



Acrobat-Reader Updater: A configuration and user guide

For the Acrobat Product Family 9.2 and 8.1.7 and later



Acrobat-Reader Updater User Guide
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Acrobat-Reader Updater User Guide.

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1 Introduction to the Acrobat-Reader Updater

On April 13 of 2010, Adobe introduced a new update mechanism for the Acrobat family of products on Windows and Macintosh. The Acrobat Updater and Reader Updater already exists in versions 9.2.x and 8.1.7 and later, and on this date it was enabled. The new Updater replaces the Adobe Update Manager (AUM), and the switch is designed to be as transparent as possible. Therefore, settings are migrated when they can be, the UI preferences and menu items are similar (from 9.2 and 8.1.7 forward), and many of the available options are likewise similar.

With this update, the The Updater is responsible for checking for, downloading, and launching the update installer for Reader or Acrobat versions 9.2 and 8.1.7 and later. Older versions will continue to use AUM, but once the product is updated to a version that supports the Updater, AUM will not longer be used. The Updater primarily keeps itself up to date and downloads and extracts needed files. It does not actually install anything, as that job is handled by a separate installer.

Note: This document uses Acrobat Updater, Reader Updater, and Updater as synonyms. Users with versions prior to 9.2 and 8.1.7 will continue to use AUM and should refer to that documentation. Unix and Linux are not currently supported.

Intended audience

This document is intended for administrators, IT personnel, and others who need an understanding of how the new Updater functions in tandem with systems that are configured with locked down settings, disk compression, user privileges, and so on. It provides details about configuring and troubleshooting the Updater. While the user interface (UI) details may be of interest to end users, the majority of the content here describes registry-level configuration and log-level troubleshooting and will likely only be of interest to administrators.

Adobe recognizes that most deployment workflows in enterprise settings will not use the Updater, but will rather use 3rd party tools or scripts.

1.1 Best practices

Updates are essential for upgraded functionality, fixed bugs, and security. For example, new and critical security features and protections were released with 9.2 and 9.3. Adobe recommends that updates and patches always be applied when released.

The default configuration settings are designed to keep the application updated on a regular basis.

1.2 Available features

The user interface and many of the available application-level preferences remain unchanged.

Some of the available registry/plist-level configuration options include:

- **Setting the update mode:** Set to Automatic (unavailable on Mac), semi-automatic, or manual.
- **Locking the update mode:** Administrators can lock the update mode so that users can't change them via the user interface. (Not available on Macintosh)
- **Disabling updates:** Preventing automatic download and update by setting the mode to manual.
- **Updater invocation at user logon:** Invoking the Updater when a user logs on.
- **Logging:** Configuring logging (brief vs. verbose) and troubleshooting.

Tip: Application preferences are described in subsequent chapters. A complete Preference Reference is also available to administrators via the AIR application Administrator's Information Manager on the [enterprise documentation portal](#).

1.3 Changes across releases

Past versions of the Acrobat family products used the Adobe Update Manager (AUM) for updates. Other Adobe products, such as the Creative Suite products, will continue to use AUM. However, all versions of the Acrobat family of products beginning with 9.2 and 8.1.7 will use the Acrobat Updater. This is true even when those products are included with the Creative Suite package.

The difference between AUM and the new Updater will be similar to many users. Both share the UI item and **Help > Check for Updates**. Some differences include:

- **AUM:** Acrobat versions prior to 9.2 and 8.1.7:
 - Update preferences controlled by a file on disk.
 - Log settings controlled by a file on disk; log name and location is different.
 - No automatic setting.
 - Preference set by going to **Edit > Preferences > General > Check for updates**.
 - Checks for updates every week or month.
- **Acrobat and Reader Updater:** Acrobat versions 9.2 and 8.1.7 and later (See also [Table 1](#) below):
 - Update preferences controlled at the registry level.
 - Log settings controlled at the registry level; log name and location is different.
 - Improved security. Since Updater settings are stored in HKLM, access requires administrator privileges and are therefore less susceptible to malicious attacks.
 - Preference set by going to **Preferences > Updater**.
 - Checks for updates every 3 days.
 - Less intrusive workflows that are less likely to interfere with a user's work.
 - Updates that aren't tied to other Adobe products, so they are smaller.

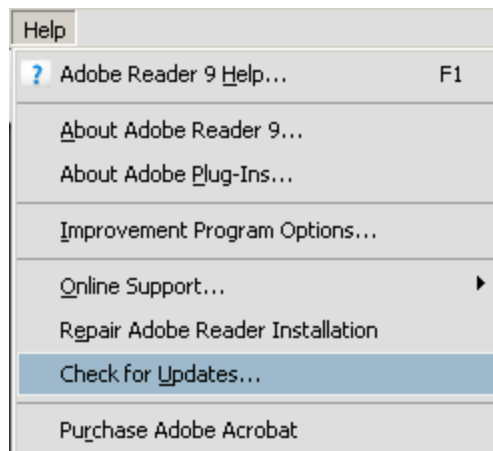
Table 1 Changes across releases

Version	Description
9.2 and 8.1.7	Acrobat Updater is enabled in April, 2010 and AUM is disabled for Acrobat and Reader. AUM will continue to work for other Creative Suite products.
10.1	The Updater installs a service so that silent and automatic updates can occur on Windows 7 and Windows Vista machines if the user has opted in to fully automatic updates. For details, see Changes for 10.1 and later .

1.4 Checking for updates manually

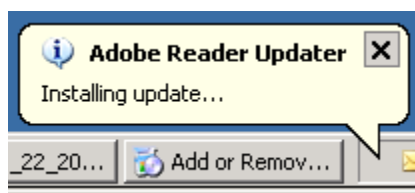
When an application is configured so that the Updater does not check for updates even when the Updater is invoked (the mode is set to manual for example), then the Updater will not check for updates on application launch. If it is invoked via the application's Run key, (on login, for example), it exits immediately.

While there are other mechanisms that initiate a check by the Updater, all of these can be overridden by end users via the UI. Users can start the Updater and a check manually via **Help > Check for Updates**.

Figure 1 Manual update check

1.5 Notification during automatic updates

For users that have configured the application to automatically install updates, the application notifies them when the update begins. In this case, a notification balloon pops up for 15 or more seconds stating that the Updater has initiated the update process.

Figure 2 Notification bubble

1.6 Differences between Windows and Macintosh

For the most part, the Updater behaves similarly on the Windows and Macintosh platforms. The major differences are shown below.

Table 2 Windows vs Macintosh comparison

Feature	Windows	Macintosh
Preference location	Registry (some keynames vary)	plist files (some keynames vary)
Invoked by	User logon	User logon
Updates checked for	- Every 3 days. - Application launch Check for updates menu item	Same
Modes	Manual, semi-automatic, and automatic (Reader only)	No automatic mode, only manual and semi-automatic
Preference locking	Yes	No
Logging	The mechanisms are similar but the error codes and messages vary by OS. Actions are logged.	The mechanisms are similar but the error codes and messages vary by OS. Actions are not logged.
Silent installs?	Yes. With 10.1 automatic installs are silent on Win 7 and Vista machines.	No.

2.1 Changes for 10.1 and later

Overview

In order to provide a more streamlined and user friendly experience, the 10.1 introduces a service that enables silent and automatic updates on Windows Vista and Windows 7 machines. Prior to 10.1, automatic updates only worked when:

- The update is an MSP file; that is, a quarterly update which is not an MSI and an out of cycle security patch.
- The Updater did not need to update itself.
- User Account Control is disabled.

To get around these restrictions, the armsvc.exe is now installed with the Updater. While it is installed on any Windows OS (except XP), it is only configured to start on Windows 7 and Vista. This service is designed to transparently elevate a process so that no User Account Control dialog is presented to the user. Updates occur automatically and relatively silently with only a Success dialog appearing at the end, or in rare cases, a Reboot dialog.

After an update begins, application launch at this point is suppressed. If the user tries to launch the application, a dialog appears.

Enterprise configuration

In enterprise settings, installing the application with the Adobe property `DISABLE_ARM_SERVICE_INSTALL=1` prevents the installation of this service. For example:

```
msiexec /i Path to AcroRead.msi DISABLE_ARM_SERVICE_INSTALL="1"
```

Because it may be desirable to configure updates for Reader and Acrobat separately on a single machine, the registry preference have changed as follows:

Table 3 Registry changes for 10.1

Preference	Description
iCheck	Prior to 10.1, this key pertains to both Acrobat and Reader. For 10.1 and later, it only pertains to Acrobat
iCheckReader	New for 10.1. This key provides identical behavior as iCheck for Reader only. Note that for machine where Reader was already installed, iCheck will continue to be used until a value is specified via the UI or manually created by IT in the registry.

Table 3 Registry changes for 10.1

Preference	Description
bDeclined	bDeclined is new for 10.1 and it resides at HKCU\Software\Adobe\Acrobat Reader\10.0\ARMUser. Reader only. Specifies whether to show the Opt-In dialog on Adobe Reader startup and so that the user can see the option to select automatic updates. The value is set to 1 if the user chooses Cancel and has selected a preference other than automatic. The Opt-In dialog does not appear again if: • This key's value is 1. • The preference is already set to automatic. • The Updater feature is disabled and locked in HKLM OR the existing preference is manual.
iLastD and iLastY	Deprecated with 10.1 and replaced by tlastT_Reader or tlastT_Acrobat.
tlastT_Reader or tlastT_Acrobat	Replaces iLastD and iLastY.

2.2 User roles, permissions and Updater behavior

The Updater behavior on versions 8 and 9 is identical. Unlike most application preferences which reside in HKEY_CURRENT_USER, the Updater preferences are machine level settings shared by all users in HKLM. As such, they require administrative privileges to change, as well as elevated privileges if UAC is enabled. Some HKLM duplicates reside in HKCU.

