

Annotated Windows Installer Log

This log was generated by installing the *Debugging Tools for Windows* on *Windows Vista Ultimate* (which ships with MSI 4.0).

Installer logs tend to contain a lot of repeated entries. For example, the file copy operations all look alike. So to make understanding the log easier, most of these are omitted and only useful examples of each entry type are shown.

The original log entries are shown as simple black text on white background. The annotation is shown in yellow highlight *directly below* the entry or entries it refers to. A space is added after each annotation to improve clarity; these are not present in the original log.

Example Log

```
=== Verbose logging started: 06/03/2007 22:17:24 Build type: SHIP UNICODE 4.00.6000.00 Calling process: C:\Windows\system32\msiexec.exe ===
```

The log starts with some general information, such as the date/time of the logging, the calling process and the version of the installer used.

Verbose logging is enabled, which is the best level to use for troubleshooting. Other logging levels may show less information than is shown here.

```
MSI (c) (C0:6C) [22:17:24:455]: Resetting cached policy values
```

```
MSI (c) (C0:6C) [22:17:24:455]: Machine policy value 'Debug' is 0
```

```
MSI (c) (C0:6C) [22:17:24:455]: ***** RunEngine:
```

```
***** Product: debugger\dbg_x86.msi
```

```
***** Action:
```

```
***** CommandLine: *****
```

```
MSI (c) (C0:6C) [22:17:24:457]: Machine policy value 'DisableUserInstalls' is 0
```

```
MSI (c) (C0:6C) [22:17:24:554]: SOFTWARE RESTRICTION POLICY: Verifying package -->
```

```
'C:\debugger\dbg_x86.msi' against software restriction policy
```

```
MSI (c) (C0:6C) [22:17:24:554]: Note: 1: 2262 2: DigitalSignature 3: -2147287038
```

```
MSI (c) (C0:6C) [22:17:24:554]: SOFTWARE RESTRICTION POLICY: C:\debugger\dbg_x86.msi is not digitally signed
```

```
MSI (c) (C0:6C) [22:17:24:556]: SOFTWARE RESTRICTION POLICY: C:\debugger\dbg_x86.msi is permitted to run at the 'unrestricted' authorization level.
```

The Installer honours Software Restriction Policy (SRP). If a package is blocked using SRP, then the Installer will not run it.

The 'note' in this case can be translated using the MSI SDK:

```
MSI (c) (C0:6C) [22:17:24:554]: Note: 1: 2262 2: DigitalSignature 3: -2147287038
```

The SDK defines error '2262' as:

```
Stream does not exist: [2]. System error: [3].
```

So we have:

Stream does not exist: DigitalSignature. System error: -2147287038.

The error code “-2147287038” translates to the hexadecimal value “0x80030002”, which is the error:

“The system cannot find the file specified.”

So, the Installer checked for a digital signature, which is one of the methods available to SRP for blocking execution. Others are file hash and file path. Refer to MSDN for more details.

MSI (c) (C0:6C) [22:17:24:848]: Cloaking enabled.

Cloaking is a COM security capability introduced with the release of Windows 2000. Cloaking determines what identity the client projects toward the server during impersonation. When cloaking is set, the intermediate server masks its own identity and presents the client's identity to the server that it calls on the client's behalf. Basically; the client identity that is seen by the server is the identity associated with the proxy. The proxy's identity is determined by several factors, one of which is the type of cloaking that is set (if any).

See the MSDN Library for more information.

MSI (c) (C0:6C) [22:17:24:848]: Attempting to enable all disabled privileges before calling Install on Server
Privileges work in such a way that they usually remain disabled and are enabled only when required. So, if you run the “Whoami” tool, you will see that most of the privileges are disabled.

This reference specifically relates to the changes made in Windows Server 2003 where privileges are stripped out during a DCOM call if they are not enabled first. This would mean that out-of-process custom actions would not have access to the privileges or be able to acquire the token privileges via the AdjustTokenPrivileges API.

MSI (c) (C0:6C) [22:17:24:856]: End dialog not enabled

This relates to the MsiSetInternalUI function. Specifically it is related to the INSTALLUILEVEL_ENDDIALOG flag and whether the internal UI level was set to include an end dialog.

MSI (c) (C0:6C) [22:17:24:857]: Original package ==> C:\debugger\dbg_x86.msi

The original MSI package that is being installed.

MSI (c) (C0:6C) [22:17:24:857]: Package we're running from ==>

C:\Users\Admin\AppData\Local\Temp\6f2eaf.msi

This is the temporary working copy of the MSI package that the Installer is using for the install.

MSI (c) (C0:6C) [22:17:24:863]: APPCOMPAT: looking for appcompat database entry with ProductCode '{5C741A01-05D6-4306-BA6A-DC8401285AE8}'.

MSI (c) (C0:6C) [22:17:24:863]: APPCOMPAT: no matching ProductCode found in database.

The Installer checks to see if any Application Compatibility support is needed for this product. AppCompat uses ‘shims’ to allow applications with known compatibility problems to function correctly.

MSI (c) (C0:6C) [22:17:24:883]: MSCOREE not loaded loading copy from system32

MSI (c) (C0:6C) [22:17:24:906]: Machine policy value 'TransformsSecure' is 0

MSI (c) (C0:6C) [22:17:24:906]: User policy value 'TransformsAtSource' is 0

The Installer supports many policy settings that govern its behaviour. Refer to the Installer SDK for details of what each policy does.

MSI (c) (C0:6C) [22:17:24:906]: Note: 1: 2205 2: 3: MsiFileHash

Error code 2205 is stating that the Installer cannot find the MsiFileHash table in the database.

MSI (c) (C0:6C) [22:17:24:906]: Machine policy value 'DisablePatch' is 0

MSI (c) (C0:6C) [22:17:24:906]: Machine policy value 'AllowLockdownPatch' is 0

MSI (c) (C0:6C) [22:17:24:906]: Machine policy value 'DisableMsi' is 0

MSI (c) (C0:6C) [22:17:24:906]: Machine policy value 'AlwaysInstallElevated' is 0

MSI (c) (C0:6C) [22:17:24:906]: User policy value 'AlwaysInstallElevated' is 0

More policy settings.

MSI (c) (C0:6C) [22:17:24:906]: Running product '{5C741A01-05D6-4306-BA6A-DC8401285AE8}' with user privileges: It's not assigned.

Assigned applications run with elevated ('SYSTEM') privileges.

MSI (c) (C0:6C) [22:17:24:906]: Machine policy value 'DisableLUAPatching' is 0

MSI (c) (C0:6C) [22:17:24:907]: Machine policy value 'DisableFlyWeightPatching' is 0

More policy settings.

MSI (c) (C0:6C) [22:17:24:907]: Enabling baseline caching for this transaction since all active patches are MSI 3.0 style MSPs or at least one MSI 3.0 minor update patch is active

Baseline caching is a new feature introduced in MSI3.0, where the installer selectively saves baseline information about files when they are updated. Information about the original base application (the RTM version) and the most recent minor upgrade (service pack) are saved in a private location when the application is installed or receives a minor upgrade.

MSI (c) (C0:6C) [22:17:24:908]: APPCOMPAT: looking for appcompat database entry with ProductCode '{5C741A01-05D6-4306-BA6A-DC8401285AE8}'.

MSI (c) (C0:6C) [22:17:24:909]: APPCOMPAT: no matching ProductCode found in database.

Although the Installer checked AppCompat a few entries above, the AppCompat infrastructure is also designed to handle patching, thus there are two different points at which it is checked. The first one is before the install transaction using the base MSI and the second one is after any patches may have been applied (none in this case).

MSI (c) (C0:6C) [22:17:24:909]: Transforms are not secure.

The Installer can cache transforms to a secure location on the local system. Only administrators and SYSTEM have write access, helping secure them against tampering.

