Acrobat-Reader Updater: A configuration and user guide

For the Acrobat Product Family 9.2 and 8.1.7 and later
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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.
### 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**

<table>
<thead>
<tr>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>? Adobe Reader 9 Help… F1</td>
</tr>
<tr>
<td>About Adobe Reader 9…</td>
</tr>
<tr>
<td>About Adobe Plug-Ins…</td>
</tr>
<tr>
<td>Improvement Program Options…</td>
</tr>
<tr>
<td>Online Support…</td>
</tr>
<tr>
<td>Repair Adobe Reader Installation</td>
</tr>
<tr>
<td><strong>Check for Updates…</strong></td>
</tr>
<tr>
<td>Purchase Adobe Acrobat</td>
</tr>
</tbody>
</table>

### 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.
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

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

<table>
<thead>
<tr>
<th>Preference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>iCheck</td>
<td>Prior to 10.1, this key pertains to both Acrobat and Reader. For 10.1 and later, it only pertains to Acrobat</td>
</tr>
<tr>
<td>iCheckReader</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.

---

**Table 3 Registry changes for 10.1**

<table>
<thead>
<tr>
<th>Preference</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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. |
2.2.1 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,
Updater for Windows

Basic operation

- 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.

![Vista-Win7 Updater workflow](image)

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)**

- `bEulaAcceptedForBrowser` or `EULA=1`?
- Patching disabled at OS level?
- User has requisite permissions?

`bUpdater=0` disables the Updater (1 does nothing).

Check every 4 days, Check for Updates menu, application startup

When no updates have been found for 135 days, the time defined by `interval`, the Watchdog dialog suggests "Check online."

**Authenticity checks:**
1) Is the payload signature valid?
2) Is the download size = to the manifest specified size?

**Logging:** Cannot be disabled. File size is limited to 1MB. New log files are created if the last log is bigger than 1MB. Only 1 old log is backed up.

**Vista/Win7:** `<user>\AppData\Local\Temp\AdobeARM.log`
**XP:** `<user>\Local Settings\Temp\AdobeARM.log`

Set `iLogLevel` to either 0 (Brief) or 1 (Verbose). Default is brief. Manually create the key to change.

In some cases, installation may not require the release of shared files, thereby requiring reboot later.

- Reboot required if OS returns certain errors.
- Reboot required?

By user logon: read
Run/AdobeARM
By app startup: Check mode if `bUpdater` is not 0.

Check mode (0, 2, 3): Semi-auto (2) if key is null.
1) Pre 10.1: iCheck: both Acrobat and Reader
   a) 10.1 and later, iCheck (Acrobat), iCheckReader (Reader)

The last check time kept at:
Pre 10.1: recorded in `iLastY` and `iLastD`, 10.1+: `iLast_T_Reader` or `iLast_T_Acrobat`

Automatic: iCheck=3
Manual: iCheck=0
Semi-auto: iCheck=2

Installation begins
Yes
No

Yes: alert user

Files released?
Yes
No

Updates installed
Yes
No

End
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](image)

