<tr>
<td>Clear data that may have been copied to the Clipboard when the workspace is closed.</td>
<td>Clear clipboard when closing workspace</td>
</tr>
<tr>
<td>Access the product Help on the Attachmate Web site or the Help installed on your local computer. If the Help system you specify is not available, Reflection 2011 will use the other one.</td>
<td>When displaying help</td>
</tr>
<tr>
<td>Turn off cursor blinking and disable the splash screen when running Reflection 2011 under Citrix or Windows Terminal Server (WTS).</td>
<td>Optimize Citrix and WTS sessions</td>
</tr>
<tr>
<td>Note: This setting is ignored if you are not running under Citrix or WTS.</td>
<td></td>
</tr>
<tr>
<td>Use the Ribbon or Classic mode.</td>
<td>User interface mode</td>
</tr>
<tr>
<td>Ribbon is the default UI for Reflection 2011.</td>
<td>Note: The ribbon provides a user experience similar to the most recent Office applications, including features such as super ToolTips and Ribbon galleries. Classic provides the familiar menu and toolbar interface.</td>
</tr>
</tbody>
</table>

Set up Workspace Security

Use the Trust Center to protect your working environment from information theft, and your data from potential damage caused by opening documents from nontrusted sources.

From the Trust Center, you can 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 Primary Account Numbers (PANs) or US Social Security 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.

**Set up Trusted Locations**

A trusted location is a directory that is designated as a secure source for opening files. By default, Reflection 2011 allows users to open documents only in directories specified as trusted locations in the Reflection settings.

Reflection 2011 specifies three trusted locations in the workspace Application.settings file in the program directory.

When you add other locations, these locations are saved in the Application.settings file in the user data directory folder. If you add trusted locations, you will need to deploy this file.

**To set up a trusted location**

1. Open ACT and then open the Reflection Workspace as shown in Setting up Workspace Settings With ACT on page 68.
2. Under Trust Center, click Specify Trusted Locations and then click Add new location.
3. Under Path, browse to the location you want to add.
4. To trust all folders within the trusted location, click Subfolders.
5. Click OK to close the Reflection Workspace dialog box.
6. Save the companion file on your administrative installation point.

---

**Note:** These settings are automatically saved in the Application.settings file, and the companion file is automatically configured to deploy this file to [AppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> (for a single user) or to [CommonAppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> folder (for all users). You can deploy this file to all users only if you are deploying Reflection 2011 Version R2 or greater. The first version of Reflection 2011 does not support deployment of this file to all users.

The name of the last folder (<data_folder>) in this directory is specific to the version of Reflection. For Reflection 2011 R1, this folder is R2011. For subsequent versions, it is R2011_versionName. (For example, the folder name in Reflection 2011 R2 is R2011_R2.)

**Set up Information Privacy**

With Reflection Information Privacy, you can protect sensitive data such as credit card Primary Account Numbers (PANs), phone numbers, and US Social Security numbers. Information Privacy allows you to configure Reflection so that the sensitive data is not displayed on the screen or in productivity features, such as Screen History. It also allows you to require secure connections.

You can configure Information Privacy with the ACT tool or with Group Policy.

**To set up Information Privacy with the ACT tool**

1. Open ACT and then open the Reflection Workspace as shown in Setting up Workspace Settings With ACT on page 68.
2. Under Trust Center, click Set Up Information Privacy.
3. Follow the instructions in the Set Up Information Privacy Help topic and in Setting up Information Privacy (available from Attachmate Customer Support).

<table>
<thead>
<tr>
<th>If you need to...</th>
<th>Do this...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redact certain patterns of data that are outside the realm of credit card formats (e.g., US Social Security numbers).</td>
<td>Set up Privacy Filter Redaction Rules and Privacy Filters.</td>
</tr>
<tr>
<td>Redact credit card Primary Account Numbers (PANs) to meet PCI DSS requirements.</td>
<td>Set up Primary Account Number (PAN) Redaction Rules and Primary Account Number (PAN) Detection Rules.</td>
</tr>
<tr>
<td>Require secure connections (as may be required for PCI DSS compliance).</td>
<td>Set up PCI DSS Rules.</td>
</tr>
</tbody>
</table>

4. When you have finished configuring Information Privacy, click OK.

**Note:** Privacy filter settings are automatically saved in the PrivacyFilters.xml file. For Reflection 2011 Version 2 and greater, all other Information Privacy settings are saved in the PCIDSS.settings file. The companion file is automatically configured to deploy these files to [AppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> (for a single user) or to [CommonAppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> (for all users).

You can deploy the PrivacyFilters.xml file to all users only if you are deploying Reflection 2011 versions R2 or R3. The first version of Reflection 2011 does not support deployment of this file to all users. The PCIDSS.settings file is used for versions R2 and greater.

The name of the last folder (<data_folder>) in this directory is specific to the version of Reflection. For Reflection 2011 R1, this folder is R2011. For subsequent versions, it is R2011_versionName. (For example, the folder name in Reflection 2011 R2 is R2011_R2.)

**To set up Information Privacy with Group Policy**

1. Copy the following files to the central store as follows:

<table>
<thead>
<tr>
<th>Copy these files</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>ReflectionPCIDSS.admx and ReflectionWorkspace.admx in:</td>
<td>%systemroot%\PolicyDefinitions</td>
</tr>
<tr>
<td>...\install_dir\Configuration\GroupPolicy\ADMX</td>
<td></td>
</tr>
<tr>
<td>ReflectionPCIDSS.adml and ReflectionWorkspace.adml in:</td>
<td>%systemroot%\PolicyDefinitions&lt;locale&gt;</td>
</tr>
<tr>
<td>...\install_dir\Configuration\GroupPolicy\ADMX\en-us</td>
<td></td>
</tr>
</tbody>
</table>

2. Open the Group Policy Object Editor (gpedit.msc).

3. Under either the Computer Configuration or User Configuration branch, browse to Administrative Templates | Reflection Workspace | Information Privacy.

4. In the Information Privacy panel, select and edit the policy settings.
Note: If you want to include the default regular expressions used for Custom Detection Rules and Custom Exception Expressions, you will need to add these expressions through the Group Policy editor. For detailed instructions, see Technical Note 2576: “Adding Regular Expressions for Custom Detection Rules and Custom Exception Expressions to Group Policy” (http://support.attachmate.com/techdocs/2576.html).

Set up API and Macro Security
You can enable the Reflection 2011 .NET API, and specify corresponding settings.

To set up API and macro and security

1. Open ACT and then open the Reflection Workspace as shown in Setting up Workspace Settings With ACT on page 68.
2. Under Trust Center, click Set Up API and Macro Security.
3. Configure the API settings as follows:

<table>
<thead>
<tr>
<th>To…</th>
<th>Select</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevent custom applications from accessing this installation.</td>
<td>Disable .Net API</td>
</tr>
<tr>
<td>Determine if Reflection legacy macros are supported, and to determine which legacy API has preference for the GetObject() method used to retrieve API COM objects. (Reflection supports multiple APIs, but can accept GetObject() calls for only one type of legacy API object at a time.)</td>
<td>Legacy API preference</td>
</tr>
</tbody>
</table>

4. Under Action Permissions, specify what you want to happen if an action that has been restricted through Group Policy or the Permissions Manager is initiated through a macro or API call.

<table>
<thead>
<tr>
<th>To</th>
<th>Select</th>
</tr>
</thead>
<tbody>
<tr>
<td>On a computer running Windows 7, select to control restricted actions with</td>
<td>Require elevated rights</td>
</tr>
</tbody>
</table>
Chapter 5: Customize Workspace Settings

User Account Control (UAC).
-or-
On a computer running Windows XP, select to prevent restricted actions from running.