MSI (c) (C0:6C) [22:17:24:909]: PROPERTY CHANGE: Adding MsiLogFileLocation property. Its value is 'c:\debugger\debugger.txt'.

This is the filename of the log file the Installer is using.

MSI (c) (C0:6C) [22:17:24:909]: Command Line: CURRENTDIRECTORY=C:\ CLIENTUILEVEL=0 CLIENTPROCESSID=6080

This is the command-line passed to the Installer. Notice the process ID, 6080. In hexadecimal, this is 17C0 – compare this with the "(C0:6C)" logging information for this entry.

MSI (c) (C0:6C) [22:17:24:909]: PROPERTY CHANGE: Adding PackageCode property. Its value is '{9513C463-0086-46B9-B294-A36FC314F616}'.

The Installer logs any changes to properties it is using.

MSI (c) (C0:6C) [22:17:24:909]: Product Code passed to Engine.Initialize: ""

MSI (c) (C0:6C) [22:17:24:909]: Product Code from property table before transforms: '{5C741A01-05D6-4306-BA6A-DC8401285AE8}'

MSI (c) (C0:6C) [22:17:24:909]: Product Code from property table after transforms: '{5C741A01-05D6-4306-BA6A-DC8401285AE8}'

No transforms were used during the install, so no changes were made to the product code.

MSI (c) (C0:6C) [22:17:24:909]: Product not registered: beginning first-time install

The product is not already installed, so a proper install is performed. If the product was already on the target system, the Installer would run in maintenance mode to allow a repair or changes to the selected features.

MSI (c) (C0:6C) [22:17:24:909]: PROPERTY CHANGE: Adding ProductState property. Its value is '-1'.

The ProductState property can be any of these values:

- 1 The product is neither advertised or installed.
- 1 The product is advertised but not installed.
- 2 The product is installed for a different user.
- 5 The product is installed for the current user.

The '-1' value set here matches with the previous log entry that states the product is not installed.

MSI (c) (C0:6C) [22:17:24:909]: Entering CMsiConfigurationManager::SetLastUsedSource.

MSI (c) (C0:6C) [22:17:24:909]: User policy value 'SearchOrder' is 'nmu'

MSI (c) (C0:6C) [22:17:24:909]: Adding new sources is allowed.

'Sources' are the locations where the Installer will search for files it needs for install, repair or patching. Here it will use the default order, which is:

- n Network
- m Media
- u URL

MSI (c) (C0:6C) [22:17:24:910]: PROPERTY CHANGE: Adding PackagecodeChanging property. Its value is '1'.

MSI (c) (C0:6C) [22:17:24:910]: Package name extracted from package path: 'dbg_x86.msi'

MSI (c) (C0:6C) [22:17:24:910]: Package to be registered: 'dbg_x86.msi'

MSI (c) (C0:6C) [22:17:24:910]: Note: 1: 2262 2: AdminProperties 3: -2147287038

Note 2262 states that the Installer cannot find the 'AdminProperties' stream in the package.

Error code '-2147287038' (0x80030002) translates as: "The system cannot find the file specified."

MSI (c) (C0:6C) [22:17:24:911]: PROPERTY CHANGE: Modifying ALLUSERS property. Its current value is '2'. Its new value: '1'.

MSI (c) (C0:6C) [22:17:24:911]: Machine policy value 'AlwaysInstallElevated' is 0

MSI (c) (C0:6C) [22:17:24:911]: User policy value 'AlwaysInstallElevated' is 0

MSI (c) (C0:6C) [22:17:24:911]: Running product '{5C741A01-05D6-4306-BA6A-DC8401285AE8}' with user privileges: It's not assigned.

Although this appears to have been checked earlier in the log, this is being logged here by an Installer helper function that is used at various points when evaluating elevation state.

MSI (c) (C0:6C) [22:17:24:911]: PROPERTY CHANGE: Adding CURRENTDIRECTORY property. Its value is 'C:\'.
MSI (c) (C0:6C) [22:17:24:911]: PROPERTY CHANGE: Adding CLIENTUILEVEL property. Its value is '0'.
MSI (c) (C0:6C) [22:17:24:911]: PROPERTY CHANGE: Adding CLIENTPROCESSID property. Its value is '6080'.
MSI (c) (C0:6C) [22:17:24:911]: TRANSFORMS property is now:
MSI (c) (C0:6C) [22:17:24:911]: PROPERTY CHANGE: Adding VersionDatabase property. Its value is '110'.
MSI (c) (C0:6C) [22:17:24:911]: SHELL32::SHGetFolderPath returned: C:\Users\Admin\AppData\Roaming
MSI (c) (C0:6C) [22:17:24:912]: SHELL32::SHGetFolderPath returned: C:\Users\Admin\Favorites
MSI (c) (C0:6C) [22:17:24:912]: SHELL32::SHGetFolderPath returned:
C:\Users\Admin\AppData\Roaming\Microsoft\Windows\Network Shortcuts
MSI (c) (C0:6C) [22:17:24:912]: SHELL32::SHGetFolderPath returned: C:\Users\Admin\Documents
MSI (c) (C0:6C) [22:17:24:912]: SHELL32::SHGetFolderPath returned:
C:\Users\Admin\AppData\Roaming\Microsoft\Windows\Printer Shortcuts
MSI (c) (C0:6C) [22:17:24:912]: SHELL32::SHGetFolderPath returned:
C:\Users\Admin\AppData\Roaming\Microsoft\Windows\Recent
MSI (c) (C0:6C) [22:17:24:913]: SHELL32::SHGetFolderPath returned:
C:\Users\Admin\AppData\Roaming\Microsoft\Windows\SendTo
MSI (c) (C0:6C) [22:17:24:913]: SHELL32::SHGetFolderPath returned:
C:\Users\Admin\AppData\Roaming\Microsoft\Windows\Templates
MSI (c) (C0:6C) [22:17:24:913]: SHELL32::SHGetFolderPath returned: C:\ProgramData
MSI (c) (C0:6C) [22:17:24:913]: SHELL32::SHGetFolderPath returned: C:\Users\Admin\AppData\Local
MSI (c) (C0:6C) [22:17:24:914]: SHELL32::SHGetFolderPath returned: C:\Users\Admin\Pictures
MSI (c) (C0:6C) [22:17:24:914]: SHELL32::SHGetFolderPath returned:
C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Administrative Tools
MSI (c) (C0:6C) [22:17:24:914]: SHELL32::SHGetFolderPath returned:
C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Startup
MSI (c) (C0:6C) [22:17:24:914]: SHELL32::SHGetFolderPath returned:
C:\ProgramData\Microsoft\Windows\Start Menu\Programs
MSI (c) (C0:6C) [22:17:24:914]: SHELL32::SHGetFolderPath returned:
C:\ProgramData\Microsoft\Windows\Start Menu
MSI (c) (C0:6C) [22:17:24:915]: SHELL32::SHGetFolderPath returned: C:\Users\Public\Desktop
MSI (c) (C0:6C) [22:17:24:915]: SHELL32::SHGetFolderPath returned:
C:\Users\Admin\AppData\Roaming\Microsoft\Windows\Start Menu\Programs\Administrative Tools
MSI (c) (C0:6C) [22:17:24:916]: SHELL32::SHGetFolderPath returned:
C:\Users\Admin\AppData\Roaming\Microsoft\Windows\Start Menu\Programs\Startup
MSI (c) (C0:6C) [22:17:24:916]: SHELL32::SHGetFolderPath returned:
C:\Users\Admin\AppData\Roaming\Microsoft\Windows\Start Menu\Programs
MSI (c) (C0:6C) [22:17:24:916]: SHELL32::SHGetFolderPath returned:
C:\Users\Admin\AppData\Roaming\Microsoft\Windows\Start Menu
MSI (c) (C0:6C) [22:17:24:916]: SHELL32::SHGetFolderPath returned: C:\Users\Admin\Desktop
MSI (c) (C0:6C) [22:17:24:916]: SHELL32::SHGetFolderPath returned:
C:\ProgramData\Microsoft\Windows\Templates
MSI (c) (C0:6C) [22:17:24:917]: SHELL32::SHGetFolderPath returned: C:\Windows\Fonts

SHGetFolderPath is a publicly documented shell function that allows an application to query the path of certain pre-defined common folder such as 'My Documents' and 'Program Files', etc.