Behavior based on existing AUM settings:

- The Opt-in dialog does not appear if bUpdater has been locked to disable updates.
- If the existing AUM update setting is manual (**Check for updates at startup** is unchecked), then updating to a product version that supports the new Updater invokes the Opt-in dialog. If the user does not select automatic, then the setting remains manual.
- If the existing AUM update setting is semi-automatic, an Opt in dialog appears and the Updater preference is set as follows:
 - If users press the **Enter** key or choose **OK** the preference is set to automatic.
 - If users choose **Preferences**, the Preferences panel appears and allows changing the setting.

Automatic mode is not available

Silent installs as well as the **Automatic** preference in the **Preferences > Updater** settings panel is disabled under the following conditions:

- The user does not have administrator privileges on XP.
- The user does not have administrator privileges on Vista or Windows 7 with UAC turned off.
- 8.x only: Vista and Windows 7 with UAC turned on.

Note: See [Changes for 10.1 and later](#) for information about changes for 10.1 and later.

2.2.1 Update type and sequence

How the Updater operates with respect to user privileges is depends on the update type and update sequence. Thus, the following concepts are central to understanding the end user experience:

- **Update types:**

- **MSP:** A patch installer targeted for a previous update which may require pre-installation of prior updates. Includes Reader double dot releases (e.g. 9.3.1, 8.1.7) and Acrobat all single and double dot releases.
- **MSI:** A full installer that includes all files from the initial major release and all subsequent changes. Includes Reader single dot release (e.g. 9.3, 8.2). It is not used for Acrobat updates which are always patches (msp files).
- **EXE:** An executable update. Rare, reserved for future use.

Note: As of 10.1, quarterly updates are cumulative to the last MSI (usually the base release) and out of cycle patches are cumulative to the last quarterly.

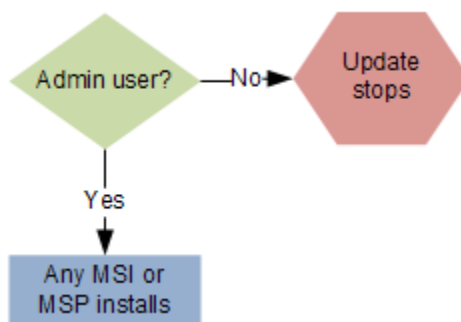
- **Update sequence:** The update sequence includes all updates required to get the system to the current release and may include a combination of MSI and MSP updates. For example, a user on Reader 9.1.1 would require the Reader 9.3 msi (the last full reader) and the 9.3.2 msp. Because 9.3 is an MSI, systems with UAC would require elevation.

2.2.2 User roles and the end user experience

2.2.2.1 XP

In XP, the current user needs to be logged in as an administrator.

Figure 3 XP Updater workflow



2.2.2.2 Vista and Windows 7

Note: With 10.1 and later, users that have opted in to automatic updates will not see the User Account Control dialog.

On Windows 64 bit systems, Updater behavior varies depending on whether User Account Control (UAC) is enabled:

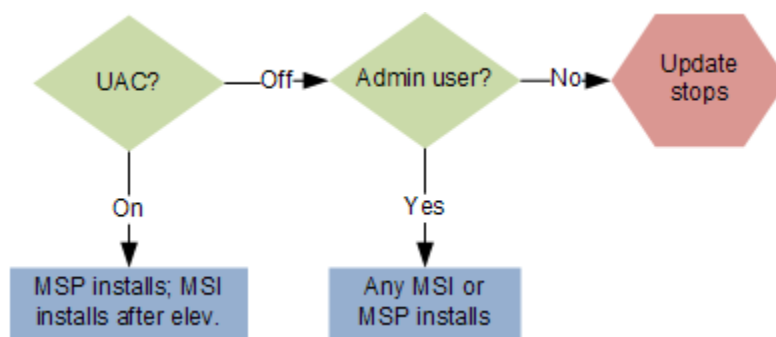
- If UAC is enabled,

- Quarterly MSP updates and out-of-cycle patches install without elevation and administrator privileges.
- Full installs from an MSI file require elevation.
- The Updater cannot run in fully automatic mode due to UAC confirmation dialogs. This is true even when the user is running with the built-in administrator account since Updater settings are global to all machine users.

Note: Exceptions with UAC on: If the Updater must update itself prior to applying other updates and for users between 8.1.7 and 8.2, all updates require elevation. After 8.2, the above rules apply.

- If UAC is disabled, updating requires elevation administrator.

Figure 4 Vista-Win7 Updater workflow



2.3 Basic operation

Updater installation writes a key to HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Run\AdobeARM whose value is AdobeARM.exe. Note that AdobeARM.exe is as small as possible to minimize errors and user workflows are kept as simple as possible. A single copy of the Updater installed under Program Files/Common Files is used to update all instances of Acrobat and Reader even if both applications exist and are of different versions.

The AdobeARM.exe is invoked by the OS each time a new user logs on and performs several checks:

- Is another Updater instance running? Only one Updater instance can run at any time--even if another user logs and invokes a second instance, it simply sends a message to the first Updater and exits.
- Has the end user license agreement been accepted as determined by EULA and or EULAAcceptedForBrowser?
- Has patching been disabled at the OS level independently of any Updater setting?
- Does the user have the requisite privileges to update?

If any of these tests fail, then an error dialog may or not appear depending on the Updater preferences. If the Updater mode setting is manual, an error dialog appears. If the Updater is set to automatic, the it fails silently and no error dialog is shown.

The Updater's design strives to mimic the user experience and a typical Windows XP update workflow as much as possible. It leverages common technology such as the Microsoft Background Intelligent Transfer Service (BITS) to deliver payloads and manifests. The Updater always tries to use existing, partial payloads so as not to download them again.

The Acrobat Updater cannot install updates while other applications, including AUM, are using MSI services. When the Acrobat Updater is running in fully-automatic mode, it will detect this case and postpone the install until the services are free. However, if a user attempts to initiate a manual or semi-automatic install under these circumstances, the Acrobat Updater will fail with an error.

The Acrobat Updater is itself "self updating." During an update, the Updater checks a server-based manifest for the latest version of the Acrobat Updater binary available. That version is compared against the installed version, and should an update to the Updater executable be required, a new ARM.msi will be downloaded and installed prior to any other updates.

After downloading any files, the Updater performs several authenticity checks prior to launching the installation. It Verifies the following:

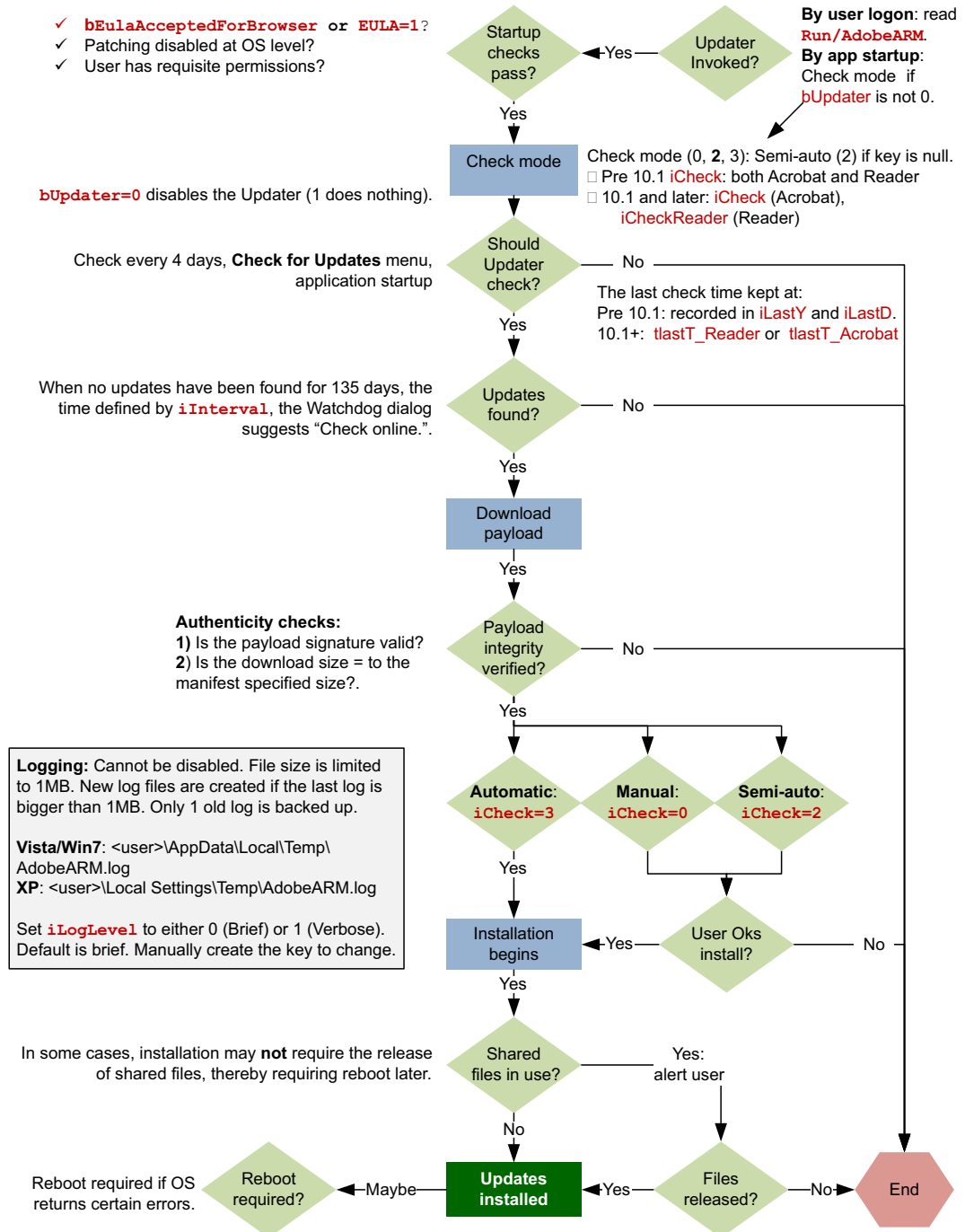
- That the signature on the downloaded files is valid.
- That the download size is identical to the size specified in the manifest.