<table>
<thead>
<tr>
<th>on Vista; do not execute on XP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Execute the action</td>
</tr>
</tbody>
</table>

Select to run restricted actions that are initiated through a macro or API call as expected. The same actions won’t run if they are initiated through the user interface.

Set up Reflection to Open with the Ribbon Hidden

You can hide the Ribbon to provide more working area in the Reflection 2011 window.

To hide the Ribbon

1. Click the Quick Access Toolbar menu button.

2. In the menu list, choose **Minimize the Ribbon**.

Notes:
You can display the Ribbon by clicking the Quick Access Toolbar menu button and then choosing **Maximize the Ribbon**.

If you are using a default 3270 or 5250 keyboard map, you can press CTRL+F1 to hide or display the Ribbon.

The state of the ribbon when the session is saved is automatically saved in the Application.settings file, which can be deployed to \[AppDataFolder]\Atachmate\Reflection\Workspace\<data_folder> (for a single user) or to \[CommonAppDataFolder]\Atachmate\Reflection\Workspace\<data_folder> (for all users). You can deploy this file to all users only if you are deploying Reflection 2011 Version R2 or greater. The first version of Reflection 2011 does not support deployment of this file to all users.

The name of the last folder (<data_folder>) in this directory is specific to the version of Reflection. For Reflection 2011 R1, this folder is R2011. For subsequent versions, it is R2011_versionName. (For example, the folder name in Reflection 2011 R2 is R2011_R2.)

Create layouts

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, opens and positions any docked panes (such as Scratch Pad or Screen History), and connects session documents to configured hosts.

If the workspace is configured to display documents as tabs, you can create a name for each tab. This can be useful when you use two different applications on one host.

You can create a session document that connects to that host, then open the document twice, add a different name to each tab, and then save your layout.
Create or Modify a Layout

By saving terminal sessions you use regularly to a layout, you can open them all at once, arranged as you prefer, just by opening the layout.

To create a layout

1. Open the documents and any docked panes you want to include in the layout.

2. (Optional) To access multiple layouts using the Reflection 2011 .NET API, choose Settings from the Reflection 2011 button and then click Layout Settings. Then enter the appropriate values for the server and channel name.

3. (Optional) If the workspace is configured to display documents as tabs, you can add a descriptive label to each document tab. To do this, right-click the session tab, and then choose Tab Properties. Then, in the Name box, type in the name that you want to appear on the tab, and click OK.

4. Adjust the size and position of the workspace, as needed.

5. From the Reflection 2011 File menu (or the Reflection button), choose Save Layout.

6. Name and save the layout file to a trusted location, and then click Save. If you haven't saved the session documents, you are prompted to do so.
Chapter 5: Customize Workspace Settings

Note: This setting is automatically saved in the Application.settings and .rwsp files. Application.settings can be deployed to [AppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> (for a single user) or to [CommonAppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> (for all users).

The name of the last folder (<data_folder>) in this directory is specific to the version of Reflection. For Reflection 2011 R1, this folder is R2011. For subsequent versions, it is R2011_versionName. (For example, the folder name in Reflection 2011 R2 is R2011_R2.)

The .rwsp file can be deployed to: [PersonalFolder]\Attachmate\Reflection (for a single user) or to [CommonAppDataFolder]\Attachmate\Reflection (for all users).

You can deploy these files to all users only if you are deploying Reflection 2011 Version R2 or greater. The first version of Reflection 2011 does not support deployment of these files to all users.

Customize the Quick Access Toolbar

The Quick Access Toolbar contains a set of controls that you can use to perform common tasks and access document settings. It is located at the top of the Reflection 2011 window.

The Quick Access Toolbar

You can add button controls to the Quick Access Toolbar from the Ribbon interface or from the Reflection 2011 button menu. You can also add custom button controls that you have created.

Note: You can add only simple button controls to the Quick Access Toolbar. You cannot add complex buttons or other interface items.
To add or remove Quick Access Toolbar buttons

- With a session open, add or remove Quick Access Toolbar button controls as follows:

<table>
<thead>
<tr>
<th>To</th>
<th>Do this...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add a custom button control</td>
<td>Click the Quick Access Toolbar menu, and then select <strong>Add an Action</strong>. In the Select Action Dialog box, under <strong>Action</strong>, select an action and then specify action parameters (if required).</td>
</tr>
<tr>
<td>Remove a button control</td>
<td>On the Quick Access Toolbar, right-click the button control you want to remove and then select <strong>Remove from Quick Access Toolbar</strong>.</td>
</tr>
<tr>
<td>Add a button control from the Reflection 2011 Button menu</td>
<td>On the Reflection 2011 button menu, right click on the button control you want to add, and then select <strong>Add to Quick Access Toolbar</strong>.</td>
</tr>
<tr>
<td>Add a button control from the Ribbon</td>
<td>On the Reflection 2011 Ribbon, right click on the button control you want to add, and then select <strong>Add to Quick Access Toolbar</strong>.</td>
</tr>
</tbody>
</table>

Note: The Quick Access Toolbar button controls that you add are automatically saved in three configuration files (*Application.settings*, *Frame.settings*, and *Reflection2007.Application.Ribbon.xuml*) that you will need to deploy to users. These files can be deployed to \[AppDataFolder\]\Atachmate\Reflection\Workspace\<data_folder> (for a single user) or to \[CommonAppDataFolder\]\Atachmate\Reflection\Workspace\<data_folder> (for all users). (You can deploy these files to all users only if you are deploying Reflection 2011 Version R2 or greater. The first version of Reflection 2011 does not support deployment of these files to all users.)

The name of the last folder (<data_folder>) in this directory is specific to the version of Reflection. For Reflection 2011 R1, this folder is R2011. For subsequent versions, it is R2011_versionName. (For example, the folder name in Reflection 2011 R2 is R2011_R2.)
Chapter 6: Restrict Access to Features and Settings

You can limit, or restrict, a user's ability to change configuration settings or use a particular feature. (For example you can prevent users from changing the host address that a session connects to, or from running a macro.)

You can choose from three methods to create files that restrict access: Group Policy, Permission Manager, and Permission Manager with the ACT tool. The last option automatically sets up the access file in the proper directory.

What do you need to do?

<table>
<thead>
<tr>
<th>To...</th>
<th>Go to</th>
</tr>
</thead>
<tbody>
<tr>
<td>About Restricting Access to Settings and Controls</td>
<td>page 82</td>
</tr>
<tr>
<td>Restrict Access with Permissions Manager</td>
<td>page 84</td>
</tr>
<tr>
<td>Restrict Access with ACT</td>
<td>page 86</td>
</tr>
<tr>
<td>Restrict Access with Group Policy</td>
<td>page 89</td>
</tr>
</tbody>
</table>
About Restricting Access to Settings and Controls

In Reflection 2011, you can “lock down” or restrict access to settings or controls so that they are not available to users. This allows you to limit the functionality of Reflection to simplify support requirements, resolve security concerns, and meet other requirements.

Restricting Access to Settings

To prevent a user from using a given setting, you set the "permission level" for that setting to "Restricted". For example, you could restrict the user's ability to modify the Host, Port, and Device name settings on 3270 terminal sessions, as shown below:

The Host, Port, and Device name fields are grayed out – the user can not edit them unless they can elevate their access level to administrator.

The security shield and the Change currently disabled settings link in the upper right corner of this dialog box indicate that settings are disabled and administrative access is required to enable them.

Restricting Access to Features

To prevent the user from using a particular feature, you "restrict" the permission of the "action" associated with that feature. In the following example, the security shield over the Copy and Select All icons indicates that the "action" associated with each of these options is "restricted".
How restricted settings work on Windows 7 versus Windows XP

Restricted settings work differently on Windows 7 and Vista than on Windows XP.

On Windows 7 and Vista, the user must "elevate" via Windows UAC to change a restricted setting or use a restricted feature. When logged on with a user account that has no administrative rights, clicking on the **Change currently disabled** settings link on a settings dialog, or a restricted item on the Ribbon, Windows displays a User Account Control dialog box.