Refer to the MSDN Library for further details.

MSI (c) (C0:6C) [22:17:24:918]: Note: 1: 2898 2: MS Sans Serif 3: MS Sans Serif 4: 0 5: 16

Note 2898 states that the Installer has created a new font object.

MSI (c) (C0:6C) [22:17:24:953]: MSI_LUA: Setting AdminUser property to 1 because this is the client or the user has already permitted elevation

'LUA' is the original name for Windows Vista's User Account Control (UAC). With UAC enabled users, with certain powerful privileges run without these unless explicit permission is given to elevate the rights.

As noted in the log entry, there are two possibilities:

- (1) This is the client process
- (2) The user has already permitted elevation.

We're in the client here so we don't actually know which case it is at the moment.

If required, the Installer will prompt to elevate the user's rights. However, it doesn't prompt for elevation during the UI sequence, only when the install switches from the client to the service control.

The setting of AdminUser to 1 in the client sequence is sometimes done specifically for application compatibility reasons. The new property MSIUSEREALADMINDETECTION can be used to prevent the installer from doing this.

MSI (c) (C0:6C) [22:17:24:953]: PROPERTY CHANGE: Adding AdminUser property. Its value is '1'.

MSI (c) (C0:6C) [22:17:24:953]: PROPERTY CHANGE: Adding Privileged property. Its value is '1'.

MSI (c) (C0:6C) [22:17:24:953]: Note: 1: 1402 2: HKEY_CURRENT_USER\Software\Microsoft\MS Setup (ACME)\User Info 3: 2

Note 1402 states that the Installer could not find the specified registry key.

MSI (c) (C0:6C) [22:17:24:954]: PROPERTY CHANGE: Adding USERNAME property. Its value is 'Admin'.

MSI (c) (C0:6C) [22:17:24:954]: Note: 1: 1402 2: HKEY_CURRENT_USER\Software\Microsoft\MS Setup (ACME)\User Info 3: 2

MSI (c) (C0:6C) [22:17:24:954]: PROPERTY CHANGE: Adding DATABASE property. Its value is 'C:\Users\Admin\AppData\Local\Temp\6f2eaf.msi'.

MSI (c) (C0:6C) [22:17:24:954]: PROPERTY CHANGE: Adding OriginalDatabase property. Its value is 'C:\debugger\dbg_x86.msi'.

MSI (c) (C0:6C) [22:17:24:954]: PROPERTY CHANGE: Adding SourceDir property. Its value is 'C:\debugger\.'

MSI (c) (C0:6C) [22:17:24:954]: PROPERTY CHANGE: Adding SOURCEDIR property. Its value is 'C:\debugger\.'

MSI (c) (C0:0C) [22:17:25:036]: PROPERTY CHANGE: Adding VersionHandler property. Its value is '4.00'.

=== Logging started: 06/03/2007 22:17:25 ===

This is the start of logging for the 'real' portion of the install, rather than the initialisation phase shown above.

MSI (c) (C0:6C) [22:17:25:046]: Note: 1: 2262 2: PatchPackage 3: -2147287038

MSI (c) (C0:6C) [22:17:25:046]: Machine policy value 'DisableRollback' is 0

MSI (c) (C0:6C) [22:17:25:046]: User policy value 'DisableRollback' is 0

MSI (c) (C0:6C) [22:17:25:046]: PROPERTY CHANGE: Adding UILevel property. Its value is '5'.

MSI (c) (C0:6C) [22:17:25:048]: PROPERTY CHANGE: Adding ACTION property. Its value is 'INSTALL'.

MSI (c) (C0:6C) [22:17:25:048]: Doing action: INSTALL

Action 22:17:25: INSTALL.

Action start 22:17:25: INSTALL.

The Installer is now ready to execute the top level INSTALL action. That is, it is going to install the product.

MSI (c) (C0:6C) [22:17:25:055]: UI Sequence table 'InstallUISequence' is present and populated.

MSI (c) (C0:6C) [22:17:25:055]: Running UISequence

The UISequence is only executed when a UI is required. If the UI is suppressed, then these actions are skipped.

MSI (c) (C0:6C) [22:17:25:055]: PROPERTY CHANGE: Adding EXECUTEACTION property. Its value is 'INSTALL'.

MSI (c) (C0:6C) [22:17:25:055]: Doing action: LaunchConditions

Action 22:17:25: LaunchConditions. Evaluating launch conditions ...

Action start 22:17:25: LaunchConditions.

Action ended 22:17:25: LaunchConditions. Return value 1.

Launch Conditions tell the Installer to modify its behaviour based on "rules" specified by the package developer. For example, packages intended for install on Windows XP and above can block install on Windows 2000 by specifying a launch condition based on the Windows version.

MSI (c) (C0:6C) [22:17:25:056]: Doing action: PreActionDialog

Action 22:17:25: PreActionDialog.

Action start 22:17:25: PreActionDialog.

MSI (c) (C0:6C) [22:17:25:064]: Note: 1: 2262 2: CustomAction 3: -2147287038

Note 2262 states that the Installer could not find the 'CustomAction' stream in the package. This package does not use any CAs.

Error code -2147287038 (0x80030002) translates to: "The system cannot find the file specified."

Info 2898. For MsShellD8 textstyle, the system created a 'MS Shell Dlg' font, in 0 character set.

Action 22:17:25: PreActionDialog. Dialog created

Action ended 22:17:25: PreActionDialog. Return value 1.

MSI (c) (C0:6C) [22:17:25:171]: Doing action: FindRelatedProducts

Action 22:17:25: FindRelatedProducts. Searching for related applications ...

Action start 22:17:25: FindRelatedProducts.

Action ended 22:17:25: FindRelatedProducts. Return value 1.

The FindrelatedProducts action causes the Installer to look for any products currently installed on the target system matching those listed in the Upgrade Table. This action only runs during initial install and not during repair or uninstall.

MSI (c) (C0:6C) [22:17:25:173]: Doing action: AppSearch

Action 22:17:25: AppSearch. Searching for current installations of Debugging Tools for Windows ...

Action start 22:17:25: AppSearch.

AppSearch:

MSI (c) (C0:6C) [22:17:25:176]: Note: 1: 2262 2: RegLocator 3: -2147287038

MSI (c) (C0:6C) [22:17:25:176]: Note: 1: 2262 2: IniLocator 3: -2147287038

Action ended 22:17:25: AppSearch. Return value 1.

The AppSearch action uses 'signatures' to search the target system for existing versions of an application.

This action makes use of several tables for the information it uses in its search, including the *RegLocator* and *IniLocator* tables mentioned here.

MSI (c) (C0:6C) [22:17:25:177]: Doing action: ValidateProductID

Action 22:17:25: ValidateProductID.

Action start 22:17:25: ValidateProductID.

MSI (c) (C0:6C) [22:17:25:186]: PROPERTY CHANGE: Adding ProductID property. Its value is '12345-111-1111111-56178'.

Action ended 22:17:25: ValidateProductID. Return value 1.

The 'ValidateProductID' action sets the ProductID property using the PIDKEY and PIDTemplate properties.

MSI (c) (C0:6C) [22:17:25:186]: Doing action: CostInitialize

Action 22:17:25: CostInitialize. Computing space requirements ...