If these tests pass, the Updater invokes the installer.

Tip: See [Troubleshooting](#) for errors that appear when shared files are in use, authenticity checks fail, and so on.

2.4 Windows workflow configuration

UPDATER WORKFLOW QUICK KEY (WINDOWS)



2.5 Updater configuration

2.5.1 Setting the update mode

The Updater checks for updates based on the mode settings as follows:

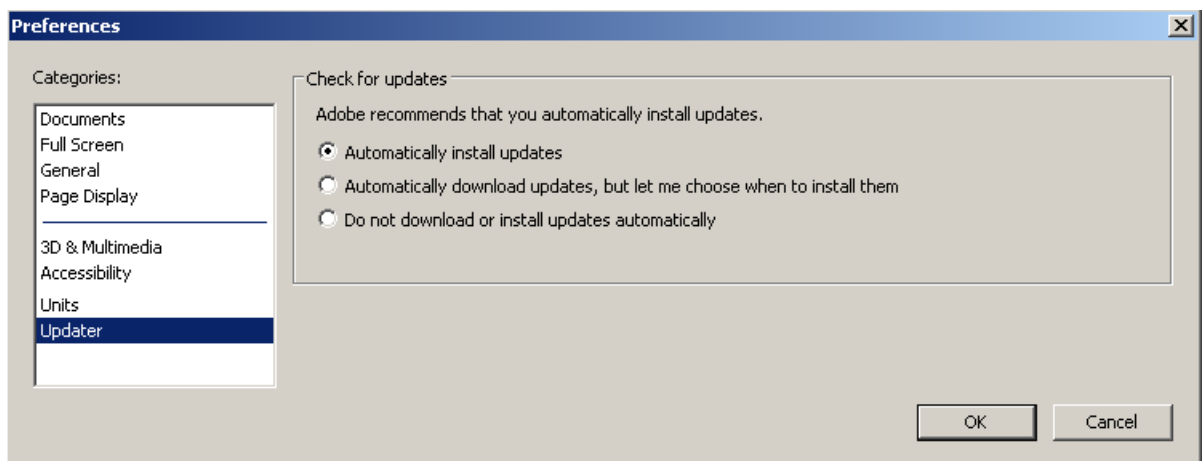
- **Automatic:** Updates are automatically downloaded and installed silently.
Maps to **Automatically install updates**.
- **Semi-automatic:** Updates are automatically downloaded but users are asked whether they want to install them. **Maps to Automatically download updates, but let user choose when to install updates.**
- **Manual:** No updates are downloaded automatically. The user can manually check for updates by choosing **Help > Check for Updates**. Maps to **Do not download or install updates automatically**.

2.5.1.1 User interface configuration

Updater settings can be set via the preferences UI (below), or via the Opt In dialog that appears when a 10.1 or later update is available. To use the Preferences panel:

1. Choose **Edit > Preferences**.
2. Choose **Updater**.
3. Configure the setting and choose **OK**.

Figure 5 Preferences panel: Update mode settings



2.5.1.2 Registry configuration

Note: For 10.1 and later, Acrobat is configured via `iCheck` and Reader is configured via `iCheckReader`. See [Table 3](#).

The update mode is a machine level setting that cannot be set on a per user basis.

To set the update mode:

1. Go to HKEY_LOCAL_MACHINE\SOFTWARE\Adobe\Adobe ARM\1.0\ARM.
2. Set the value of iCheck (Both product prior t 10.1 and only Acrobat post 10.1) or iCheckReader (Reader 10.1 and later only) as needed:
 - 0: **Manual**. Do not download or install updates automatically.
 - 1: Not used.
 - 2: **Semi automatic**. Automatically download updates, but let me choose when to install them.
 - 3: **Automatic**. Automatically install updates.

Example 2.1: Preference: Win: Setting the update mode

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Adobe\Adobe ARM\1.0\ARM]
"iCheck"=dword:00000002
```

2.5.2 Disabling updates

On Windows, the updater can be disabled and locked by administrators so that end users cannot change the preference via the user interface.

To disable the Updater and remove the Updater configuration UI in the Preferences panel:

1. Go to HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Adobe\{product}\{version}\FeatureLockdown.
2. Create the new DWord bUpdater.
3. Set the value to 0.

Setting bUpdater disables the user interface items **Preferences > Updater** (Figure 5) and **Help > Check for updates** are disabled (Figure 1).

Example 2.2: Preference: Win: for locking the update mode

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Adobe\{product}\{version}\FeatureLockdown]
"bUpdater"=dword:00000000
```

Note: Updates are essential for upgraded functionality, fixed bugs, and security. For example, new and critical security features and protections were released with 9.2 and 9.3. Adobe recommends that updates and patches always be applied when released.

2.5.3 Setting the Watchdog dialog invocation time

When the Updater successfully obtains a manifest it records the download date. By default, 135 days is allowed to pass from that download date to a successful update. If the time has elapsed, a dialog appears suggesting the user might want to manually get an update from adobe.com. Admins can modify this time by creating the iInterval key and providing it with a different value.

To modify the check for updates time then, simply change iInterval to the desired interval.

1. Go to HKEY_LOCAL_MACHINE\SOFTWARE\Adobe\Adobe ARM\1.0\ARM.
2. Create the key iInterval.
3. Set the value to the desired time.

Example 2.3: Registry key: for invoking the unable to Watchdog dialog

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Adobe\Adobe ARM\1.0\ARM]
"iInterval"=dword:0000000135
```

Caution: Changing the interval time is not recommended as Adobe may reset the value during a future date or a security fix could be missed.

2.5.4 Logging configuration

The log file is a file generated and appended to at runtime with status, operational, and error information describing what the Updater is doing. This information helps diagnose runtime problems and a log set to verbose should be included with any support requests.

Example 2.4: Log file

```
[2010-05-19 13:48:52] InstallProductMsp...
[2010-05-19 13:48:52] file - C:\Documents and Settings\All Users\Application
Data\Adobe\Reader\9.3\ARM\AdbeRdrUpd932_all_incr.msp
[2010-05-19 13:48:52] args -
[2010-05-19 13:49:23] ExecuteInstalls()
[2010-05-19 13:49:23] Error Code: 0x643
[2010-05-19 13:49:23] ExecuteInstalls failed.
[2010-05-19 13:49:23] ** Setting Error Condition:
[2010-05-19 13:49:23] Error Code: 0x5DC
[2010-05-19 13:49:23] Failed to read UAC setting, defaulting to Enabled.
[2010-05-19 13:50:01] Failed to read UAC setting, defaulting to Enabled.
[2010-05-19 13:50:01] Delete file: C:\DOCUME~1\brogers\LOCALS~1\Temp\ArmUI.ini
[2010-05-19 13:50:01] Error Code: 0x2
[2010-05-19 13:50:01] C:\Documents and Settings\All Users\Application Data\
Adobe\Reader\9.3\ARM\
[2010-05-19 13:50:01] GetLastError(): 0x91 - The directory is not empty.
[2010-05-19 13:50:01] ARM returns ERROR_SUCCESS
[2010-05-19 13:50:01] Adobe ARM 1.1.7.0 logging finished.
```

Versions prior to 9.3.3 do not show specific log errors in the UI. Log errors are grouped into broad categories, and only a generic category error appears in the error dialog. With 9.3.3, the log errors are converted from Hex to Decimal and displayed to end users in order to facilitate troubleshooting.

Log file size is not limited during an update. However, since log files are appended to each time the Updater runs, there is a 1MB limit on old logs. Size limit behavior is as follows: If an existing log size is bigger than 1 MB, the Updater creates a new log file. The old log file is backed up once as AdobeARM-backup. There can never be more than one backup log.

Note: Logging cannot be disabled.

Table 4 Log locations

OS	Log location
Vista	%USERPROFILE%\AppData\Local\Temp\AdobeARM.log
XP	%USERPROFILE%\Local Settings\Temp\AdobeARM.log

There are 2 log levels available: Brief and Verbose. The default is Brief.

The default setting is brief. To change it:

1. Go to HKEY_LOCAL_MACHINE\Software\Adobe\Adobe ARM\1.0\ARM\
2. Create the key iLogLevel.
3. Set iLogLevel:
 - 0: Brief
 - 1: Verbose

2.5.5 Updater invocation at user logon

By default, the Updater is invoked by every time a user logs on. At logon, the OS reads the application preference below.

Note: This value is not customizable and is provided for troubleshooting purposes only.

Example 2.5: Preference: Win: Run key

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Run]
"Adobe ARM"="\"C:\\Program Files\\Common Files\\Adobe\\ARM\\1.0\\AdobeARM.exe\""
```

2.5.6 Viewing the last “checked for update” time

By default, the Updater performs an update check every 3 days and records the year and day of the last successful check in two cases:

- No updates are found in the manifest for system’s current product configuration.
- Updates have been found and successfully installed.