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 to 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] ** Setting Error Condition:
[2010-05-19 13:50:01] Delete file: C:\DOCUME~1\brogers\LOCALS~1\Temp\ArmUI.ini
[2010-05-19 13:50:01] C:\Documents and Settings\All Users\Application Data\Adobe\Reader\9.3\ARM\  
   GetLastError(): 0x91 - The directory is not empty.
[2010-05-19 13:50:01] ARM returns ERROR_SUCCESS
```

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>
<thead>
<tr>
<th>OS</th>
<th>Log location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vista</td>
<td>%USERPROFILE%\AppData\Local\Temp\AdobeARM.log</td>
</tr>
<tr>
<td>XP</td>
<td>%USERPROFILE%\Local Settings\Temp\AdobeARM.log</td>
</tr>
</tbody>
</table>

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 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 iInterval 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.
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](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](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

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

### Table 6  Updater errors: Miscellaneous

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

### Table 7  Updater errors: Application initialization

<table>
<thead>
<tr>
<th>Code</th>
<th>UI text</th>
<th>Log text</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>1100</td>
<td>Auto mode: An error occurred. Adobe Updater will try again later Manual mode: An error occurred. Please check for updates again later.</td>
<td>Failed to create main dialog</td>
<td>A required dialog failed to be created within the requisite amount of time.</td>
</tr>
<tr>
<td>1111</td>
<td>Same as 1100.</td>
<td>InitUpdatedProductInfo failed.</td>
<td>Could not identify the product to update.</td>
</tr>
<tr>
<td>1112</td>
<td>Same as 1100.</td>
<td>InitUpdateData failed.</td>
<td>The user canceled the update while downloading the manifest.</td>
</tr>
<tr>
<td>1113</td>
<td>Same as 1100.</td>
<td>Command Line:</td>
<td>Tried to invoke Adobe Updater via empty command line.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Failed to create launcher path</td>
<td>TBD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Failed to create command line</td>
<td>TBD</td>
</tr>
<tr>
<td>1114</td>
<td>Not used.</td>
<td>Not used.</td>
<td></td>
</tr>
<tr>
<td>1115</td>
<td>Same as 1100.</td>
<td>InitDownloadManager failed</td>
<td>TBD</td>
</tr>
<tr>
<td>1116</td>
<td>Same as 1100.</td>
<td>LoadLibrary failed</td>
<td>Could not load the dll that is used to extract the Updater files</td>
</tr>
</tbody>
</table>
### Table 7 Updater errors: Application initialization

<table>
<thead>
<tr>
<th>Code</th>
<th>UI text</th>
<th>Log text</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>1117</td>
<td>Same as 1100.</td>
<td>GetProcAddress(ExtractFileFromArchive) failed</td>
<td>The extraction dll loaded successfully, but extraction failed for some reason.</td>
</tr>
</tbody>
</table>

### Table 8 Updater errors: User permissions and usage

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

### Table 9 Updater errors: Manifest and payload

<table>
<thead>
<tr>
<th>Code</th>
<th>UI text</th>
<th>Log text</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>1301</td>
<td>Not used.</td>
<td>Failed on unlocked Manifest file.</td>
<td>The Updater performed correctly by not using an unlocked and possibly invalid manifest.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Init Manifest Data failed</td>
<td>The manifest specifies that AUM should be used instead.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wait for MSI Mutex is not set in Manifest</td>
<td></td>
</tr>
<tr>
<td>1302</td>
<td>Auto mode: An error occurred. Adobe Updater will try again later. Manual mode: An error occurred. Please check for updates again later.</td>
<td>IsSizeAndSignatureValid failed for: &lt;some file&gt;</td>
<td>The file size or signature is invalid on the downloaded manifest or installer.</td>
</tr>
</tbody>
</table>
### Table 9  Updater errors: Network and download

<table>
<thead>
<tr>
<th>Code</th>
<th>UI text</th>
<th>Log text</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>1400</td>
<td>Cannot establish a connection. Please try again later.</td>
<td>HTTPS and HTTP connection failed</td>
<td>Protocol or port could be blocked or no internet connection.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Network too slow or no connection</td>