If the user enters the credentials (user name and password) of a user account with Administrator rights, the disabled settings are enabled, and the restricted features are executed.

On Windows XP, restricted settings are "locked-out" (disabled) and there is no way to change them. (This is because Windows XP does not have the UAC feature.)

**Restricted Actions and API Calls**

What happens if a restricted action is called from an API or macro? The options shown below are found on the Set up API and Macro Security dialog box (Reflection Workspace Settings):

<table>
<thead>
<tr>
<th>Action Permissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>When a restricted action is invoked by a macro or API call:</td>
</tr>
<tr>
<td>☐ Require elevated rights; do not execute on XP</td>
</tr>
<tr>
<td>☐ Execute the action</td>
</tr>
</tbody>
</table>

The default behavior is that a restricted action invoked via a macro or API call requires UAC elevation on Windows 7 and Vista, and does nothing on Windows XP. If the second option is selected, a restricted action is executed as though it were not restricted.

The option described above has no affect on restricted settings. Attempts to set or modify a setting via an API or macro fail (with an error logged).
How do you Restrict Access?

You can restrict access to settings and features in several ways:

- Use the Attachmate Permissions Manager tool to create access files that control access to features. Then create a companion installer package to deploy these files.
- Use ACT along with Permissions Manager to create access files that are automatically packaged in a companion installer package that you can deploy to users.
- Edit Group policy to restrict access.

Note: While you most likely choose to restrict settings and actions via either Group Policy or by deploying Reflection .access permission files - you can use both. Individual permissions are merged with the following precedence (highest to lowest):
  Group Policy - user
  Group Policy - machine
  Local permissions file (.access)

Restrict Access with Permissions Manager

The Reflection Workspace Permission Manager is used to create .access files that can be deployed to user machines to restrict configuration settings and features.

The following access file templates are distributed with Reflection 2011:

<table>
<thead>
<tr>
<th>This File</th>
<th>Controls access to…</th>
</tr>
</thead>
<tbody>
<tr>
<td>actions.access</td>
<td>Reflection 2011 actions</td>
</tr>
<tr>
<td>application.access</td>
<td>Reflection 2011 workspace settings</td>
</tr>
<tr>
<td>rd3x.access</td>
<td>Reflection 2011 3270 terminal settings</td>
</tr>
<tr>
<td>rd5x.access</td>
<td>Reflection 2011 5250 terminal settings</td>
</tr>
<tr>
<td>rdox.access</td>
<td>Reflection 2011 VT terminal settings</td>
</tr>
</tbody>
</table>

To set access with Permissions Manager

1. In the Reflection 2011 install folder (C:\Program Files\Attachmate\Reflection by default), run AccessConfig.exe. (Administrator rights are required.)
2. When prompted to create a new permission file, or edit an existing one, choose Create new permission file. (The first time you run the tool, you will need to create a file.)
3. When prompted with a list of access file templates, choose the type of permission file to create.

![Choose permission file type to create.](image)

4. Under Groups, select the type of setting to control access to (for example, `Document\Connection\TN3270Basic group`).

   Settings in Reflection 2011 are in "groups" and each group has a path name.

![Groups](image)

5. In the Items box, in the Accessibility field for the item (or items) you want to restrict, click **Full** and then select **Restricted** from the drop down menu. In the following example, the Accessibility levels for `DeviceName`, `Host`, and `TerminalType` are **Restricted**. The resulting `rd3x.access` file limits access to these three settings.

![Items](image)

---

**Note:** When accessing a setting via an API, such as executing a macro, a setting with restricted access cannot be modified. (When attempting to set a restricted setting via an API, an error is logged.)
6. If you are configuring rd3x.access, rd5x.access, or rdox.access files, under **Additional security options**, select how to control session file encryption:

- To configure all sessions so that users can open only encrypted display session files, select **User can open only encrypted session files**.
- To configure all sessions so that users can save a display session only if it is encrypted, select **User can save only encrypted session files**.

---

Important: For Reflection 2011 to use the .access files you create, you must deploy them to the following folders:

```
[AppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> (for a single user)
or
[CommonAppDataFolder]\Attachmate\Reflection\Workspace\<data_folder>
(for all users).
```

You can deploy these files to all users only if you are deploying Reflection 2011 Version R2 or greater. The first version of Reflection 2011 does not support deployment of these files to all users.

The name of the last folder (<data_folder>) in this directory is specific to the version of Reflection. For Reflection 2011 R1, this folder is _R2011_. For subsequent versions, it is _R2011_versionName_. (For example, the folder name in Reflection 2011 R2 is _R2011_R2_.)

Setting these session encryption options in an .access file only affects the associated session type. For example, limiting users to opening only encrypted session files in rd3x.access will only affect 3270 terminal session files, not 5250.

Be sure to set file access rights on these files to prevent users from deleting, replacing, or editing them.

---

### Restrict Access with ACT

ACT (Attachmate Customization Tool) is an administrative tool that allows you to customize installs and create companion installer packages. When you use ACT to create .access files, the files are automatically saved in the required directory and packaged in a companion installer package that you can deploy to your users.

For more about ACT, see Deploying Reflection page 26.

**To set access with the ACT tool**

1. Open the ACT tool as follows:
   - In a command window, navigate to a Reflection 2011 administrative install point and enter: `setup /admin`
   - If you have set up a shortcut to the ACT tool on your desktop, double click the shortcut.
2. When the ACT tool opens, select the option to create a new companion installer package:

3. On the left pane, select **Specify install locations**.

4. Under **Installation type**, select either **Installs to all users of a machine** or **Installs only for the user who installs it**.

5. In the left pane, select **Modify user settings**.

---

Note: Select **Installs to all users of a machine** only if you are deploying Reflection 2011 R2. The first version of Reflection 2011 does not support deployment of .access files to all users.
6. Select one of the .access options in the table and click on the Define button.

7. In Permissions Manager, under Groups, select the type of setting to control access to (for example, Document\Connection\TN3270Basic group). (Settings in Reflection 2011 are in "groups" and each group has a path name.)

Note: These settings do not include workspace or FTP application settings.

8. In the Items box, in the Accessibility field for the item (or items) you want to restrict, click Full and then select Restricted from the drop down menu.

In the following example, the Accessibility level for DeviceName, Host, and Port is Restricted. The resulting rd3x.access file limits access to these three settings.
9. Under **Additional security options**, select how to control session file encryption:
   - To configure all sessions so that users can open only encrypted display session files, select **User can open only encrypted session files**.
   - To configure all sessions so that users can save a display session only if it is encrypted, select **User can save only encrypted session files**.

10. On the ACT File menu, choose **File | Save As** and save the companion installer package.

The companion installer package automatically specifies to deploy this access file to 
[AppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> (for a single user) or to [CommonAppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> (for all users).

You can deploy these files to all users only if you are deploying Reflection 2011 Version R2 or greater. The first version of Reflection 2011 does not support deployment of these files to all users.

The name of the last folder (<data_folder>) in this directory is specific to the version of Reflection. For Reflection 2011 R1, this folder is R2011. For subsequent versions, it is R2011_versionName. (For example, the folder name in Reflection 2011 R2 is R2011_R2.)

By default, the [AppDataFolder] is defined as:

(Windows 7 and Vista) Users\yourUserName\AppData\Roaming\n
(XP) Documents and Settings\yourUserName\Application Data\n
---

**Important:**

Be sure to set file access rights on .access files to prevent users from deleting, replacing, or editing them.

To deploy files to this folder, you will need to use a deployment tool that allows you to install the companion installer package as the user.

---

**Restrict Access with Group Policy**

You can use Microsoft Group Policy to manage permissions. Reflection 2011 supports both ADM and ADMX formats.