The time is recorded in the following preferences:

Pre 10.1: iLastY and iLastD

10.1 and later: tlastT_Reader or tlastT_Acrobat

If 3 days have not passed, the Updater exits. If more than 3 days have elapsed, the Updater looks for updates. The last and most current value may be written to HKLM or HKCU. Because the Updater doesn’t need elevated privileges to start and check or download updates, it will write to HKCU. However, when elevated privileges are required for any action, it write to HKLM. Therefore, when checking and troubleshooting the last check date always verify the values in both locations.

Note: This value is not customizable as the value is written at runtime. Also, the rule is actually “has 3 days passed?” Thus, a check may happen on the fourth day.

Example 2.6: Registry key: for setting the update mode

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Adobe\Adobe ARM\1.0\ARM]
"iLastY"=dword:000007da
"iLastD"=dword:0000000a
```

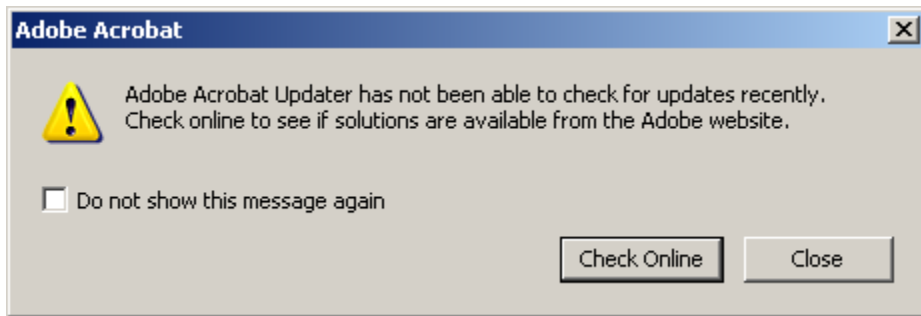
2.6 Troubleshooting

2.6.1 Watchdog dialog

When the application obtains a manifest the Acrobat Updater records the download date. If the time interval that is allowed to pass from that download date to a successful update been exceeded (see [Setting the Watchdog dialog invocation time](#)) a dialog appears suggesting the user might want to manually get an update from adobe.com.

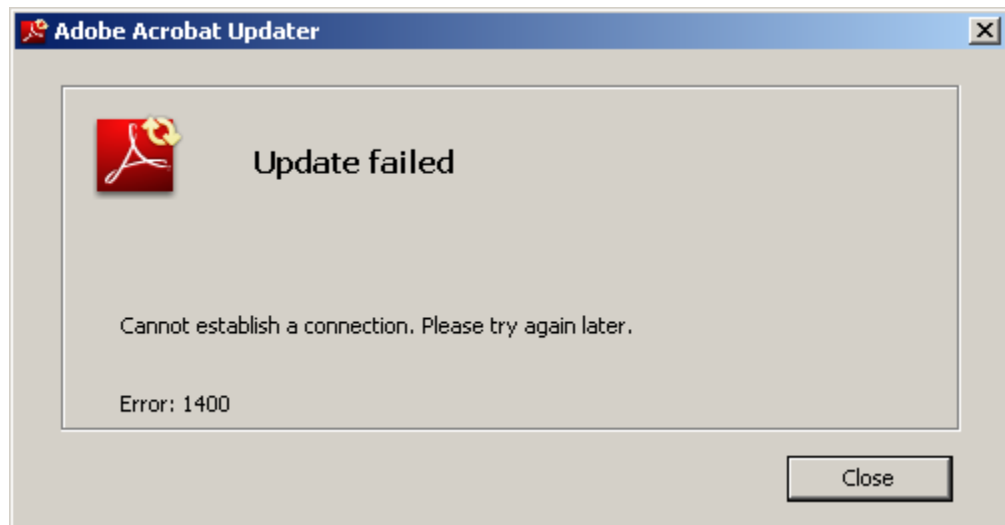
For example, users who cannot obtain the Acrobat Updater manifest due to no internet connection or who are behind authenticating proxies will likely see the dialog in [Figure 6](#). After the dialog appears, the clock is reset and the dialog does not appear again until the default or `Interval` time has once again elapsed.

Figure 6 Watchdog Dialog: Problem with updates



2.6.2 User interface error reporting

User interface errors are designed to provide basic information about an update's status. More detail can of course be found in the logs; however, since those technical details are designed to help administrators and support troubleshoot any issues, that information is not displayed to end users in the Updater dialogs. The end user facing dialogs usually contain an error code and one or two sentences of text. For a listing of those error codes and messages, see the tables in [Error codes and messages](#).

Figure 7 Error code and message

2.6.3 Error codes and messages

The tables below list the error codes and associated error message for errors originating from the Updater. Other errors may originate from the OS or the Windows installer (MSI). Associated log text and the possible problem are also described when known. Log errors provide more technical detail and are designed to help IT and support troubleshoot persistent problems.

BITS errors

Prior to the introduction of the new updater there were cases where the user saw error messages such as "80070422 - ERROR_SERVICE_DISABLED." BITS was not available because the BITS service had been disabled by an administrator or because BITS did not have enabled devices associated with it.

To fix this problem, reenable the BITS service. For details, see <http://support.microsoft.com/kb/883614>.

Note: This problem should not be encountered on later product versions.

MSI errors

Like most Windows applications, including Adobe software, installing updates and patches involves leveraging Microsoft's MSI installer technology. These errors appear in the log, but also appear in the error dialog beginning with the 9.3.3 and 8.2.3 quarterly release.

Identifying an MSI error involves going to [http://msdn.microsoft.com/en-us/library/aa372835\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/aa372835(VS.85).aspx) and matching the error code and error message. In some cases Updater and MSI error codes are identical; however, the error message is always unique.

Tip: When known, MSI problems related to the Acrobat family of products will be listed at http://kb2.adobe.com/cps/849/cpsid_84935.html. Users are only likely to encounter a very small subset of the possible MSI errors.

Table 5 Updater errors: Application configuration

Code	UI text	Log text	Problem
1001	Updates have been disabled by your system policy.	FeatureLockDown set to disable Updater.	- bUpdater key is locked with the updates disabled - AVGeneral/bCheckForUpdatesAtStartup is 0
1006	Updates have been disabled by your system policy.	DisablePatch is set - disabling ARM.	Patching has been disabled by the administrator at the OS level. Non-updater settings are preventing update.

Table 6 Updater errors: Miscellaneous

Code	UI text	Log text	Problem
1000	None	Use the last error.	Varies.
	None	Failed to delete previous ARM update archive	There are no previous ARM files to delete.
1002	None	RevertToAUM property found set in manifest.	The manifest specifies that AUM rather than ARM should be used.
1005	None	WaitForSingleObject failed in WaitFilesInUse.	Some files were in use. The Updater should wait and then finish when they are no longer in use.
	None	WaitForSingleObject failed	TBD

Table 7 Updater errors: Application initialization

Code	UI text	Log text	Problem
1100	Auto mode: An error occurred. Adobe Updater will try again later Manual mode: An error occurred. Please check for updates again later.	Failed to create main dialog	A required dialog failed to be created within the requisite amount of time.
1111	Same as 1100.	InitUpdatedProductInfo failed.	Could not identify the product to update.
1112	Same as 1100.	InitUpdateData failed.	The user canceled the update while downloading the manifest.
1113	Same as 1100.	Command Line:	Tried to invoke Adobe Updater via empty command line.
		Failed to create launcher path	TBD
		Failed to create command line	TBD
1114	Not used.	Not used.	
1115	Same as 1100.	InitDownloadManager failed	TBD
1116	Same as 1100.	LoadLibrary failed	Could not load the dll that is used to extract the Updater files

Table 7 Updater errors: Application initialization

Code	UI text	Log text	Problem
1117	Same as 1100.	GetProcAddress(ExtractFile sFromArchive) failed	The extraction dll loaded successfully, but extraction failed for some reason.

Table 8 Updater errors: User permissions and usage

Code	UI text	Log text	Problem
1200	Not used.	Std User on XP - IsElevated returns 0.	The user does not have sufficient update privileges.
		User is Guest -IsElevated returns 0.	The user is logged on as a guest does not have sufficient update privileges.
		Std User on Vista with UAC off -IsElevated returns 0.	UAC is off on Vista.
		Not enough privileges to run	The user does not have sufficient update privileges.
1201	Not used.	None	N/A
1202	Not used.	Found preference AUTO_OFF. Automatic updates preference is off - exiting {PRODUCT NAME}.	TBD
		Automatic updates preference is off - exiting ARM.	TBD
1203	Auto mode: An error occurred. {PRODUCT NAME} will try again later Manual mode: An error occurred. Please check for updates again later.	Time elapsed is less than time limit - exiting ARM.	TBD