Action start 22:17:25: CostInitialize.

MSI (c) (C0:6C) [22:17:25:188]: Machine policy value 'MaxPatchCacheSize' is 10

MSI (c) (C0:6C) [22:17:25:188]: Baseline: Sorting baselines for {5C741A01-05D6-4306-BA6A-DC8401285AE8}.

MSI (c) (C0:6C) [22:17:25:188]: Baseline: New baseline 6.6.7 from transaction.

MSI (c) (C0:6C) [22:17:25:188]: Baseline: Sorted order Native: Order 0.

MSI (c) (C0:6C) [22:17:25:188]: Baseline Data Table:

MSI (c) (C0:6C) [22:17:25:188]: ProductCode: {5C741A01-05D6-4306-BA6A-DC8401285AE8} Version: 6.6.7

Attributes: 0 PatchId: Native BaselineId: -2147483648 Order: 0

MSI (c) (C0:6C) [22:17:25:188]: Baseline File Table:

MSI (c) (C0:6C) [22:17:25:189]: PROPERTY CHANGE: Adding ROOTDRIVE property. Its value is 'C:\'.

MSI (c) (C0:6C) [22:17:25:190]: Note: 1: 1325 2: srcsrvpub

MSI (c) (C0:6C) [22:17:25:190]: Note: 1: 1325 2: srcsrvpub

MSI (c) (C0:6C) [22:17:25:190]: Note: 1: 1325 2: analyze_continue

MSI (c) (C0:6C) [22:17:25:190]: PROPERTY CHANGE: Adding CostingComplete property. Its value is '0'.

Action ended 22:17:25: CostInitialize. Return value 1.

The 'CostInitialize' action is where the Installer starts its costing process. This is the process it uses to determine if enough disk space is available for the Install and takes into account file replacement and caching.

Note 1325 indicates that 'srcsrvpub' and 'analyze_continue' are not valid short file names.

MSI (c) (C0:6C) [22:17:25:191]: Doing action: ResolveSource

Action 22:17:25: ResolveSource.

Action start 22:17:25: ResolveSource.

MSI (c) (C0:6C) [22:17:25:199]: Resolving source.

MSI (c) (C0:6C) [22:17:25:199]: Resolving source to launched-from source.

MSI (c) (C0:6C) [22:17:25:199]: Setting launched-from source as last-used.

MSI (c) (C0:6C) [22:17:25:199]: PROPERTY CHANGE: Adding SourcedirProduct property. Its value is '{5C741A01-05D6-4306-BA6A-DC8401285AE8}'.

MSI (c) (C0:6C) [22:17:25:199]: SOURCEDIR ==> C:\debugger\

MSI (c) (C0:6C) [22:17:25:199]: SOURCEDIR product ==> {5C741A01-05D6-4306-BA6A-DC8401285AE8}

MSI (c) (C0:6C) [22:17:25:199]: Determining source type

MSI (c) (C0:6C) [22:17:25:200]: Source type from package 'dbg_x86.msi': 2

MSI (c) (C0:6C) [22:17:25:200]: Source path resolution complete. Dumping Directory table...

MSI (c) (C0:6C) [22:17:25:200]: Dir (source): Key: TARGETDIR , Object: C:\debugger\ , LongSubPath: , ShortSubPath:

MSI (c) (C0:6C) [22:17:25:200]: Dir (source): Key: WindowsFolder , Object: C:\debugger\ , LongSubPath: , ShortSubPath:

MSI (c) (C0:6C) [22:17:25:200]: Dir (source): Key: SystemFolder , Object: C:\debugger\ , LongSubPath: , ShortSubPath:

MSI (c) (C0:6C) [22:17:25:200]: Dir (source): Key: ProgramMenuFolder , Object: C:\debugger\ ,
LongSubPath: , ShortSubPath:
Action ended 22:17:25: ResolveSource. Return value 1.

The 'ResolveSource' action resolves the source location for the install and uses this to set the SourceDir property.

This action also dumps out a list of directories it is using – here the list is truncated.

MSI (c) (C0:6C) [22:17:25:204]: Doing action: FileCost
Action 22:17:25: FileCost. Computing space requirements ...
Action start 22:17:25: FileCost.
MSI (c) (C0:6C) [22:17:25:207]: Note: 1: 2205 2: 3: MsiAssembly
MSI (c) (C0:6C) [22:17:25:207]: Note: 1: 2262 2: Class 3: -2147287038
MSI (c) (C0:6C) [22:17:25:207]: Note: 1: 2262 2: Extension 3: -2147287038
MSI (c) (C0:6C) [22:17:25:207]: Note: 1: 2262 2: TypeLib 3: -2147287038
MSI (c) (C0:6C) [22:17:25:207]: Note: 1: 2262 2: IniFile 3: -2147287038
MSI (c) (C0:6C) [22:17:25:207]: Note: 1: 2262 2: MoveFile 3: -2147287038
MSI (c) (C0:6C) [22:17:25:207]: Note: 1: 2262 2: DuplicateFile 3: -2147287038
MSI (c) (C0:6C) [22:17:25:207]: Note: 1: 2262 2: ReserveCost 3: -2147287038
Action ended 22:17:25: FileCost. Return value 1.

The 'FileCost' action checks any standard Installer actions that may affect the space requirements for the install.

The 2262 error codes indicate that the Installer cannot find the specified streams in the package.

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MSI (c) (C0:6C) [22:17:25:208]: Doing action: CostFinalize
Action 22:17:25: CostFinalize. Computing space requirements ...
Action start 22:17:25: CostFinalize.
MSI (c) (C0:6C) [22:17:25:209]: PROPERTY CHANGE: Adding OutOfDiskSpace property. Its value is '0'.
MSI (c) (C0:6C) [22:17:25:209]: PROPERTY CHANGE: Adding OutOfNoRbDiskSpace property. Its value is '0'.
MSI (c) (C0:6C) [22:17:25:209]: PROPERTY CHANGE: Adding PrimaryVolumeSpaceAvailable property. Its value is '0'.
MSI (c) (C0:6C) [22:17:25:209]: PROPERTY CHANGE: Adding PrimaryVolumeSpaceRequired property. Its value is '0'.
MSI (c) (C0:6C) [22:17:25:209]: PROPERTY CHANGE: Adding PrimaryVolumeSpaceRemaining property. Its value is '0'.
MSI (c) (C0:6C) [22:17:25:210]: Note: 1: 2262 2: Patch 3: -2147287038
MSI (c) (C0:6C) [22:17:25:210]: Note: 1: 2262 2: Condition 3: -2147287038
MSI (c) (C0:6C) [22:17:25:211]: PROPERTY CHANGE: Adding TARGETDIR property. Its value is 'C:\'.
MSI (c) (C0:6C) [22:17:25:211]: PROPERTY CHANGE: Adding DBGMENU DIR property. Its value is 'C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Debugging Tools for Windows\'.
MSI (c) (C0:6C) [22:17:25:212]: PROPERTY CHANGE: Adding INSTDIR property. Its value is 'C:\Program Files\Debugging Tools for Windows\'.
MSI (c) (C0:6C) [22:17:25:212]: PROPERTY CHANGE: Adding
DBG_BIN.DBA82654_C1A1_4E50_B39F_9AFA2A79D9E5 property. Its value is 'C:\Program Files\Debugging Tools for Windows\'.
MSI (c) (C0:6C) [22:17:25:212]: PROPERTY CHANGE: Adding
DBG_THEMES.DBA82654_C1A1_4E50_B39F_9AFA2A79D9E5 property. Its value is 'C:\Program Files\Debugging Tools for Windows\Themes\'.
MSI (c) (C0:6C) [22:17:25:212]: PROPERTY CHANGE: Adding

MSI (c) (C0:6C) [22:17:25:212]: PROPERTY CHANGE: Adding DBG_BIN.9F258BC4_AEB6_450B_9417_7DAA31FF64A9 property. Its value is 'C:\Program Files\Debugging Tools for Windows\.'