Note: ADMX policy files can be managed only from Windows 7 based, Vista-based or Windows Server-based administrative machines running Group Policy Object Editor or Group Policy Management Console.
About Group Policy ADMX and ADM Files

**ADMX files**

ADMX files are divided into language-neutral files (.admx) and language-specific resource files (.adml), available to all Group Policy administrators. These factors allow Group Policy tools to adjust their UI according to the administrator's configured language. Adding a new language to a set of policy definitions is achieved by ensuring that the language-specific resource file is available.

The Reflection 2011 Setup tool installs ADMX files to:

```
...\install_dir\Configuration\GroupPolicy\ADMX
```

It installs ADML files to language-specific directories. For example, the US English ADML file is installed in:

```
...\install_dir\Configuration\GroupPolicy\ADMX\en-us
```

Reflection provides the following ADMX Group Policy files. Each of these files has a corresponding ADML language file.

<table>
<thead>
<tr>
<th>This file</th>
<th>Controls access to</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIONS.admx</td>
<td>Actions</td>
</tr>
<tr>
<td>APPLICATION.admx</td>
<td>Workspace</td>
</tr>
<tr>
<td>RD3X.admx</td>
<td>Mainframe terminal</td>
</tr>
<tr>
<td>RD5X.admx</td>
<td>AS/400 terminal</td>
</tr>
<tr>
<td>RDOX.admx</td>
<td>UNIX/OpenVMS terminal</td>
</tr>
<tr>
<td>ReflectionWorkspace.admx</td>
<td>Root-level ADMX file</td>
</tr>
</tbody>
</table>

Note: This directory also includes the ReflectionPCIDSS.admx file. This file is used to configure information privacy through Group Policy and is not used to control access.

**ADM files**

ADM files contain the Group Policy definitions and resource strings in the same file.

Reflection 2011 Setup installs ADM files to:

```
...\install_dir\Configuration\GroupPolicy\ADM\ADM Group Policy files:
```

<table>
<thead>
<tr>
<th>This file</th>
<th>Controls access to</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIONS.adm</td>
<td>Actions</td>
</tr>
<tr>
<td>APPLICATION.adm</td>
<td>Workspace</td>
</tr>
<tr>
<td>RD3X.adm</td>
<td>Mainframe terminal</td>
</tr>
<tr>
<td>RD5X.adm</td>
<td>AS/400 terminal</td>
</tr>
<tr>
<td>RDOX.adm</td>
<td>UNIX/OpenVMS terminal</td>
</tr>
</tbody>
</table>
Test access settings on a single machine
Before you deploy group policy definitions, set and test them on a local test machine.

To deploy ADMX & ADML files on a local test machine

1. Copy the .admx files from `\install_dir\Configuration\GroupPolicy\ADMX` to the central store (`%systemroot%\PolicyDefinitions`).
2. Copy all required locale .adml files to:
   `%systemroot%\PolicyDefinitions<locale>`
3. Open the Group Policy Object Editor (`gpedit.msc`).
4. Under either the **Computer Configuration** or **User Configuration** branch, browse to **Administrative Templates** | **Reflection Workspace**.
5. Find the setting you want to restrict and enable its associated policy as shown in *To set access with Group Policy Object Editor* on page 92.

For more about using ADMX files to set group policy, see *Managing Group Policy ADMX Files Step-by-Step Guide* at [http://technet.microsoft.com](http://technet.microsoft.com).

To Deploy ADM files on a local test machine

1. Copy the .adm files from `\install_dir\Configuration\GroupPolicy\ADM` to:
   `C:\Windows\inf`

   **Note:** For Reflection 2011 Release 1, ADM files are found in language specific folders (for example, `\install_dir\Configuration\GroupPolicy\ADM\en-us`)

2. Open the Group Policy Object Editor (`gpedit.msc`).
3. In the left pane of the Group Policy Editor, under **User Configuration** or **Computer Configuration**, right-click on **Administrative Templates** and select **Add/Remove Templates**.
4. Click **Add**, select the Reflection ADM files you need to add, and then click **Open**.

   The Reflection ADM files are listed in the **Add/Remove Templates** dialog box, in the **Current Policy Templates** list.
5. Under either the **Computer Configuration** or **User Configuration** branch, browse to **Administrative Templates** | **Classic Administrative Templates (ADM)** | **Reflection Workspace**.

   For more about using ADM files to set group policy, see *Add or remove an Administrative Template (.adm file)* at [http://technet.microsoft.com](http://technet.microsoft.com).
6. Find the settings you need to restrict and enable their associated policies as shown in *To set access with Group Policy Object Editor* on page 92.
Chapter 6: Restrict Access to Features and Settings

To set access with Group Policy Object Editor

1. In the Group Policy Management Editor, navigate to the setting or feature you want to configure.

The following example shows all shipping ADMX files loaded into the GPO Editor under User Configuration.

Group Policies can be set at the machine (Computer Configuration) or user (User Configuration) levels.
2. Enable the Group Policy settings you want to restrict access to.

The following example shows the following:

- The current node is the **RD3X Document\Connection\TN3270Basic** group.
- All the settings for this group are listed in the right-hand panel.
- The **Restrict ConnectionTimeout setting** policy is **Enabled**. This setting for 3270 display sessions is restricted (it is disabled on Windows XP computers, and requires UAC elevation on Windows 7 and Vista computers).

Registry keys are added when policy settings are **Enabled**. When **Not Configured** or **Disabled** are selected, no key is present.

The following example shows the registry corresponding to the example above, with the **Restrict ConnectionTimeout setting** policy setting enabled. This Attachmate policy setting is in:

**HKEY_CURRENT_USER\Software\Policies**
Create a companion installer package (also called a "companion database") to install any custom files you created when you customized Reflection. A companion installer package is a standalone MSI file that is independent of any Reflection installer package.

Because companion installer packages are installed independently of Reflection, you can upgrade the product without removing these support files or you can deploy additional support files without re-installing the product.

You can deploy companion installer packages separately or you can add them to a customized installation, so that the companion installer packages are automatically installed when the Reflection installer package completes. You can also create and install packages at any time after the initial installation. Companion installer packages are displayed as independent entries in the Windows Add\Remove Programs list and can be installed or uninstalled independently of Reflection.

What do you need to do?

<table>
<thead>
<tr>
<th>To…</th>
<th>Go to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a Companion Installer Package</td>
<td>page 96</td>
</tr>
<tr>
<td>Add/Modify Registry Data</td>
<td>page 103</td>
</tr>
<tr>
<td>Add/Modify Property Value Dialog Box</td>
<td>page 104</td>
</tr>
</tbody>
</table>
Before you start:

- Make sure you know which folders on user workstations are designated as trusted locations. Files that are opened by Reflection, such as settings files, must be installed in trusted locations.

Create a Companion Installer Package

To create a companion installer package

1. On a workstation on which you have installed Reflection, open the Attachmate Customization Tool from a desktop shortcut (if you set up a shortcut as shown on page 11) or from a command line as follows:
   path_to_setup\setup.exe /admin

2. From the Select Customization dialog box, select Create a new Companion installer (or open an existing MSI), and then click OK.
   The Attachmate Customization tool opens in the mode of the tool that is used to create companion installer packages.

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 Uninstall or change a program panel.

   Note: The Windows Vista and Windows 7 Uninstall or change a program list is similar to the Windows Add or Remove Programs List for previous versions of Windows. It is accessed by selecting Programs and Features from the Control Panel.