<td>TBD</td>
</tr>
<tr>
<td>1401</td>
<td>Cannot download update files. Please check for updates again later.</td>
<td>DownloadArmUpdate failed.</td>
<td>Protocol or port could be blocked or no internet connection. Protocol or port could be blocked. The manifest is missing or the website is down.</td>
</tr>
<tr>
<td>1402</td>
<td>Same as 1401.</td>
<td>Missing file on server (HTTP Error 404): Accompanied by DownloadFiles:isComplete returns error.</td>
<td>Downloading was stopped when a required file was not found.</td>
</tr>
<tr>
<td>1403</td>
<td>Same as 1401.</td>
<td>General Download File failure</td>
<td>Downloading the update failed for some unknown reason.</td>
</tr>
</tbody>
</table>

### Table 10  Updater errors: Manifest and payload

<table>
<thead>
<tr>
<th>Code</th>
<th>UI text</th>
<th>Log text</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x0</td>
<td>ValidateSingleInstallFiles returning FALSE for 0 file size</td>
<td></td>
<td>Updater tried to validate the msi file before installing by looking at the first file and verifying it has an msi extension.</td>
</tr>
<tr>
<td></td>
<td>Missing file</td>
<td>TBD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Validate file failed</td>
<td>The file size or signature is invalid on the downloaded manifest or installer.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ARM Update signature validation failed</td>
<td>The signature is invalid on the downloaded manifest or installer.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ValidateFiles failed</td>
<td>The signature is invalid on the downloaded manifest or installer.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1303 Cannot install the update. Please run Adobe Updater.</td>
<td>Error in ARM Update data</td>
<td>TBD</td>
</tr>
<tr>
<td></td>
<td>1304 Not used.</td>
<td>Empty Update ID</td>
<td>The update ID is blank.</td>
</tr>
<tr>
<td></td>
<td>1305 Cannot install the update. Please run Adobe Updater.</td>
<td>Empty Update URL</td>
<td>The update URL is blank. Check the ARM_server key.</td>
</tr>
</tbody>
</table>
### Table 11 Updater errors: MSI windows installer

<table>
<thead>
<tr>
<th>Code</th>
<th>UI text</th>
<th>Log text</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>1500</td>
<td>Cannot install the update. Please run Adobe Updater.</td>
<td>ExecutelnInstalls failed.</td>
<td>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 <a href="http://kb2.adobe.com/cps/849/cpsid_84935.html">http://kb2.adobe.com/cps/849/cpsid_84935.html</a>.</td>
</tr>
</tbody>
</table>

### Table 12 Updater errors: OS-level

<table>
<thead>
<tr>
<th>Code</th>
<th>UI text</th>
<th>Log text</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>1601</td>
<td>Same as 1600.</td>
<td>QueryServiceStatusEx failed</td>
<td>TBD</td>
</tr>
<tr>
<td>1602</td>
<td>Same as 1600.</td>
<td>ShellExecute failed in RelaunchARM. ShellExecute to relaunch ARM failed with SE_ERR_ACCESSDENIED.</td>
<td>TBD</td>
</tr>
<tr>
<td>1603</td>
<td>Same as 1600.</td>
<td>OpenSCManager failed</td>
<td>Could not get a handle on the SCM database.</td>
</tr>
<tr>
<td>1604</td>
<td>Same as 1600.</td>
<td>OpenSCManager failed</td>
<td>Could not open the SCM service.</td>
</tr>
<tr>
<td>1605</td>
<td>Same as 1600.</td>
<td>None</td>
<td>TBD</td>
</tr>
<tr>
<td>1606</td>
<td>Same as 1600.</td>
<td>None</td>
<td>TBD</td>
</tr>
</tbody>
</table>

### Table 13 Updater errors: File IO

<table>
<thead>
<tr>
<th>Code</th>
<th>UI text</th>
<th>Log text</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>1701</td>
<td>Cannot save files to disk. Please check for updates again later. If you continue to have problems, see your system administrator.</td>
<td>Failed to get current working directory.</td>
<td>Could not find the directory where the 7z files reside to extract.</td>
</tr>
<tr>
<td>1702</td>
<td>Same as 1701.</td>
<td>Failed to change cwd.</td>
<td>Could not find the files to extract or could not change from the extract from to the extract to directories.</td>
</tr>
<tr>
<td>1703</td>
<td>Same as 1701.</td>
<td>ExtractFilesFromArchive failed.</td>
<td>Could not find the files to extract or extraction failed for some other reason.</td>
</tr>
<tr>
<td>1705</td>
<td>Same as 1701.</td>
<td>Delete file:</td>
<td>TBD</td>
</tr>
</tbody>
</table>
### Table 14 Updater errors: Log only

<table>
<thead>
<tr>