Table 9 Updater errors: Manifest and payload

Code	UI text	Log text	Problem
1300	Cannot install the update. Please run {PRODUCT NAME} repair.	Create file failed	TBD: problem with s7zArchiveFile.
1301	Not used.	Failed on unlocked Manifest file.	The Updater performed correctly by not using an unlocked and possibly invalid manifest.
		Init Manifest Data failed	The manifest specifies that AUM should be used instead.
		Wait for MSI Mutex is not set in Manifest	
1302	Auto mode: An error occurred. Adobe Updater will try again later Manual mode: An error occurred. Please check for updates again later.	IsSizeAndSignatureValid failed for: <some file>	The file size or signature is invalid on the downloaded manifest or installer.

Table 9 Updater errors: Manifest and payload

Code	UI text	Log text	Problem
		ValidateSingleInstallFiles returning FALSE for 0 file size	Updater tried to validate the msi file before installing by looking at the first file and verifying it has an msi extension.
		Missing file	TBD
		Validate file failed	The file size or signature is invalid on the downloaded manifest or installer.
		ARM Update signature validation failed	The signature is invalid on the downloaded manifest or installer.
		ValidateFiles failed	The signature is invalid on the downloaded manifest or installer.
1303	Cannot install the update. Please run Adobe Updater.	Error in ARM Update data	TBD
1304	Not used.	Empty Update ID	The update ID is blank.
1305	Cannot install the update. Please run Adobe Updater.	Empty Update URL	The update URL is blank. Check the ARM_server key.

Table 10 Updater errors: Network and download

Code	UI text	Log text	Problem
1400	Cannot establish a connection. Please try again later.	HTTPS and HTTP connection failed	Protocol or port could be blocked or no internet connection.
		Network too slow or no connection	TBD
		Port 443 Blocked: HTTPS:// BITS connection failed attempting HTTP:// connection	Protocol or port could be blocked.
			The manifest is missing or the website is down.
1401	Cannot download update files. Please check for updates again later.	DownloadArmUpdate failed.	TBD
1402	Same as 1401.	Missing file on server (HTTP Error 404): Accompanied by DownloadFiles:isComplete returns error.	Downloading was stopped when a required file was not found.
1403	Same as 1401.	General Download File failure	Downloading the update failed for some unknown reason.
		Failed to navigate to URL: http://www.adobe.com/support/downloads/product.jsp?product=10&platform=Windows	TBD

Table 11 Updater errors: MSI windows installer

Code	UI text	Log text	Problem
1500	Cannot install the update. Please run Adobe Updater.	ExecuteInstalls failed.	Deprecated with 9.3.3. and 8.2.3. MSI (Windows installer) errors formerly mapped to this generic UI error. Now, the MSI error is displayed in the dialog and 1500 no longer appears To troubleshoot MSI problems, see http://kb2.adobe.com/cps/849/cpsid_84935.html.

Table 12 Updater errors: OS-level

Code	UI text	Log text	Problem
1600	Auto mode: An error occurred. Adobe Updater will try again later. Manual mode: An error occurred. Please check for updates again later.	CreateDirectory() failed	Could not create the extraction directory.
1601	Same as 1600.	QueryServiceStatusEx failed	TBD
1602	Same as 1600.	ShellExecute failed in RelaunchARM. ShellExecute to relaunch ARM failed with SE_ERR_ACCESSDENIED.	TBD
1603	Same as 1600.	OpenSCManager failed	Could not get a handle on the SCM database.
1604	Same as 1600.	OpenSCManager failed	Could not open the SCM service.
1605	Same as 1600.	None	TBD
1606	Same as 1600.	None	TBD

Table 13 Updater errors: File IO

Code	UI text	Log text	Problem
1701	Cannot save files to disk. Please check for updates again later. If you continue to have problems, see your system administrator.	Failed to get current working directory.	Could not find the directory where the 7z files reside to extract.
1702	Same as 1701.	Failed to change cwd.	Could not find the files to extract or could not change from the extract from to the extract to directories.
1703	Same as 1701.	ExtractFilesFromArchive failed.	Could not find the files to extract or extraction failed for some other reason.
1705	Same as 1701.	Delete file:	TBD

Table 14 Updater errors: Log only

Log text	Problem
GetCurrentUserSID():LookupAccountName() failed.	TBD
GetCurrentUserSID():ConvertSidToStringSid() failed.	TBD
No updates in Manifest for current product configuration.	None. There are no updates available.
Manifest file not signed by Adobe	The manifest file does not appear to be authentic. For security reasons, downloaded files are signed and verified.
Failed to lock Manifest file.	TBD
Unknown file type in file object	TBD
Failed to read UAC setting, defaulting to Enabled.	The Updater could not determine the UAC setting for some reason so is assuming UAC is enabled.
EULA not yet accepted.	The key bEULAAcceptedForBrowser or EULA did not indicate the end user license agreement was accepted.
ARMDDownloader::BITS Error: There are currently no active network connections. Background Intelligent Transfer Service (BITS) will try again when an adapter is connected. Error Code: 0x80200010 BITS Error Context: The error occurred while the remote file was being processed.	No Internet connection.
DownloadFileDirectly failed	URL to manifest was changed by the user or is otherwise incorrect.
Files Total: 1 Files Transferred: 0. last line before next instance of {PRODUCT NAME} started (Rebooting system while {PRODUCT NAME} was in the process of downloading Updates)	TBD

2.7 Windows user experience

The following user interface workflows represent typical and common flows. However, variations are possible due to application configurations subject to end user and administrator control.

2.7.1 Typical workflow

The following screen shots represent a typical user experience. While these show the manual update sequence, some of the dialogs appear for the semi-automatic and automatic workflows as well.

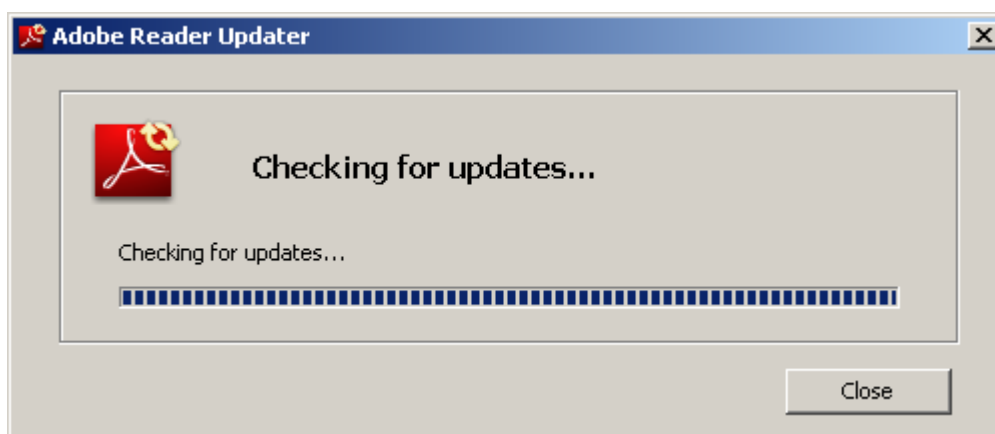
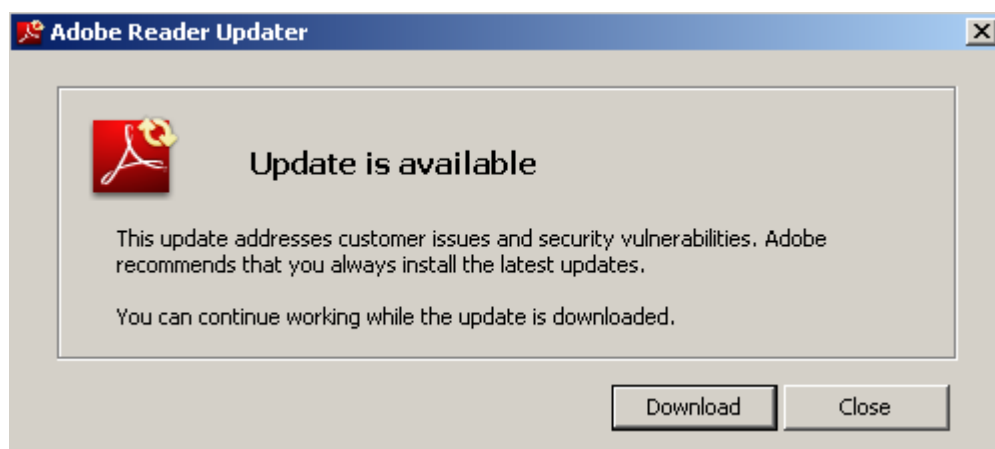
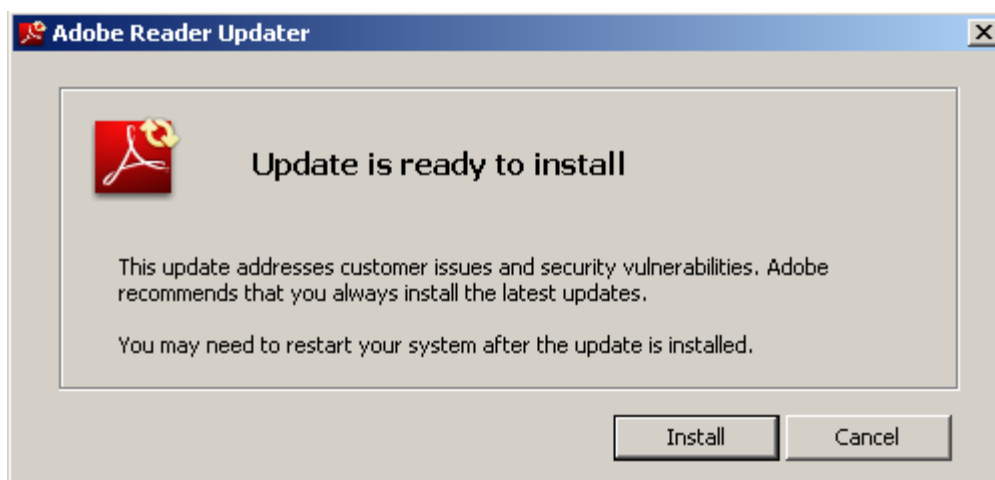
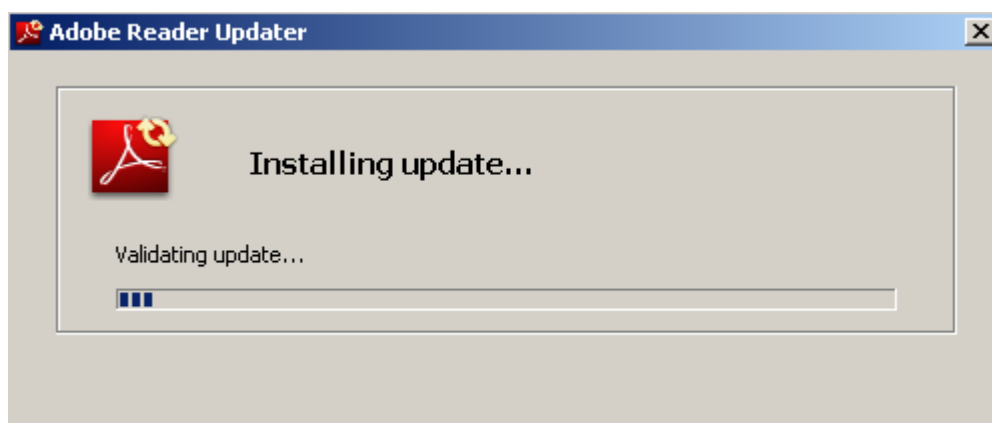
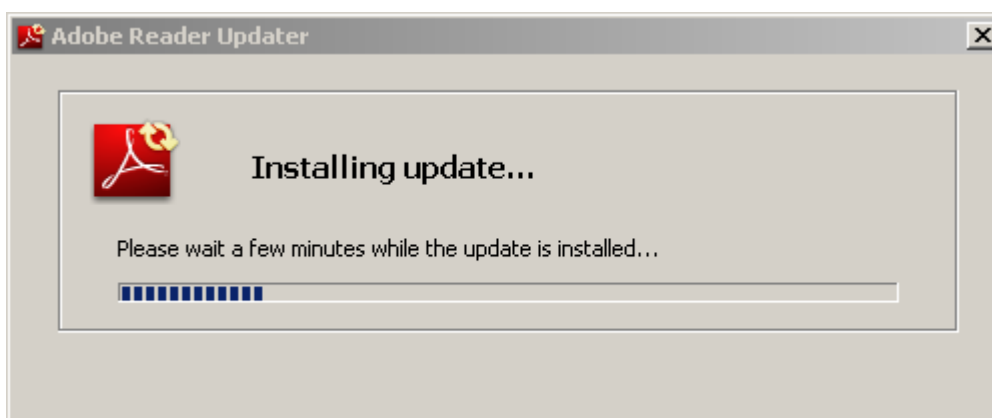
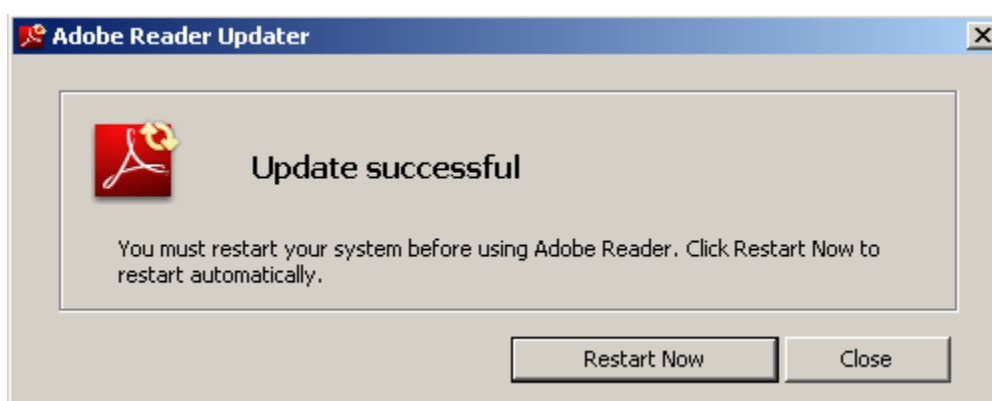
Figure 8 Windows dialogs (manual mode): Checking for updates**Figure 9 Windows dialogs (manual mode): Update is available****Figure 10 Windows dialogs (manual mode): Ready to install**

Figure 11 Windows dialogs (manual mode): Validating update**Figure 12 Windows dialogs (manual mode): Installing update**

Tip: Restarts are typically need for full and major dot installs. Patches and minor updates rarely require a restart.

Figure 13 Windows dialogs (manual mode): Update successful

3 Updater for Macintosh

3.1 Default settings and permissions

In addition to the setting described in [Table 15](#), the following applies:

- **Relationship to AUM:** Updater settings are identical to AUM: semi-automatic or manual. The Updater is set to manual for 9.x users who previously had explicitly disabled **Check for updates** (AUM); all other 9 users will remain opted into semi-automatic.
- **Product versions 8.x:** Version 8 users will be silently opted in as semi-automatic (same as AUM).
- **Permissions:** Settings are per-user and do not require administrative privileges to change.

Table 15 Updater settings: Macintosh

OS Version	Mode	Admin	Std User	Guest	Root account
10.4.x	manual	authorized	authorized	not supported	authorized
	Semi-automatic (not available on first launch)	n/a	n/a	not supported	n/a
10.5.x and up	manual	authorized	authorized	Supported for 10.x products and later	authorized
	Semi-automatic	authorized	authorized	not supported	supported for all product versions

3.2 Basic operation

The Updater design for Macintosh enables seamless updates without requiring a patch of the Updater itself. A small module contains the minimum functionality needed to determine whether the latest version is installed, and if not, to download and execute a larger module which contains all other needed functionality, including downloading the manifests and payloads and sequencing the patch execution. This larger package is downloaded each time an update is required.

Updater installation sets that application to check for updates every 3 days. When the Updater finds an update, it creates folders in /tmp, copies the downloaded zipped installers to them, write the manifests, copies the elevated tool executable there, and adjusts the file and folder permissions to disallow all but root writing.

Unlike the Windows Updater, the Updater is never itself updated or patched: it is downloaded for every patching session and is designed to remain as small as possible. The simplicity and ease of this methodology offsets the relatively small size of the download (about 100KB) which is deployed as a single file, zip archive.

Mac download locations include:

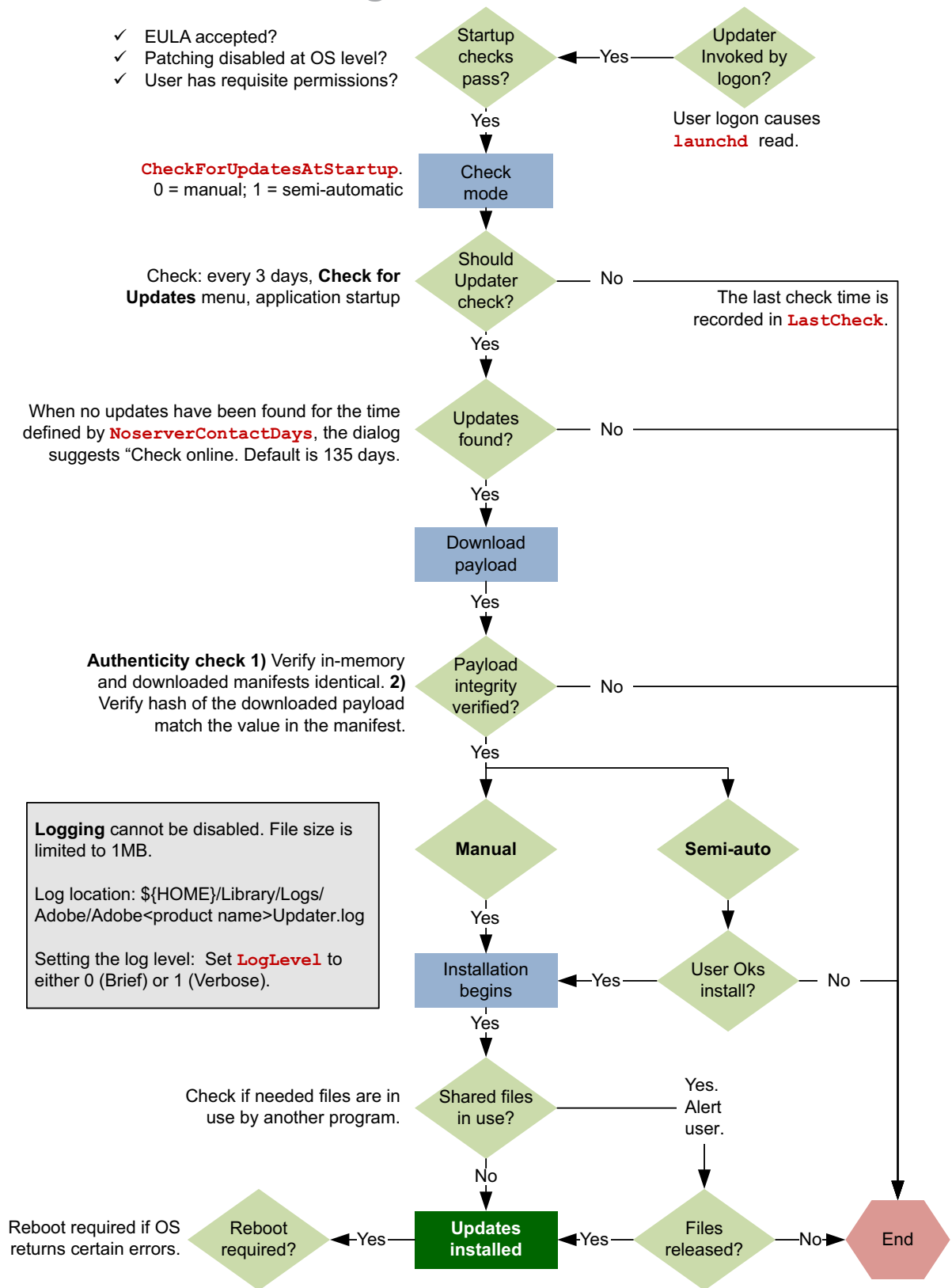
- ~/Library/Caches/com.adobe.<Reader|Acrobat.Pro>.ARM/<hex-of-sha1-of-path-to-Reader/Acrobat>/ contains:
 - Adobe Acrobat/Reader Updater.app
 - Zipped update-installers
- /tmp/<OS-provided-unique-random-string>/ contains:
 - The installer module
 - Zipped update-installers
 - Unzipped update-installers
 - Manifests

The Updater then performs several authenticity checks prior to before installing any files:

- Validates the user has the requisite update permissions. For consistency with Apple updates generally, the Updater always asks for administrator credentials.
- Verifies the written manifests are identical to the in-memory copy.
- Verifies the SHA-256 hash of the installer module matches the baked-in copy inside ARM's code.

If these tests pass, the application reads the manifests and then validates the zipped update binaries using the hashes in the manifests. This will ensure that no user level process tampered with either the binaries or the manifests.

3.3 Mac workflow configuration



3.4 Updater configuration

3.4.1 Setting the update mode

The application checks for and installs updates based on the Updater mode settings as follows:

- **Semi-automatic:** Updates are automatically downloaded but users are asked whether they want to install them.

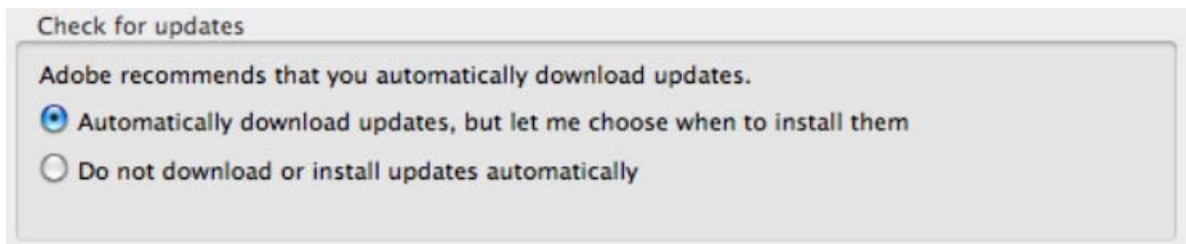
Maps to **Automatically download updates, but let user choose when to install updates.**

- **Manual:** No updates are downloaded automatically. The user can manually check for updates by choosing **Help > Check for Updates**.

Maps to **Do not download or install updates automatically.**

3.4.1.1 User interface configuration

Figure 14 Preferences panel: Update mode settings



3.4.1.2 plist configuration

The update mode is set on a per user basis.

To set the update mode:

1. Go to `com.adobe.{app name}_{ppc}_{version}.plist`.
 - 10.0: `~/User/Library/Preferences/com.adobe.<app name>.plist`
 - 9.x: `~/User/Library/Preferences/com.adobe.<app name>_<ppc/i386>_<version>.plist`
2. Find `CheckForUpdatesAtStartup`.
3. Set the value as needed:
 - 0: **Manual.** Do not download or install updates automatically.
 - 1: **Semi-automatic.** Automatically download updates, but let me choose when to install them.

3.4.2 Disabling the Updater on startup

Set `CheckForUpdatesAtStartup` to 0. The path to this setting varies by version:

- 10.0: `~/Library/Preferences/com.adobe.[Acrobat.Pro/Reader].plist`

- 9.x: ~/Library/Preferences/com.adobe.{app name}_{ppc/x86}_{version}.plist

Note: There is no machine-level setting that disables updates for all users. This setting must be set for each user.

3.4.3 Setting the Watchdog dialog invocation time

When the Updater successfully obtains a manifest it records the download date. The `noServerContactDays` preference specifies the time interval that is allowed to pass from that download date to a successful update. The default is 135 days. If the `noServerContactDays` time has elapsed, a dialog appears suggesting the user might want to manually get an update from adobe.com.

Every time the Updater is invoked (regardless of mechanism), the workflow is as follows:

- Record the run time year and day in `LastCheck` in ~/Library/Preferences/com.adobe.ARM.plist.
- If `LastCheck` indicates it has been 3 or more days since the last check, check for updates.
- Reset the `LastCheck` time on every successful update.
- If an update fails, check the value in `noServerContactDays`.
- Check again if the number of days specified by `noServerContactDays` in `AdobeARMOVERRIDES.plist` has been exceeded.
- If `NoServerContactDays` has been exceeded, the Watchdog dialog appears.

Caution: Changing the interval time is not recommended as Adobe may reset the value during a future date or a security fix could be missed.

3.4.4 Logging configuration

The log file is a file generated and appended to at runtime with status, operational, and error information describing what the Updater is doing. This information helps diagnose runtime problems and should be included with any support requests.

Log file size is not limited during an update. However, since log files are appended to each time the Updater runs, there is a 1MB limit on old logs. The Macintosh log size limit is as follows: If an existing log is bigger than 1 MB, the Updater truncates the log. Old log files are backed up once as Adobe Acrobat/Reader Updater-old.log and overwrites any existing old.log.

Table 16 Log locations

OS	Log location
Macintosh (Reader)	\$(HOME)/Library/Logs/Adobe/Adobe Reader Updater.log
Macintosh (Acrobat)	\$(HOME)/Library/Logs/Adobe/Adobe Acrobat Updater.log

There are 2 log levels available: Brief and Verbose. The default is Brief.

To set the log level:

1. Go to com.adobe.ARM.plist.

2. Set LogLevel (the data type is int):

- **Brief:** 0
- **Verbose:** 1

Example 3.7: Mac preference: LogLevel settings