5. From the navigation pane, select Specify install locations.
6. Under **Installation type**, select whether to install the files for all users or for only one user:

<table>
<thead>
<tr>
<th>Select</th>
<th>To set up the companion installer package to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installs to all users of a machine</td>
<td>Make files available for every user who logs onto the computer. Use this option for settings files, macros, and other configuration files that you want to be available to all users.</td>
</tr>
<tr>
<td>Installs only for the user who installs it</td>
<td>Make files available only for the user who installs it. For the first version of Reflection 2011, if you are deploying .access files, keys, or other files that must be installed in the user’s personal data folders, you must select this option. For Reflection 2011 R2, you can deploy these files to all users or only for the user who installs it.</td>
</tr>
</tbody>
</table>

7. In the **Default installation folder** list, select the folder in which to install the files. (Files are deployed to this folder unless you specify another folder when you add a file.)

   Note: The folders available in this list depend on which Installation type you chose. **Installation Type** folder options specify the access for the files (after the installation). These options affect only the folders to which you can install – you cannot change these options after you add a file.

8. In the **Default shortcut folder** list, select the folder in which to install program shortcuts. (Shortcuts are deployed to this folder unless you specify another folder when you add a file.)

   Note: List items that refer to folders are pre-defined folder keywords (for example, [ProgramMenuFolder]). You can create customized directories by adding new folder names with typical directory syntax (such as, [ProgramFilesFolder]\My Folder). Alternatively, you can enter a fully qualified path (for example, C:\Program Files\My Folder), as long as that location is known to exist on the target machine.

9. From the navigation pane, select **Add files** and then click **Add** and browse to the files you want to include.

10. Specify the destination directory for each file as follows:

    f. In the table of files that you added, select the file.

    g. 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. Use Table 1. Where to Deploy Customized Files on page 98 as a guide for where to install the custom files you have created.)

    h. Click **Update**. (The destination directory for the file is displayed in the table’s **Location** column.)

11. (Optional) To create a shortcut for the file, select **Include shortcut** and then click **Update**.

12. When you have finished creating your companion installer package, choose **File > Save**. (If **Save** is grayed out, click **Exit** and you will be prompted to save the file.)

13. The companion file can now be deployed by itself or with Reflection (by chaining the installation).
• To deploy the companion file independently, enter the following command:
  
  msiexec /i
  path_to_administrative_installation_point\myConfigFiles.msi

• To deploy the companion file with your main installation, see Chain Installations to Run Companion Installer Packages and Other Programs on page 113.

---

Note: The package remains on the end user’s computer until it is removed with the Microsoft Uninstall or change a program utility (or Add/Remove Programs for Windows XP.)

---

### Table 1. Where to Deploy Customized Files

<table>
<thead>
<tr>
<th>If you have created files to...</th>
<th>Deploy these files</th>
<th>To these folders</th>
</tr>
</thead>
</table>
| 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 | For all users: 

[CommonAppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> 

For only the user who installs: 

[AppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> |
| Minimize the ribbon | frame.settings | The name of the last folder (<data_folder>) in this directory is specific to the version of Reflection. For Reflection 2011 R1, this folder is R2011. For subsequent versions, it is R2011_versionName. (For example, the folder name in Reflection 2011 R2 is R2011_R2.) You can deploy these files to all users only if you are deploying Reflection 2011 Version R2 or greater. The first version of Reflection 2011 does not support deployment of these files to all users. |
| Add controls to the quick access toolbar | Application.settings frame.settings Reflection2007.Application.Ribbon.xu ml | 

These files apply only to Reflection 2011 R2. 

For all users: 

[CommonAppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> 

For only the user who installs: 

[AppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> |
| Configure Information Privacy | PrivacyFilters.xml (includes all Privacy Filter settings) PCIDSS.settings (includes all other Information Privacy settings) | These files apply only to Reflection 2011 R2. 

For all users: 

[CommonAppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> 

For only the user who installs: 

[AppDataFolder]\Attachmate\Reflection\Workspace\<data_folder> |
### Table 1. Where to Deploy Customized Files

<table>
<thead>
<tr>
<th>If you have created files to...</th>
<th>Deploy these files</th>
<th>To these folders</th>
</tr>
</thead>
</table>
| **Control access to Reflection features** | .access | For all users:  
[CommonAppDataFolder]\Attachmate\Reflection\Workspace\<data_folder>
For only the user who installs:  
[AppDataFolder]\Attachmate\Reflection\Workspace\<data_folder>

The name of the last folder (<data_folder>) in this directory is specific to the version of Reflection. For Reflection 2011 R1, this folder is R2011. For subsequent versions, it is R2011_<versionName>. (For example, the folder name in Reflection 2011 R2 is R2011_R2.)

You can deploy these files to all users only if you are deploying Reflection 2011 Version R2 or greater. The first version of Reflection 2011 does not support deployment of these files to all users. |
| **Install Kerberos settings** | Rscrb5.xml | For all users:  
[CommonAppDataFolder]\Attachmate\Reflection
For only the user who installs:  
[AppDataFolder]\Attachmate\Reflection

Note: These locations are required if you want the Kerberos settings to be configured automatically the first time a user uses Reflection Kerberos. |
| **Set up Secure Shell User-specific files** | config  
known_hosts | For only the user who installs:  
[PersonalFolder]\Attachmate\Reflection\.ssh |
| **Set up Secure Shell Global files** | global Secure Shell client configuration file:  
ssh_config  
global known hosts file:  
.ssh_known_hosts | For all users:  
[CommonAppDataFolder]\Attachmate\Reflection |
| **Set up user-specific Certificate validation (Secure Shell and SSL)** | Reflection Trusted Certificate Authorities:  
trust_store.p12  
Reflection Certificate Manager settings:  
pki_config | For only the user who installs:  
[PersonalFolder]\Attachmate\Reflection\.pki |
Table 1. Where to Deploy Customized Files

<table>
<thead>
<tr>
<th>If you have created files to...</th>
<th>Deploy these files</th>
<th>To these folders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set up global Certificate validation (Secure Shell and SSL)</td>
<td>pki_config trust_store.p12</td>
<td>For all users: [CommonAppDataFolder]\Attachmate\Reflection.pki</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Note: 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.</td>
</tr>
<tr>
<td>Setup FTP user-specific files</td>
<td>settings.rfw</td>
<td>For only the user who installs: [PersonalFolder]\Attachmate\Reflection\</td>
</tr>
<tr>
<td>Setup FTP global files</td>
<td>rftp.xml</td>
<td>For all users: [AppDataFolder]\Attachmate\Reflection\</td>
</tr>
<tr>
<td>Control Input</td>
<td></td>
<td>Note: Settings in this file are migrated to a Settings.rfw file for each Windows user the first time the user runs the FTP Client.</td>
</tr>
<tr>
<td>Control keyboard input and text handling</td>
<td>Custom keyboard map file .xkb</td>
<td>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</td>
</tr>
<tr>
<td>Control keyboard input and text handling</td>
<td>Custom mouse map file .xmm</td>
<td>For only the user who installs: [PersonalFolder]\Attachmate\Reflection\Keyboard Maps</td>
</tr>
<tr>
<td>Customize mouse button behavior</td>
<td></td>
<td>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</td>
</tr>
<tr>
<td>Customize mouse button behavior</td>
<td></td>
<td>For only the user who installs: [PersonalFolder]\Attachmate\Reflection\Mouse Maps</td>
</tr>
</tbody>
</table>
### Table 1. Where to Deploy Customized Files

<table>
<thead>
<tr>
<th>If you have created files to...</th>
<th>Deploy these files</th>
<th>To these folders</th>
</tr>
</thead>
</table>
| 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 |