MSI (c) (C0:6C) [22:17:25:212]: PROPERTY CHANGE: Adding DBG_SYMPROXY.9F258BC4_AEB6_450B_9417_7DAA31FF64A9 property. Its value is 'C:\Program Files\Debugging Tools for Windows\symproxy\.'

MSI (c) (C0:6C) [22:17:25:212]: PROPERTY CHANGE: Adding DBG_BIN.535851C6_344B_44E5_B327_27A7BD747D4D property. Its value is 'C:\Program Files\Debugging Tools for Windows\.'

MSI (c) (C0:6C) [22:17:25:216]: Target path resolution complete. Dumping Directory table...

MSI (c) (C0:6C) [22:17:25:216]: Note: target paths subject to change (via custom actions or browsing)

MSI (c) (C0:6C) [22:17:25:216]: Dir (target): Key: TARGETDIR , Object: C:\

MSI (c) (C0:6C) [22:17:25:216]: Dir (target): Key: WindowsFolder , Object: C:\Windows\

MSI (c) (C0:6C) [22:17:25:216]: Dir (target): Key: SystemFolder, Object: C:\Windows\system32\

MSI (c) (C0:6C) [22:17:25:216]: Dir (target): Key: ProgramMenuFolder , Object:

C:\ProgramData\Microsoft\Windows\Start Menu\Programs\

MSI (c) (C0:6C) [22:17:25:221]: Note: 1: 2205 2: 3: MsiAssembly

MSI (c) (C0:6C) [22:17:25:221]: Note: 1: 2228 2: 3: MsiAssembly 4: SELECT `MsiAssembly`.`Attributes`, `MsiAssembly`.`File_Application`, `MsiAssembly`.`File_Manifest`, `Component`.`KeyPath` FROM `MsiAssembly`, `Component` WHERE `MsiAssembly`.`Component_` = `Component`.`Component` AND `MsiAssembly`.`Component_` = ?

Action ended 22:17:25: CostFinalize. Return value 1.

The 'ConstFinalize' action ends the costing process, where the Installer determines the disk space requirements for the install.

The list of entries for this action has been truncated, but you can still see the Installer enumerating the directories where the application files will be placed.

The 2205 and 2228 errors near the end indicate, respectively, a missing table from the database and a missing table mentioned in the specified SQL query.

MSI (c) (C0:6C) [22:17:25:233]: Doing action: MigrateFeatureStates

Action 22:17:25: MigrateFeatureStates. Migrating feature states from related applications ...

Action start 22:17:25: MigrateFeatureStates.

Action ended 22:17:25: MigrateFeatureStates. Return value 0.

Return value '0' means that the action was invoked but did not run. For MigrateFeatureStates, there was no prior detected product to upgrade.

MSI (c) (C0:6C) [22:17:25:236]: Doing action: FirstInstallDialog

Action 22:17:25: FirstInstallDialog.

Action start 22:17:25: FirstInstallDialog.

MSI (c) (C0:6C) [22:17:25:244]: Note: 1: 2262 2: CustomAction 3: -2147287038

Info 2898. For VerdanaB12 textstyle, the system created a 'Verdana' font, in 0 character set.

Action 22:17:25: FirstInstallDialog. Dialog created

Action 22:17:27: LicenseDialog. Dialog created

MSI (c) (C0:0C) [22:17:29:283]: PROPERTY CHANGE: Modifying Accept property. Its current value is 'No'. Its new value: 'Yes'.

Action 22:17:30: IdentityDialog. Dialog created

Action 22:17:32: CustomCompleteDialog. Dialog created

MSI (c) (C0:0C) [22:17:34:681]: PROPERTY CHANGE: Modifying InstallMode property. Its current value is 'Typical'. Its new value: 'Custom'.
Action 22:17:36: InstallLocation. Dialog created
MSI (c) (C0:0C) [22:17:36:541]: PROPERTY CHANGE: Modifying PrimaryVolumeSpaceRemaining property. Its current value is '73714995'. Its new value: '73714787'.
MSI (c) (C0:0C) [22:17:37:721]: PROPERTY CHANGE: Adding MsiSelectionTreeChildrenCost property. Its value is '63291'.
Action 22:17:37: SelectionDialog. Dialog created
MSI (c) (C0:0C) [22:17:38:227]: PROPERTY CHANGE: Modifying PrimaryVolumeSpaceAvailable property. Its current value is '73841120'. Its new value: '73841112'.
MSI (c) (C0:0C) [22:17:44:074]: PROPERTY CHANGE: Modifying MsiSelectionTreeChildrenCost property. Its current value is '63291'. Its new value: '74747'.
Action 22:17:45: VerifyReadyDialog. Dialog created.
Action ended 22:17:46: FirstInstallDialog. Return value 1.
MSI (c) (C0:6C) [22:17:46:142]: Skipping action: FastMaintenanceDialog (condition is false)
MSI (c) (C0:6C) [22:17:46:142]: Skipping action: FirstReinstallDialog (condition is false)
MSI (c) (C0:6C) [22:17:46:142]: Doing action: ActionDialog
Action 22:17:46: ActionDialog.
Action start 22:17:46: ActionDialog.
MSI (c) (C0:6C) [22:17:46:153]: Note: 1: 2262 2: CustomAction 3: -2147287038
Action 22:17:46: ActionDialog. Dialog created
Action ended 22:17:46: ActionDialog. Return value 1.

Here the Installer has created a series of dialog boxes (the install wizard) that gather information needed for the install. Notice that the Installer logs information such as the fact that the user said 'yes' to the license agreement and that the install option was changed from 'typical' to 'custom'.

The list of entries above has been truncated. Expect a longer list in a 'real' installer log.

MSI (c) (C0:6C) [22:17:46:175]: Doing action: ExecuteAction
Action 22:17:46: ExecuteAction.
Action start 22:17:46: ExecuteAction.
MSI (c) (C0:6C) [22:17:46:193]: PROPERTY CHANGE: Adding SECONDSEQUENCE property. Its value is '1'.
MSI (c) (C0:6C) [22:17:46:194]: Grabbed execution mutex.
MSI (c) (C0:6C) [22:17:46:194]: Incrementing counter to disable shutdown. Counter after increment: 0
MSI (c) (C0:6C) [22:17:46:201]: Switching to server: TARGETDIR="C:" INSTDIR="C:\Program Files\Debugging Tools for Windows\" USERNAME="Admin" DBGMENU DIR="C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Debugging Tools for Windows\" SOURCEDIR="C:\debugger\" ALLUSERS="1"
DBG_RELNOTES.3AFB8057_9030_49C1_A2BC_951B6EE5B5A2="C:\Program Files\Debugging Tools for Windows\" DBG_SDK.2236BF94_22FB_4764_9CB3_47E34F8BE4E8="C:\Program Files\Debugging Tools for Windows\ sdk\" DBG_SDK_HELP.2236BF94_22FB_4764_9CB3_47E34F8BE4E8="C:\Program Files\Debugging Tools for Windows\ sdk\help\" DBG_BIN.2236BF94_22FB_4764_9CB3_47E34F8BE4E8="C:\Program Files\Debugging Tools for Windows\" DBG_SDK.59A31A9D_5787_44FF_9C73_5C5BB63B5A5B="C:\Program Files\Debugging Tools for Windows\ sdk\"
DBG_SDK_INC.59A31A9D_5787_44FF_9C73_5C5BB63B5A5B="C:\Program Files\Debugging Tools for Windows\ sdk\inc\" DBG_BIN.59A31A9D_5787_44FF_9C73_5C5BB63B5A5B="C:\Program Files\Debugging Tools for Windows\" DBG_SDK_LIB.7FF70EAA_4C00_44A7_BBF6_8213E5D3B8E7="C:\Program Files\Debugging Tools for Windows\ sdk\lib\" DBG_SDK_LIB_I386.7FF70EAA_4

The client side part of the install is now complete and the Installer has enough information to perform the requested actions.. The Installer grabs the install mutex before continuing – this is the mechanism that

prevents multiple installs running at once; only the owner of the mutex (a global resource) can perform an install.