<th>Log text</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>GetCurrentUserSID():LookupAccountName() failed.</td>
<td>TBD</td>
</tr>
<tr>
<td>GetCurrentUserSID():ConvertSidToStringSid() failed.</td>
<td>TBD</td>
</tr>
<tr>
<td>No updates in Manifest for current product configuration.</td>
<td>None. There are no updates available.</td>
</tr>
<tr>
<td>Manifest file not signed by Adobe</td>
<td>The manifest file does not appear to be authentic. For security reasons, downloaded files are signed and verified.</td>
</tr>
<tr>
<td>Failed to lock Manifest file.</td>
<td>TBD</td>
</tr>
<tr>
<td>Unknown file type in file object</td>
<td>TBD</td>
</tr>
<tr>
<td>Failed to read UAC setting, defaulting to Enabled.</td>
<td>The Updater could not determine the UAC setting for some reason so is assuming UAC is enabled.</td>
</tr>
<tr>
<td>EULA not yet accepted.</td>
<td>The key bEULAAcceptedForBrowser or EULA did not indicate the end user license agreement was accepted.</td>
</tr>
<tr>
<td>ARMDownloader::BITS Error: There are currently no active network connections. Background Intelligent Transfer Service (BITS) will try again when an adapter is connected.</td>
<td>No Internet connection.</td>
</tr>
<tr>
<td>Error Code: 0x80200010</td>
<td></td>
</tr>
<tr>
<td>BITS Error Context: The error occurred while the remote file was being processed.</td>
<td></td>
</tr>
<tr>
<td>DownloadFileDirectly failed</td>
<td>URL to manifest was changed by the user or is otherwise incorrect.</td>
</tr>
<tr>
<td>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)</td>
<td>TBD</td>
</tr>
</tbody>
</table>

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

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:
Updater for Macintosh

Basic operation

  - 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 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.
Updater for Macintosh

3.3 Mac workflow configuration

- EULA accepted?
- Patching disabled at OS level?
- User has requisite permissions?

**Startup checks pass?**
- Yes
- No

**Updater Invoked by logon?**
- Yes
- No

**CheckForUpdatesAtStartup**:
0 = manual; 1 = semi-automatic

**Check mode**

**Check: every 3 days, Check for Updates** menu, application startup

**Should Updater check?**
- Yes
- No

**Updates found?**
- Yes
- No

**Download payload**

**Payload integrity verified?**
- Yes
- No

**Authenticity check 1)** Verify in-memory and downloaded manifests identical. 2) Verify hash of the downloaded payload match the value in the manifest.

**Log level** cannot be disabled. File size is limited to 1MB.

Log location: $HOME/Library/Logs/Adobe/Adobe<product name>/Updater.log

Setting the log level: Set `LogLevel` to either 0 (Brief) or 1 (Verbose).

**Manual**

**Installation begins**
- Yes
- No

**Semi-auto**

**User Ok?**
- Yes
- No

**Installation begins**

**Shared files in use?**
- Yes
- No

**Files released?**
- Yes
- No

**End**

**Reboot required?**
- Yes
- No

**Updates installed**
- Yes
- No
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
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>
<thead>
<tr>
<th>OS</th>
<th>Log location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macintosh (Reader)</td>
<td><code>~/Library/Logs/Adobe/Adobe Reader Updater.log</code></td>
</tr>
<tr>
<td>Macintosh (Acrobat)</td>
<td><code>~/Library/Logs/Adobe/Adobe Acrobat Updater.log</code></td>
</tr>
</tbody>
</table>

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.c0710a3bbclf7b43a9487efa35b9142clacc4fbd27f79fa7f26c3632</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](image)

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>
<thead>
<tr>
<th>Code Range</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>1001-1099</td>
<td>Manual mode only: Cannot connect to Adobe update server. Please verify that you are connected to the Internet and check for updates again.</td>
</tr>
<tr>
<td>1101-1199</td>
<td>Manual mode only: Cannot download update files. Please verify that you are connected to the Internet and check for updates again later.</td>
</tr>
</tbody>
</table>
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**

```
{ "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;
}
```
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

![Mac manual mode dialog: Update available](image-url)
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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