### Customize the Interface and Controls

| 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 |

### Set up Host Connection options and common configurations
Table 1. Where to Deploy Customized Files

<table>
<thead>
<tr>
<th>If you have created files to...</th>
<th>Deploy these files</th>
<th>To these folders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set up connection macros</td>
<td>Session</td>
<td>For all users:</td>
</tr>
<tr>
<td>Configure host connect and disconnect options</td>
<td>(rdox, rd3x, or rd5x, urlx)</td>
<td>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:</td>
</tr>
<tr>
<td>Configure non-FTP File Transfer</td>
<td></td>
<td>[CommonAppDataFolder]\Attachmate\Reflection\</td>
</tr>
<tr>
<td>Set up a default Windows printer for the session</td>
<td>Word and PowerPoint templates</td>
<td>For only the user who installs:</td>
</tr>
<tr>
<td>Encrypt a session file</td>
<td>.dotx or. ppt</td>
<td>[PersonalFolder]\Attachmate\Reflection\</td>
</tr>
<tr>
<td>Customize the behavior of Microsoft Office Productivity features included with Reflection</td>
<td>User-defined session templates</td>
<td>For all users:</td>
</tr>
<tr>
<td>Set up which documents to open and how to display them</td>
<td>.rsft</td>
<td>[CommonAppDataFolder]\Attachmate\Reflection\Workspace&lt;data_folder&gt;\templates</td>
</tr>
</tbody>
</table>

For Reflection 2011 R1, this folder is R2011. For subsequent versions, it is R2011_versionName. (For example, the folder name in Reflection 2011 R2 is R2011_R2.)
Table 1. Where to Deploy Customized Files

<table>
<thead>
<tr>
<th>If you have created files to...</th>
<th>Deploy these files</th>
<th>To these folders</th>
</tr>
</thead>
</table>

Note: The default settings for [AppDataFolder], [PersonalFolder], and [CommonAppDataFolder] are:

- [AppDataFolder]:
  - (Vista and Windows 7) Users\userID\AppData\Roaming\Documents and Settings\userID\Application Data\My Documents
- [PersonalFolder]:
  - My Documents
- [CommonAppDataFolder]:
  - C:\Program Data

Add/Modify Registry Data

You can specify Windows registry keys and values to add or modify during the installation process. By modifying registry values, you can change the way the application operates (for example, for certain open systems applications, you can add a value that specifies to never save settings on exit).

Note: Windows registry data can be added or modified only for open systems (VT) applications.

1. On a workstation on which you have installed Reflection, open the Attachmate Customization Tool from a desktop shortcut (if you set up a shortcut as shown on page 11) or from a command line as follows:
   ```
   path_to_setup\setup.exe /admin
   ```

2. From the Select Customization dialog box, select Create a new companion installer or Open an existing Setup customization file or Companion installer.

3. From the navigation pane, click Add registry data.

4. To add a new registry value, click Add.
   -or-
   To modify a registry value in the table, select the value, and then click Modify.

5. Enter the following values:

<table>
<thead>
<tr>
<th>In this field</th>
<th>Enter or select</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key</td>
<td>The complete registry path from the root, for example: HKEY_LOCAL_MACHINE\SOFTWARE\Reflection\Rwin\Reflection</td>
</tr>
<tr>
<td>Name</td>
<td>The registry value name, for example:</td>
</tr>
</tbody>
</table>
CREATE A COMPANION INSTALLER PACKAGE

SaveChanges

If the Name box is blank, the data entered into the Value box are written to the Default registry key.

<table>
<thead>
<tr>
<th>Type</th>
<th>The data type of the value. For example:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DWORD</td>
<td>Types include strings, integers (DWORD), or binary values.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Value</th>
<th>The value. For example:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x00000000 (0)</td>
<td></td>
</tr>
</tbody>
</table>

### Add/Modify Property Values

You can set the property names and values to create new properties or to modify properties in the installer database. For example, you can set a property that disables the Remove button on the Windows Add or Remove Programs panel.

1. On a workstation on which you have installed Reflection, open the Attachmate Customization Tool from a desktop shortcut (if you set up a shortcut as shown on page 11) or from a command line as follows:

   ```
   path_to_setup\setup.exe /admin
   ```

2. From the **Select Customization** dialog box, select the option that best describes the task you are performing.

3. From the navigation pane, click **Modify setup properties**.

4. To add a new property, click **Add**.
   - or-
   To modify a property in the table, select the property, and then click **Modify**.

5. In the Name field, select or enter the property name. You can modify properties in the installer database or you can create your own.

6. In the Value field, set the property value. (If you select a name from the Name list, guidelines for the value are displayed under the Value field.)
Chapter 8: Customize the Install with a Transform

Create and deploy a transform to customize how Reflection is installed on user workstations. 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."

What do you need to do?

<table>
<thead>
<tr>
<th>To...</th>
<th>Go to</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Create a Transform</td>
<td>page 106</td>
</tr>
<tr>
<td>□ Change the Add/Remove Programs Display</td>
<td>page 106</td>
</tr>
<tr>
<td>□ Select Feature Installation States, Components, and Languages</td>
<td>page 107</td>
</tr>
<tr>
<td>□ Configure Desktop Shortcuts</td>
<td>page 108</td>
</tr>
<tr>
<td>□ Choose how to display the Installer User Interface during the Installation (Jump Template)</td>
<td>page 109</td>
</tr>
<tr>
<td>□ Change the Installation Directory</td>
<td>page 109</td>
</tr>
</tbody>
</table>
Create a Transform

To create an installation transform

1. On a workstation on which you have installed Reflection, open the Attachmate Customization Tool from a desktop shortcut (if you set up a shortcut as shown on page 11) or from a command line as follows:
   ```
   path_to_setup\setup.exe /admin
   ```

2. In the Select Customization dialog box, select Create a new Setup customization file for the following product, and then click OK.

3. An untitled .mst file opens in Attachmate Customization Tool.

4. Select items from the list in the left panel to open configuration panels on the right, and then make your customizations.

5. From the File menu, choose Save As.

   Note: Transform files are saved as .mst files, and it is recommended that you save them in the same folder as the installer package .msi file for Reflection.

To modify an existing installation transform

1. On a workstation on which you have installed Reflection, open the Attachmate Customization Tool from a desktop shortcut (if you set up a shortcut as shown on page 11) or from a command line as follows:
   ```
   path_to_setup\setup.exe /admin
   ```

2. In the Select Customization dialog box, select Open an existing Setup customization file, and then click OK.

3. In the Open dialog box, browse to the location you selected when you created your transform file, and select the your_transform_name.mst file.

4. Select items from the list in the left panel to open configuration panels on the right, and then make your customizations.

   For more information about using the Attachmate Customization Tool to create and edit transform files, see the "Panels for Creating and Editing Transform Files" topic in the Reflection 2011 Help.

5. From the File menu, choose Save As.

   Note: Transform files are saved as .mst files, and it is recommended that you save them in the same folder as the installer package .msi file for Reflection.

Change the Add\Remove Programs Display and Other Properties

You can modify existing Reflection 2011 setup properties or add your own properties to the install. An example of an installer property is ARPHELPLINK, which sets the URL used by the support link in the Uninstall or change a program list (or the Add/Remove Programs list in Windows XP).

Caution: Do not overwrite existing properties unless you fully understand how the changes affect your install. Setting properties to incorrect values can break the install.
To modify installation properties

1. On a workstation on which you have installed Reflection, open the Attachmate Customization Tool from a desktop shortcut (if you set up a shortcut as shown on page 11) or from a command line as follows:

   `path_to_setup\setup.exe /admin`

2. From the **Select Customization** dialog box, select the option that best describes the task you are performing.

3. From the Attachmate Customization Tool navigation pane, select **Modify setup properties**.

4. Do one of the following:
   - To add a property, click **Add**. In the **Add/Modify Property Value** dialog box, in the **Name** box, enter the property name. Then, in the **Value** box, enter the property attribute.
   - To modify an attribute for a property that is listed under **Property name**, select a property name and click **Modify**. Then, in the **Add/Modify Property Value** dialog box, in the **Value** box, change the attribute.
   - To remove a property that is listed under **Property name**, select the property name, and then click **Remove**.

Select Features, Components, and Languages

You can select which features, components, and languages to install for your end users. In addition, you can choose from three levels of _not_ installing an item: advertising it, not installing it, and permanently blocking it to prevent users from installing it later.