The Installer is now ready to switch to the 'server' process, which will actually perform the installation actions.

MSI (s) (38:A8) [22:17:46:225]: Grabbed execution mutex.

The Installer is now running in its 'server' process, and has taken ownership of the install mutex to ensure no other install can run.

MSI (s) (38:90) [22:17:46:226]: Resetting cached policy values

MSI (s) (38:90) [22:17:46:227]: Machine policy value 'Debug' is 0

MSI (s) (38:90) [22:17:46:227]: ***** RunEngine:

***** Product: C:\debugger\dbg_x86.msi

***** Action: INSTALL

***** CommandLine: *****

MSI (s) (38:90) [22:17:46:231]: Machine policy value 'DisableUserInstalls' is 0

MSI (s) (38:90) [22:17:46:234]: Setting cached product context: machine assigned for product:
00002109030000000000000000F01FEC

MSI (s) (38:90) [22:17:46:234]: Using cached product context: machine assigned for product:
00002109030000000000000000F01FEC

MSI (s) (38:90) [22:17:46:234]: Setting cached product context: machine assigned for product:
000021091A0090400000000000F01FEC

MSI (s) (38:90) [22:17:46:234]: Using cached product context: machine assigned for product:
000021091A0090400000000000F01FEC

MSI (s) (38:90) [22:17:46:234]: Setting cached product context: machine assigned for product:
000021092B0090400000000000F01FEC

The Installer is setting the caching context for existing applications. That is, it is figuring out the install context to assign to products it just enumerated. For this particular product code, it will use the machine context. Here the '... F01FEC' values are a slightly re-ordered version of the ProductCodes for Office 2007 Ultimate applications.

The list shown is truncated from the original. The size of the list seen in a given log will depend on the products already installed.

MSI (s) (38:90) [22:17:46:272]: Machine policy value 'LimitSystemRestoreCheckpointing' is 0

MSI (s) (38:90) [22:17:46:272]: Note: 1: 1715 2: Debugging Tools for Windows

MSI (s) (38:90) [22:17:46:272]: Calling SRSetRestorePoint API. dwRestorePtType: 0, dwEventType: 102, lISequenceNumber: 0, szDescription: "Installed Debugging Tools for Windows".

MSI (s) (38:90) [22:17:56:752]: The call to SRSetRestorePoint API succeeded. Returned status: 0, lISequenceNumber: 121.

Unless policy settings prevent it, the Installer creates a restore point before any file copies, etc, so the user can use this to recover from any serious problems during Install.

MSI (s) (38:90) [22:17:56:763]: File will have security applied from OpCode.

MSI (s) (38:90) [22:17:57:173]: SOFTWARE RESTRICTION POLICY: Verifying package -->
'C:\debugger\dbg_x86.msi' against software restriction policy

MSI (s) (38:90) [22:17:57:173]: Note: 1: 2262 2: DigitalSignature 3: -2147287038

MSI (s) (38:90) [22:17:57:173]: SOFTWARE RESTRICTION POLICY: C:\debugger\dbg_x86.msi is not digitally signed

MSI (s) (38:90) [22:17:57:175]: SOFTWARE RESTRICTION POLICY: C:\debugger\dbg_x86.msi is permitted to run at the 'unrestricted' authorization level.

MSI (s) (38:90) [22:17:57:175]: End dialog not enabled

MSI (s) (38:90) [22:17:57:176]: Original package ==> C:\debugger\dbg_x86.msi

MSI (s) (38:90) [22:17:57:176]: Package we're running from ==> C:\Windows\Installer\6facc4.msi

MSI (s) (38:90) [22:17:57:183]: APPCOMPAT: looking for appcompat database entry with ProductCode '{5C741A01-05D6-4306-BA6A-DC8401285AE8}'.

MSI (s) (38:90) [22:17:57:183]: APPCOMPAT: no matching ProductCode found in database.

MSI (s) (38:90) [22:17:57:190]: MSCOREE not loaded loading copy from system32

MSI (s) (38:90) [22:17:57:212]: Machine policy value 'TransformsSecure' is 0

MSI (s) (38:90) [22:17:57:212]: User policy value 'TransformsAtSource' is 0

MSI (s) (38:90) [22:17:57:212]: Note: 1: 2205 2: 3: MsiFileHash

MSI (s) (38:90) [22:17:57:212]: Machine policy value 'DisablePatch' is 0

MSI (s) (38:90) [22:17:57:212]: Machine policy value 'AllowLockdownPatch' is 0

MSI (s) (38:90) [22:17:57:213]: Machine policy value 'DisableMsi' is 0

MSI (s) (38:90) [22:17:57:213]: Machine policy value 'AlwaysInstallElevated' is 0

MSI (s) (38:90) [22:17:57:213]: User policy value 'AlwaysInstallElevated' is 0

MSI (s) (38:90) [22:17:57:213]: Running product '{5C741A01-05D6-4306-BA6A-DC8401285AE8}' with user privileges: It's not assigned.

MSI (s) (38:90) [22:17:57:213]: Machine policy value 'DisableLUAPatching' is 0

MSI (s) (38:90) [22:17:57:214]: Machine policy value 'DisableFlyWeightPatching' is 0

MSI (s) (38:90) [22:17:57:214]: Enabling baseline caching for this transaction since all active patches are MSI 3.0 style MSPs or at least one MSI 3.0 minor update patch is active

A lot of the activity in the 'server' phase is identical to that in the 'client' phase, as can be seen by comparing the entries above with those at the start of the 'client' phase.

Notice that the Installer is now running from a packages cached in the "Installer" directory, which is a more secure location than the user's "temp" directory used during the 'client' phase.

MSI (s) (38:90) [22:18:04:605]: Doing action: InstallValidate

Action 22:18:04: InstallValidate. Validating install ...

Action start 22:18:04: InstallValidate.

MSI (s) (38:90) [22:18:04:609]: PROPERTY CHANGE: Deleting MsiRestartManagerSessionKey property. Its current value is '5e4041281ec2cb429d612e39f2b8e119'.

MSI (s) (38:90) [22:18:04:610]: Feature: DBG; Installed: Absent; Request: Local; Action: Local

MSI (s) (38:90) [22:18:04:610]: Feature: DBG.DbgExts; Installed: Absent; Request: Local; Action: Local

MSI (s) (38:90) [22:18:04:610]: Component: DBG.B345628F_C94F_454F_8833_69DEC9413D4B; Installed: Absent; Request: Local; Action: Local; Client State: Unknown

MSI (s) (38:90) [22:18:04:610]: Component:

DBG.Shortcut_AddRemove.D591AED6_B534_42B6_A4CC_2F21873A7E64; Installed: Absent; Request: Local; Action: Local; Client State: Unknown

Action ended 22:18:04: InstallValidate. Return value 1.

The 'InstallValidate' action checks that all of the volumes that will be used in the install have sufficient space for the files to be installed. It also checks to see if any files being replaced are in use, and will warn the user if so.

The Installer also logs the status of each requested feature and associated component(s). For example:

MSI (s) (38:90) [22:18:04:610]: Feature: DBG.DbgExts; Installed: Absent; Request: Local; Action: Local

This entry should be read as:

Feature: DBG.DbgExts <= This is the name of the requested feature
Installed: Absent <= Is the feature already installed? Here it is not.
Request: Local <= What does the user want to do with the feature? Here, the user wants a local install.
Action: Local <= What action will the Installer take? Here it will install the feature locally.