```
<dict>
  <key>LogLevel</key>
  <string>1</string>
</dict>
```

3.4.5 Updater invocation at user logon

The Updater is invoked by launchd every time a user logs on. At logon, the OS reads the application preference below.

Note: This value is not customizable and is provided for troubleshooting purposes only. These are Mac keys, not Acrobat keys.

Example 3.8: Mac preference: launchd preferences

```
<dict>
  <key>Label</key>

  <string>com.adobe.ARM.c0710a3bbc1f7b43a9487efa35b9142c1acc4fbd27f79fa7f26c3632</string>
  <key>ProgramArguments</key>
  <array>
    <string>/Applications/Adobe Reader 9_/Adobe Reader.app/Contents/MacOS/Updater/Adobe Reader Updater Helper.app/Contents/MacOS/Adobe Reader Updater Helper</string>
  </array>
  <key>RunAtLoad</key>
  <true/>
  <key>StartInterval</key>
  <integer>12600</integer>
</dict>
```

3.4.6 Viewing the last “checked for update” time

By default, the Updater performs an update check every 3 days and records the year and day of that check in LastCheck in com.adobe.ARM.plist. If 3 days have not passed, the Updater exits. If more than 3 days have elapsed, the Updater looks for updates.

Note: This value is not customizable as the value is written at runtime.

Example 3.9: Mac preference: Last checked time

```
<dict>
  <key>LastCheck-925793fb327152fd34795896fa1fb9ffa268b2a852256fe56609efa3</key>
  <date>2010-04-27T20:50:40Z</date>
</dict>
```

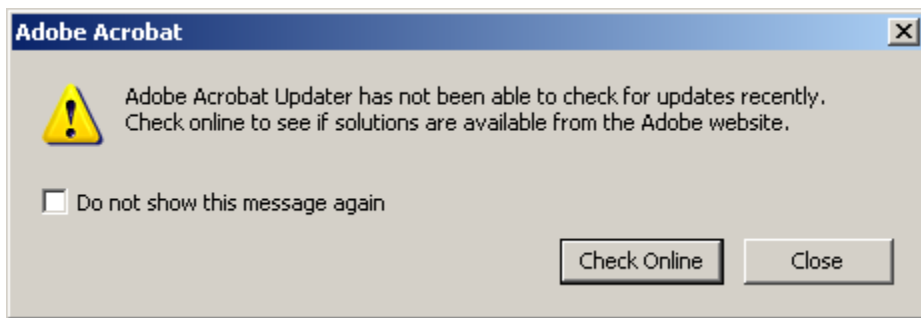
3.5 Troubleshooting

3.5.1 Watchdog dialog

When the application obtains a manifest the Acrobat Updater records the download date. The `NoserverContactDays` preference specifies the time interval that is allowed to pass from that download date to a successful update. The default is 135 days. If the `NoserverContactDays` time has elapsed, a dialog appears suggesting the user might want to manually get an update from adobe.com.

For example, users who cannot obtain the Acrobat Updater manifest due to no internet connection or who are behind authenticating proxies will likely see the dialog in [Figure 15](#). After the dialog appears, the clock is reset and the dialog does not appear again until the `NoserverContactDays` time has once again elapsed.

Figure 15 Watchdog Dialog: Problem with updates



3.5.2 Dialog error reporting

User interface errors are designed to provide basic information about an update's status. Additional detail can be found in the logs; however, since those technical details are designed to help administrators and support troubleshoot any issues, that information is not displayed to end users in the Updater dialogs. The end user facing dialogs usually contain an error code and one or two sentences of text. For a listing of those messages, see [Error codes and messages](#).

3.5.2.1 Error codes and messages

The table below lists the error strings that appear in the user interface.

Table 17 User interface error messages

Code Range	Message
1001-1099	Manual mode only: Cannot connect to Adobe update server. Please verify that you are connected to the Internet and check for updates again.
1101-1199	Manual mode only: Cannot download update files. Please verify that you are connected to the Internet and check for updates again later.

Table 17 User interface error messages

Code Range	Message
1201-1299	Manual mode only: Cannot save files to disk. Please check for updates again later.
1301-1399	Both modes: Your version of <application name> cannot be updated because the application contents have been changed. The update could not be applied because the <application name> application contents were modified since the original installation. Please reinstall <application name> and check for updates again.
1401-1499	Your version of <application name> Cannot be updated at this time. Manual mode: Please check for updates again later. Semi-auto mode: <application name> Updater will try again later.
1501-1899	Manual mode: An error occurred. Please check for updates again later. Semi-auto mode: <application name> Updater will try again later.

3.5.2.2 Log error reporting

As shown in [Table 17](#), UI errors map to a range of log errors. Log errors provide more technical detail and are designed to help IT and support troubleshoot persistent problems.

Example 3.10: Mac log: Verbose