To select features, components, and languages to install

1. On a workstation on which you have installed Reflection, open the Attachmate Customization Tool from a desktop shortcut (if you set up a shortcut as shown on page 11) or from a command line as follows:

   `path_to_setup\setup.exe /admin`

2. From the **Select Customization** dialog box, do one of the following:
   - Select **Create a new Setup customization file for the following product**.
   - Select **Open an existing Setup customization file or Companion installer** and, in the **Open** dialog box, select an .MST file.

3. From the Attachmate Customization Tool navigation pane, choose **Set Feature Installation States**.
4. Select the feature installation states as follows:

<table>
<thead>
<tr>
<th>Choose</th>
<th>To do this</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Feature will be installed on local hard drive]</td>
<td>Add a feature to the installation.</td>
</tr>
<tr>
<td>[Feature will be installed when required]</td>
<td>Advertise a feature.</td>
</tr>
<tr>
<td>[Feature will be unavailable]</td>
<td>Leave a feature uninstalled. End users will still be able to select the item and install it from the Windows Uninstall or change a program list (or the Add/Remove Programs control panel in Windows XP).</td>
</tr>
<tr>
<td>[Feature will be hidden from view]</td>
<td>Leave a feature uninstalled and hidden. End users will not be able to install the item, and it will not be visible in the Windows Uninstall or change a program list.</td>
</tr>
</tbody>
</table>

**Configure Shortcuts**

You can change the attributes associated with the pre-defined Reflection 2011 shortcuts. Also, you can configure shortcuts associated with files you've added to a custom install package.

**To configure shortcuts**

1. On a workstation on which you have installed Reflection, open the Attachmate Customization Tool from a desktop shortcut (if you set up a shortcut as shown on page 11) or from a command line as follows:
   ```
   path_to_setup\setup.exe /admin
   ```
2. From the **Select Customization** dialog box, select the option that best describes the task you are performing.
3. From the Attachmate Customization Tool navigation pane, choose **Configure shortcuts**.
4. Select the shortcut that you want to configure, and then click **Modify**.
5. In the **Modify Shortcut** dialog box, enter the following settings:

<table>
<thead>
<tr>
<th>To</th>
<th>Do this</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specify where you want the shortcut to reside</td>
<td>In the <strong>Location</strong> list, enter or select the folder.</td>
</tr>
<tr>
<td>Name the shortcut</td>
<td>In the <strong>Name</strong> box, enter a descriptive name.</td>
</tr>
<tr>
<td>Add a tooltip to the shortcut</td>
<td>In the <strong>Tooltip</strong> box, enter descriptive text to describe the shortcut.</td>
</tr>
<tr>
<td>Pass command line arguments to the program</td>
<td>In the <strong>Arguments</strong> box, enter the command-line arguments.</td>
</tr>
<tr>
<td>Specify the size of the application window</td>
<td>In the <strong>Run</strong> list, select an initial size for the application window.</td>
</tr>
</tbody>
</table>
Choose User Interface Options

1. On a workstation on which you have installed Reflection, open the Attachmate Customization Tool from a desktop shortcut (if you set up a shortcut as shown on page 11) or from a command line as follows:
   ```
   path_to_setup\setup.exe /admin
   ```

2. From the Select Customization dialog box, do one of the following:
   - Select Create a new Setup customization file for the following product.
   - Select Open an existing Setup customization file or Companion installer and, in the Open dialog box, select an .MST file.

3. From the navigation pane, click User interface and select one of the following.

   | Use this customization for command-line installs or with deployment software | The transform is used only when you explicitly add this file to your installation. |
   | Use this customization with interface installs using setup.exe | The transform is used when you perform the installation with setup.exe. |

   Note: The MSI command to run the companion installer package is automatically inserted in the setup.exe ini file.

   | Select user interface level | If the transform is used along with setup.exe, you can specify the user interface level for the Attachmate Installation Program interface during the install. |
   | No cancel | sets up the install so that it cannot be cancelled after it begins. |

   Note: These settings are available when Use this customization with interactive installs using setup.exe is selected.

Change the Installation Directory

You can change the Reflection installation directory.

To change the installation directory

1. On a workstation on which you have installed Reflection, open the Attachmate Customization Tool from a desktop shortcut (if you set up a shortcut as shown on page 11) or from a command line as follows:
   ```
   path_to_setup\setup.exe /admin
   ```

2. From the Select Customization dialog box, do one of the following:
   - Select Create a new Setup customization file for the following product.
   - Select Open an existing Setup customization file or Companion installer and, in the Open dialog box, select an .MST file.

3. On the left pane of the Attachmate Customization Tool, click Install location and organization name.

4. In the Default installation folder box, specify where to install the product files.
**Note:** List items that refer to folders (for example, [ProgramMenuFolder]) are pre-defined folder keywords. You can create customized directories by adding new folder names with typical directory syntax (such as, [ProgramFilesFolder]My Folder). Alternatively, you can enter a fully qualified path (for example, C:\Program Files\My Folder), as long as that location is known to exist on the target machine.
Chapter 9:
Deploy

You can deploy Reflection from the Attachmate Installation Program (setup tool) command line or directly from the MSI command line. You can choose from several tools to deploy Reflection, including:

- Microsoft Active Directory
- Microsoft Systems Management Server (SMS)
- Any other Microsoft installer-compatible deployment tool

You can also deploy Reflection silently from the command line on set it up on a Citrix server (see your Citrix documentation).

If you have installed and configured the Reflection Management server, you can use the Reflection Administrative WebStation to administer Reflection sessions.

What do you need to do?

<table>
<thead>
<tr>
<th>Deploy Reflection with…</th>
<th>Go to</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Attachmate Installation Program (Setup.exe)</td>
<td>page 112</td>
</tr>
<tr>
<td>The MSI command line</td>
<td>page 115</td>
</tr>
<tr>
<td>Deploy with Microsoft System Center Configuration Manager (or SMS)</td>
<td>page 116</td>
</tr>
<tr>
<td>Microsoft Active Directory</td>
<td>page 116</td>
</tr>
<tr>
<td>Administer Reflection sessions with Reflection Administrative WebStation</td>
<td>page 117</td>
</tr>
</tbody>
</table>
Deploy with the Attachmate Installation Program

(Setup.exe)

If you have created a transform, you must apply it to setup.exe before you use the Setup tool to deploy Reflection. You can do this in the ACT tool or on the command line.

If you want to deploy a companion installer package with the setup tool, you must add it to a transform and then apply that transform to Setup.exe to chain the installation of the companion installer package before or after the main installation.

The Setup tool supports many command line switches that you can use for deployment, including switches for silent installations.

Apply a Transform to Your Installation

After you create a transform, you must include it in the install. Transforms can be used with any install started with setup.exe or with command-line installs (used by many deployment tools). The installer can only apply transforms during an installation.

To add the transform to an install started with setup.exe

1. On a workstation on which you have installed Reflection, open the Attachmate Customization Tool from a desktop shortcut (if you set up a shortcut as shown on page 11) or from a command line as follows:
   
   path_to_setup\setup.exe /admin

2. In the Select Customization dialog box, select Open an existing Setup customization file or Companion installer, and then click OK.

3. In the Open dialog box, browse to the location you selected when you created your transform file, and select the transform (.mst) file.