Note that the list of log entries above has been truncated considerably.

MSI (s) (38:90) [22:18:04:785]: Doing action: InstallInitialize
Action 22:18:04: InstallInitialize.
Action start 22:18:04: InstallInitialize.
MSI (s) (38:90) [22:18:04:797]: Machine policy value 'AlwaysInstallElevated' is 0
MSI (s) (38:90) [22:18:04:798]: User policy value 'AlwaysInstallElevated' is 0
MSI (s) (38:90) [22:18:04:798]: BeginTransaction: Locking Server
MSI (s) (38:90) [22:18:04:802]: Server not locked: locking for product {5C741A01-05D6-4306-BA6A-DC8401285AE8}
Action ended 22:18:07: InstallInitialize. Return value 1.

The 'InstallInitialize' action marks the start of the point where the install script is generated.

MSI (s) (38:90) [22:18:07:220]: Doing action: AllocateRegistrySpace
Action 22:18:07: AllocateRegistrySpace. Allocating registry space ...
Action start 22:18:07: AllocateRegistrySpace.
Action ended 22:18:07: AllocateRegistrySpace. Return value 1.
MSI (s) (38:90) [22:18:07:230]: Doing action: ProcessComponents
Action 22:18:07: ProcessComponents. Updating component registration ...
Action start 22:18:07: ProcessComponents.
Action ended 22:18:07: ProcessComponents. Return value 1.

The 'ProcessComponents' action registers and unregisters components, their key paths, and the component clients. This action queries the KeyPath column of the Component table to determine keypaths.

The list of log entries between the action start and finish have been removed as these duplicate information discussed elsewhere. For example, a dump of the directory table.

MSI (s) (38:90) [22:18:07:317]: Doing action: UnpublishComponents
Action 22:18:07: UnpublishComponents. Unpublishing Qualified Components ...
Action start 22:18:07: UnpublishComponents.
MSI (s) (38:90) [22:18:07:320]: Note: 1: 2262 2: PublishComponent 3: -2147287038
Action ended 22:18:07: UnpublishComponents. Return value 1.
MSI (s) (38:90) [22:18:07:322]: Doing action: UnpublishFeatures
Action 22:18:07: UnpublishFeatures. Unpublishing Product Features ...
Action start 22:18:07: UnpublishFeatures.
Action ended 22:18:07: UnpublishFeatures. Return value 1.
MSI (s) (38:90) [22:18:07:324]: Doing action: StopServices
Action 22:18:07: StopServices. Stopping services ...
Action start 22:18:07: StopServices.
MSI (s) (38:90) [22:18:07:327]: Note: 1: 2262 2: ServiceControl 3: -2147287038
Action ended 22:18:07: StopServices. Return value 1.

MSI (s) (38:90) [22:18:07:327]: Doing action: DeleteServices
Action 22:18:07: DeleteServices. Deleting services ...
Action start 22:18:07: DeleteServices.
MSI (s) (38:90) [22:18:07:330]: Note: 1: 2262 2: ServiceControl 3: -2147287038
Action ended 22:18:07: DeleteServices. Return value 1.
MSI (s) (38:90) [22:18:07:331]: Doing action: UnregisterComPlus
Action 22:18:07: UnregisterComPlus. Unregistering COM+ Applications and Components ...
Action start 22:18:07: UnregisterComPlus.
MSI (s) (38:90) [22:18:07:336]: Note: 1: 2262 2: Complus 3: -2147287038
Action ended 22:18:07: UnregisterComPlus. Return value 1.
MSI (s) (38:90) [22:18:07:337]: Doing action: SelfUnregModules
Action 22:18:07: SelfUnregModules. Unregistering modules ...
Action start 22:18:07: SelfUnregModules.
MSI (s) (38:90) [22:18:07:340]: Note: 1: 2262 2: SelfReg 3: -2147287038
Action ended 22:18:07: SelfUnregModules. Return value 1.
MSI (s) (38:90) [22:18:07:341]: Doing action: UnregisterTypeLibraries
Action 22:18:07: UnregisterTypeLibraries. Unregistering type libraries ...
Action start 22:18:07: UnregisterTypeLibraries.
Action ended 22:18:07: UnregisterTypeLibraries. Return value 1.
MSI (s) (38:90) [22:18:07:343]: Doing action: RemoveODBC
Action 22:18:07: RemoveODBC. Removing ODBC components ...
Action start 22:18:07: RemoveODBC.
MSI (s) (38:90) [22:18:07:346]: Note: 1: 2262 2: ODBCDataSource 3: -2147287038
MSI (s) (38:90) [22:18:07:347]: Note: 1: 2262 2: ODBCDataSource 3: -2147287038
MSI (s) (38:90) [22:18:07:347]: Note: 1: 2262 2: ODBCTranslator 3: -2147287038
MSI (s) (38:90) [22:18:07:347]: Note: 1: 2262 2: ODBCTranslator 3: -2147287038
MSI (s) (38:90) [22:18:07:347]: Note: 1: 2262 2: ODBCDriver 3: -2147287038
MSI (s) (38:90) [22:18:07:347]: Note: 1: 2262 2: ODBCDriver 3: -2147287038
MSI (s) (38:90) [22:18:07:347]: Note: 1: 2711 2: ODBCDriverManager
1: Removing ODBC components ...
MSI (s) (38:90) [22:18:07:348]: Note: 1: 2711 2: ODBCDriverManager64
Action ended 22:18:07: RemoveODBC. Return value 1.
MSI (s) (38:90) [22:18:07:349]: Doing action: UnregisterFonts
Action 22:18:07: UnregisterFonts. Unregistering fonts ...
Action start 22:18:07: UnregisterFonts.
MSI (s) (38:90) [22:18:07:353]: Note: 1: 2262 2: Font 3: -2147287038
Action ended 22:18:07: UnregisterFonts. Return value 1.
MSI (s) (38:90) [22:18:07:353]: Doing action: RemoveRegistryValues
Action 22:18:07: RemoveRegistryValues. Removing system registry values ...
Action start 22:18:07: RemoveRegistryValues.
MSI (s) (38:90) [22:18:07:356]: Note: 1: 2262 2: RemoveRegistry 3: -2147287038
Action ended 22:18:07: RemoveRegistryValues. Return value 1.
MSI (s) (38:90) [22:18:07:357]: Doing action: UnregisterClassInfo
Action 22:18:07: UnregisterClassInfo. Unregister Class servers ...
Action start 22:18:07: UnregisterClassInfo.
MSI (s) (38:90) [22:18:07:359]: Note: 1: 2262 2: Class 3: -2147287038
Action ended 22:18:07: UnregisterClassInfo. Return value 1.
MSI (s) (38:90) [22:18:07:360]: Doing action: UnregisterExtensionInfo
Action 22:18:07: UnregisterExtensionInfo. Unregistering extension servers ...