```

2010-04-30 14:38:40 +0530: ***** Starting update to /Applications/Adobe Reader
8/Adobe Reader.app 2010-04-30 14:38:40 +0530: Expanding manifest from 'https:/
armmf.adobe.com/arm-manifests/mac/8/8.2.2/com_adobe_Reader_i386.plist'
2010-04-30 14:38:41 +0530: Expanding manifest from 'https://armmf.adobe.com/
arm-manifests/mac/8/8.2.1/com_adobe_Reader_i386.plist'
2010-04-30 14:38:41 +0530: For /Applications/Adobe Reader 8/Adobe Reader.app, 1
updates to be applied 2010-04-30 14:38:48 +0530: Download from http://
armdl.adobe.com/pub/adobe/reader/mac/8.x/8.2.2/misc/
AdbeRdrUpd822_all_i386.app.zip: connection started 2010-04-30 14:38:49 +0530:
Download from http://armdl.adobe.com/pub/adobe/reader/mac/8.x/8.2.2/misc/
AdbeRdrUpd822_all_i386.app.zip: response with length 9426809 2010-04-30 14:38:49
+0530: Download from http://armdl.adobe.com/pub/adobe/reader/mac/8.x/8.2.2/misc/
AdbeRdrUpd822_all_i386.app.zip: response status code 200, headers:
{
    "Accept-Ranges" = bytes;
    Connection = "keep-alive";
    "Content-Length" = 9426809;
    "Content-Type" = "application/zip";
    Date = "Fri, 30 Apr 2010 09:08:52 GMT";
    Etag = "\"1853840-8fd779-4bb63831\"";
    "Last-Modified" = "Fri, 02 Apr 2010 18:32:17 GMT";
    Server = Apache;
}
2010-04-30 14:39:30 +0530: Download from http://armdl.adobe.com/pub/adobe/reader/
mac/8.x/8.2.2/misc/AdbeRdrUpd822_all_i386.app.zip: finished 2010-04-30 14:39:32
+0530: Reading manifests from /tmp/AdobeARM-DvDJXQUyw6GXaI7Gc079YMzwMPA1dtwH/
manifests
2010-04-30 14:39:32 +0530: Found 2 manifests 2010-04-30 14:39:32 +0530:
("8.2.1", "8.2.2") 2010-04-30 14:39:32 +0530: Expanding manifest from '/tmp/
AdobeARM-DvDJXQUyw6GXaI7Gc079YMzwMPA1dtwH/manifests/8.2.2'
2010-04-30 14:39:32 +0530: Expanding manifest from '/tmp/
AdobeARM-DvDJXQUyw6GXaI7Gc079YMzwMPA1dtwH/manifests/8.2.1'
2010-04-30 14:39:32 +0530: Command from ARMHammer: "percent"

```

```
2010-04-30 14:39:32 +0530: Checking update to 8.2.2:
AdbeRdrUpd822_all_i386.app.zip 2010-04-30 14:39:34 +0530: Command from
ARMHammer: "percent"
2010-04-30 14:39:34 +0530: Command from ARMHammer: "done"
2010-04-30 14:39:34 +0530: Command from ARMHammer: "percent"
2010-04-30 14:39:34 +0530: Installing update to 8.2.2:
AdbeRdrUpd822_all_i386.app 2010-04-30 14:41:41 +0530: Command from ARMHammer:
"percent"
2010-04-30 14:41:41 +0530: Command from ARMHammer: "done"
2010-04-30 14:41:57 +0530: ***** Ending update to /Applications/Adobe Reader 8/
Adobe Reader.app
```

3.6 Macintosh user experience

The following user interface workflows represent typical and common flows. However, variations are possible due to application configurations subject to end user and administrator control.

3.6.1 Manual mode

In manual mode, open applications that interfere with the Updater are listed in several of the dialogs.

Figure 16 Mac manual mode dialog: Update available

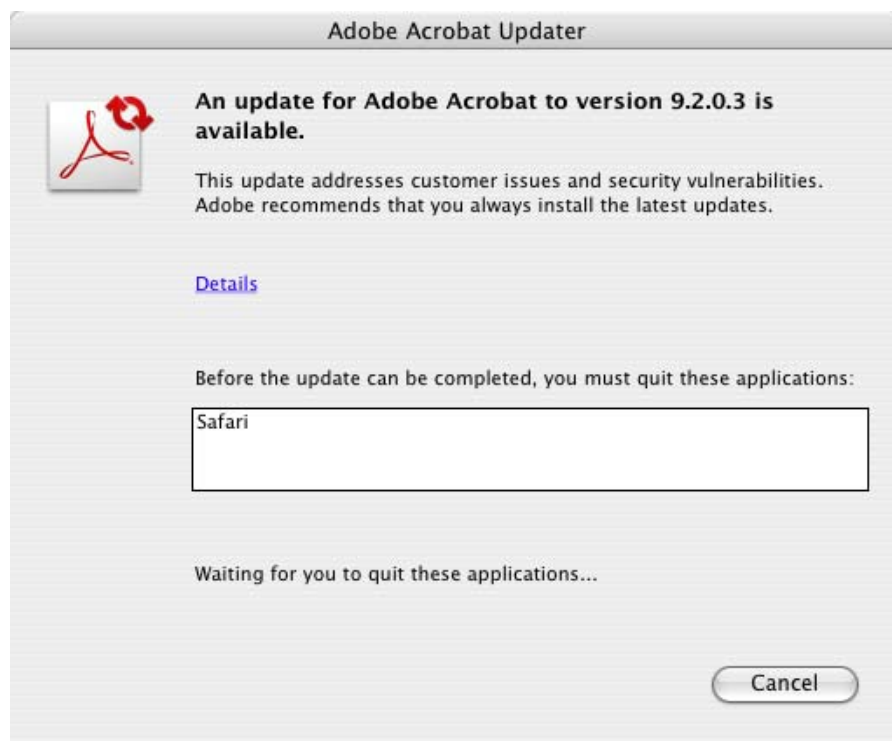


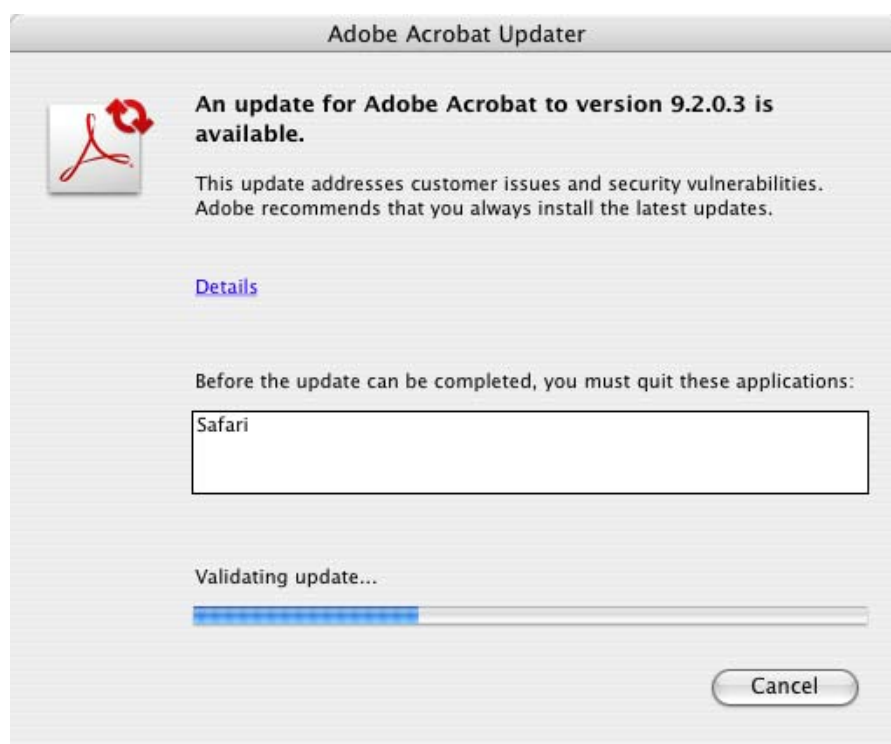
Figure 17 Mac manual mode dialog: Validating update**Figure 18 Mac manual mode dialog: Install now?**

Figure 19 Mac manual mode dialog: Hide updater**Figure 20 Mac manual mode dialog: Installing update**

Figure 21 Mac manual mode dialog: Downloading update**Figure 22 Mac manual mode dialog: Update successful**

3.6.2 Semi-automatic mode

Figure 23 Mac semi-automatic mode dialog: Update available



Figure 24 Mac semi-automatic mode dialog: Install successful



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%

%USERPROFILE%AppDataLocalTempAdobeARM.log 17
%USERPROFILE%Local SettingsTempAdobeARM.log 17

\$

\${HOME}/Library/Logs/Adobe/Adobe Acrobat Updater.log
32
\${HOME}/Library/Logs/Adobe/Adobe Reader Updater.log
32

1

1000 21
1001 21
1002 21
1005 21
1006 21
1100 21
1111 21
1112 21
1113 21
1114 21
1115 21
1116 21
1117 22
1200 22
1201 22
1202 22
1203 22
1300 22
1301 22
1302 22
1303 23
1304 23
1305 23
1400 23
1401 23
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