4. From the User interface panel, select Use this customization with interactive installs using setup.exe.

   When you save your transform with this option selected, Attachmate Customization Tool automatically updates the SETUP.INI file to apply your transform to the Reflection installation by adding the following line to the [Setup] section in the SETUP.INI file:

   CustomTransform=<your_transform.mst>

5. From the File menu, click Save. (If Save is grayed out, click Exit and you will be prompted to save the file.)

   The transform can now be deployed to end users via the Setup.exe file. (Users can run Setup.exe or the Setup.exe file can be called from a script or initiated from a command line.)
To add the transform to a setup.exe command-line install

Alternately, you can add the transform to a command-line installation. Use the following command line syntax:

`<path_to_setup>\setup.exe /install TRANSFORMS=transform.mst`

Note: Running Setup.exe from the command line will automatically use the correct language transform and apply any necessary prerequisites (for example, installing Microsoft .NET Framework uninstalling an older version of EXTRA! or Reflection, or installing Visual Basic 6.5).

Chain Installations to Run Companion Installer Packages and Other Programs

You can add one or more custom installer packages to your product installation.

You can also chain installations to install both an Attachmate product with changes (using a transform, *.mst) and deploy session or other files (using a companion installer package, *.msi) at the same time. This option sets up an install to run installer packages automatically before or after the primary installation. You can also choose to run other scripts or programs.

Note: This method of “chaining” installations applies only to installs performed with Setup.exe. It does not apply to installs that use the MSI command line method.

To chain installations and programs, follow these steps:

1. On a workstation on which you have installed Reflection, open the Attachmate Customization Tool from a desktop shortcut (if you set up a shortcut as shown on page 11) or from a command line as follows:

   `path_to_setup\setup.exe /admin`

2. In the Select Customization dialog box, choose
   - Create a new setup customization file for the following product to create a new transform.
   - Or
   - Open an Existing Setup customization file or Companion installer, and then open a transform (.mst) file you created earlier.

3. From the Attachmate Customization Tool navigation pane, select User Interface and then select Use this customization with interactive installs using setup.exe.

4. Choose Add Installations and Run Programs and click Add.
5. In the Add/Modify Program Entry dialog box **Target** list, browse to the folder where the companion installer package (*.msi) file (or program .exe file) resides.

![Add / Modify Program Entry dialog box](image)

In this example, no arguments are required. (If, however, your target points to an executable file, you can enter an argument that includes a fully qualified path to the specific file you want to run. Alternately, if your target requires any switches, you can enter those in the Arguments field.)

6. Click OK.

7. To specify when to run the program, select either Run this program after the base product has been installed, or Run this program before the base product has been installed.

   **Note:** For most cases, select Run this program after the base product has been installed. If you select Run this program before the base product has been installed and the program fails, Reflection is not installed.

8. Repeat these steps to add other programs, scripts, or MSI files.

9. To change the execution sequence, use the arrows next to Move (at the bottom left area of the pane); to remove a program from the list, select it in the list and click Remove.

10. Click File > Save. (If Save is grayed out, click Exit and you will be prompted to Save the file.)

11. To deploy, install using Setup.exe.

   **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 installer package.

   When the transform is deployed to end users via Setup.exe, the companion installer package is automatically installed after the installation of Reflection is complete. (Users can run Setup.exe or the Setup.exe file can be called from a script or initiated from a command line.)
**Perform a Silent Installation from the Setup.exe Command Line**

A silent installation proceeds without the end user being able to intervene or, in some cases, even see that the installation is occurring.

**To perform a silent installation**

- At a command prompt or the Start menu Run command, change to the directory in which the `setup.exe` file resides and do one of the following:

<table>
<thead>
<tr>
<th>To perform</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>A silent install that displays a progress bar and disables the Cancel button</td>
<td><code>setup.exe /install /passive</code></td>
</tr>
<tr>
<td>A silent install with no display</td>
<td><code>setup.exe /install /quiet</code></td>
</tr>
</tbody>
</table>

**Deploy from the MSI command line**

You can deploy companion installer package and transforms from the MSI command line.

If you deploy with MSI directly, be sure to check that the required MSI client and .NET framework are installed on the client workstations. If you plan to use Microsoft VBA to run or develop macros, you will need to install it separately. MSI files are available in the media distribution, in the Prerequisites folder.

**To deploy the msi with a transform**

- At a command prompt, enter:

  ```
  msiexec /i path_to_administrative_installation_point\yourVersion.msi
  TRANSFORMS=transform.mst
  
  where yourVersion.msi is the specific version of the reflection MSI that you downloaded (for example, SE11R1c.msi).
  ```

  Deploying the Msiexec.exe file from the command line will install the product in English unless the correct language transform is also specified on the command line.

  If the .mst file is not in the same location as the .msi file, then you'll need to include the path to the .mst file.

**To deploy a companion installer file directly with MSI**

- At a command prompt, enter:

  ```
  msiexec /i path_to_administrative_installation_point\companion.msi
  ```
Deploy with Microsoft System Center Configuration Manager (or SMS)

You can deploy Reflection with Microsoft Systems Center Configuration Manager (or Microsoft Systems Management Server).

Note: Before you start, make sure that:
- You are using SMS version 1.2 or later (SMS versions earlier than 1.2 are not supported).
- Microsoft Windows Installer software version 3.1 or later is installed on your computer, and on all of the computers on which you are installing the product.

To deploy with System Center Configuration Manager

1. Create an administrative install image on your site server.
   This serves as the administrative installation point for deployment.
2. Use the product Package Definition File (*.sms) to create the product installation package.
   Note: The Package Definition File (*.sms) is created during the administrative installation and can be found at the root of the administrative installation point. Alternatively, you can reference the .msi file directly – consult the Microsoft SMS documentation for more information.
3. Advertise the installation packages to your users.

Assign and Publish with Microsoft Active Directory

You can assign and publish your product installation using Microsoft Active Directory.

Note: Before you start, make sure that:
- Windows Administrative Tools are installed on your workstation.
- You are a member of Domain Admins and Group Policy Creators and Owners. (This membership is required to publish software.)

For more information, see "Active Directory groups" in the Microsoft Management Console help.

To install with Active Directory

1. From the Active Directory User and Computers Console, advertise your product installation to members of any organizational units in your Active Directory using appropriate transform modifications.
2. If multiple transforms are specified, make sure the listed order of the transforms is correct, and then click OK. (If you need to change the order for any reason after you click OK, you will have to start over again.)

Note: For more information about assigning and publishing, see "assigning applications" and "publishing applications" in the Microsoft Management Console help.
Deploying Session Documents with the Administrative WebStation

If you have installed and configured the Reflection Management server, you can use the Reflection Administrative WebStation to administer Reflection sessions. Use this tool to:

- Administer all of your Reflection sessions from a single console.
- Control which Reflection sessions are available to particular users or groups of users. The Management server provides access control and LDAP integration.

Before you Start

- Install Reflection 2011 on the administrative and end-user workstations.
- Install the Reflection Management server on the web server as shown in your Reflection for the Web documentation.
- Make sure you have administrative credentials for the Reflection Management Server.

To deploy a session with the Administrative WebStation

1. In a Web browser, launch Reflection for the Web as an administrator, and then click **Administrative WebStation**.
2. In the Administrative WebStation navigation pane, select **Session Manager**.

3. In the Session Manager, click **Add** to open the Add New Session page.
4. In the Add New Session page, select a session type, enter a session name, and click **Continue**.

   **Note:** To create a terminal session (IBM 3270, IBM 5250, or VT), select Reflection Workspace.

5. Specify your preferences for where to save the session file on the user workstations and how to copy files to the workstations, and then click **Launch**.

   This opens a new Reflection session document on your workstation in Administrative WebStation mode.

   **Important:** If you specify a location for saving files, make sure it is a trusted location. Users will not be able to open the session unless it is in a trusted location.

6. Create a new session document.

7. If you are prompted for a certificate, accept it, wait until the session connects, and then close the session.

8. When prompted, confirm that you want to send the settings to the Administrative WebStation.

   The WebStation Session Manager indicates that the session is saved.

9. Click **Map session access** and use Access Mapper to configure which users have access to the session document.

10. Point users to the Reflection URL (for example `http://myserver/rweb`) to access Reflection sessions.