Action start 22:18:07: UnregisterExtensionInfo.
MSI (s) (38:90) [22:18:07:363]: Note: 1: 2262 2: Extension 3: -2147287038
Action ended 22:18:07: UnregisterExtensionInfo. Return value 1.
MSI (s) (38:90) [22:18:07:364]: Doing action: UnregisterProgIdInfo
Action 22:18:07: UnregisterProgIdInfo. Unregistering program identifiers ...
Action start 22:18:07: UnregisterProgIdInfo.
MSI (s) (38:90) [22:18:07:366]: Note: 1: 2262 2: ProgId 3: -2147287038
MSI (s) (38:90) [22:18:07:366]: Note: 1: 2262 2: Class 3: -2147287038
MSI (s) (38:90) [22:18:07:367]: Note: 1: 2262 2: ProgId 3: -2147287038
MSI (s) (38:90) [22:18:07:367]: Note: 1: 2262 2: Extension 3: -2147287038
Action ended 22:18:07: UnregisterProgIdInfo. Return value 1.
MSI (s) (38:90) [22:18:07:368]: Doing action: UnregisterMIMEInfo
Action 22:18:07: UnregisterMIMEInfo. Unregistering MIME info ...
Action start 22:18:07: UnregisterMIMEInfo.
MSI (s) (38:90) [22:18:07:370]: Note: 1: 2262 2: MIME 3: -2147287038
MSI (s) (38:90) [22:18:07:370]: Note: 1: 2262 2: Extension 3: -2147287038
Action ended 22:18:07: UnregisterMIMEInfo. Return value 1.
MSI (s) (38:90) [22:18:07:371]: Doing action: RemoveIniValues
Action 22:18:07: RemoveIniValues. Removing INI files entries ...
Action start 22:18:07: RemoveIniValues.
MSI (s) (38:90) [22:18:07:373]: Note: 1: 2262 2: RemoveIniFile 3: -2147287038
Action ended 22:18:07: RemoveIniValues. Return value 1.
MSI (s) (38:90) [22:18:07:374]: Doing action: RemoveEnvironmentStrings
Action 22:18:07: RemoveEnvironmentStrings. Updating environment strings ...
Action start 22:18:07: RemoveEnvironmentStrings.
MSI (s) (38:90) [22:18:07:376]: Note: 1: 2262 2: Environment 3: -2147287038
Action ended 22:18:07: RemoveEnvironmentStrings. Return value 1.
MSI (s) (38:90) [22:18:07:377]: Doing action: RemoveDuplicateFiles
Action 22:18:07: RemoveDuplicateFiles. Removing duplicated files ...
Action start 22:18:07: RemoveDuplicateFiles.
Action ended 22:18:07: RemoveDuplicateFiles. Return value 1.
MSI (s) (38:90) [22:18:07:380]: Doing action: RemoveFiles
Action 22:18:07: RemoveFiles. Removing files ...
Action start 22:18:07: RemoveFiles.
Action ended 22:18:07: RemoveFiles. Return value 1.
MSI (s) (38:90) [22:18:07:383]: Doing action: RemoveFolders
Action 22:18:07: RemoveFolders. Removing folders ...
Action start 22:18:07: RemoveFolders.
MSI (s) (38:90) [22:18:07:385]: Note: 1: 2262 2: LockPermissions 3: -2147287038
Action ended 22:18:07: RemoveFolders. Return value 1.
MSI (s) (38:90) [22:18:07:386]: Doing action: CreateFolders
Action 22:18:07: CreateFolders. Creating folders ...
Action start 22:18:07: CreateFolders.
MSI (s) (38:90) [22:18:07:388]: Note: 1: 2262 2: LockPermissions 3: -2147287038
MSI (s) (38:90) [22:18:07:388]: Using well known SID for System
MSI (s) (38:90) [22:18:07:388]: Finished allocating new user SID
CreateFolders: Folder: Creating folders ...
Action ended 22:18:07: CreateFolders. Return value 1.
MSI (s) (38:90) [22:18:07:394]: Doing action: MoveFiles

Action 22:18:07: MoveFiles. Moving files ...

Action start 22:18:07: MoveFiles.

Action ended 22:18:07: MoveFiles. Return value 1.

The Installer next executes a series of standard actions. Refer to the Installer SDK for details of what these do.

MSI (s) (38:90) [22:18:07:396]: Doing action: InstallFiles

Action 22:18:07: InstallFiles. Copying new files ...

Action start 22:18:07: InstallFiles.

MSI (s) (38:90) [22:18:07:400]: Dumping binary patch manager data...

MSI (s) (38:90) [22:18:07:400]: The file represented by File table key
'_relnotes.txt.DBD5E448_7B86_4212_BF2D_BE62FE48DB21' has no eligible binary patches

MSI (s) (38:90) [22:18:07:400]: The file represented by File table key
'_redist.txt.3F448E7A_EB72_45BC_A760_4E5A5C7454D0' has no eligible binary patches

InstallFiles: File: Copying new files ...

Size:

MSI (s) (38:90) [22:18:07:421]: Note: 1: 2262 2: LockPermissions 3: -2147287038

MSI (s) (38:90) [22:18:07:421]: Note: 1: 2235 2: 3: StreamRef_4: SELECT `Patch`.`File_`, `Patch`.`Header`,
`Patch`.`Attributes`, `Patch`.`Sequence`, `Patch`.`StreamRef_` FROM `Patch` WHERE `Patch`.`File_` = ? AND
`Patch`.`#_MsiActive`=? ORDER BY `Patch`.`Sequence`

MSI (s) (38:90) [22:18:07:421]: Note: 1: 2205 2: 3: MsiPatchOldAssemblyFile

MSI (s) (38:90) [22:18:07:421]: Note: 1: 2228 2: 3: MsiPatchOldAssemblyFile 4: SELECT
`MsiPatchOldAssemblyFile`.`Assembly_` FROM `MsiPatchOldAssemblyFile` WHERE
`MsiPatchOldAssemblyFile`.`File_` = ?

MSI (s) (38:90) [22:18:07:421]: Note: 1: 2205 2: 3: MsiSFCBypass

MSI (s) (38:90) [22:18:07:421]: Note: 1: 2228 2: 3: MsiSFCBypass 4: SELECT `File_` FROM `MsiSFCBypass`
WHERE `File_` = ?

MSI (s) (38:90) [22:18:07:421]: Note: 1: 2205 2: 3: MsiPatchHeaders

MSI (s) (38:90) [22:18:07:421]: Note: 1: 2228 2: 3: MsiPatchHeaders 4: SELECT `Header` FROM
`MsiPatchHeaders` WHERE `StreamRef` = ?

Action ended 22:18:07: InstallFiles. Return value 1.

The 'InstallFiles' action is responsible for copying the files listed in the File Table to the target system.

MSI (s) (38:90) [22:18:07:476]: Doing action: RemoveShortcuts

Action 22:18:07: RemoveShortcuts. Removing shortcuts ...

Action start 22:18:07: RemoveShortcuts.

Action ended 22:18:07: RemoveShortcuts. Return value 1.

MSI (s) (38:90) [22:18:07:479]: Doing action: DuplicateFiles

Action 22:18:07: DuplicateFiles. Creating duplicate files ...

Action start 22:18:07: DuplicateFiles.

Action ended 22:18:07: DuplicateFiles. Return value 1.

MSI (s) (38:90) [22:18:07:481]: Doing action: PatchFiles

Action 22:18:07: PatchFiles. Patching files ...

Action start 22:18:07: PatchFiles.

Action ended 22:18:07: PatchFiles. Return value 1.

MSI (s) (38:90) [22:18:07:483]: Doing action: BindImage

Action 22:18:07: BindImage. Binding executables ...

Action start 22:18:07: BindImage.

MSI (s) (38:90) [22:18:07:485]: Note: 1: 2262 2: BindImage 3: -2147287038

Action ended 22:18:07: BindImage. Return value 1.

MSI (s) (38:90) [22:18:07:485]: Doing action: CreateShortcuts

Action 22:18:07: CreateShortcuts. Creating shortcuts ...

Action start 22:18:07: CreateShortcuts.

MSI (s) (38:90) [22:18:07:488]: Note: 1: 2235 2: 3: DisplayResourceDLL 4: SELECT `Name`, `FileName`, `Component`.`Directory_`, `Arguments`, `WkDir`, `Icon_`, `IconIndex`, `Hotkey`, `ShowCmd`, `Shortcut`.`Description`, `Shortcut`.`Directory_`, `Component`.`RuntimeFlags`, `Component`.`Action`, `Target`, `ComponentId`, `Feature`.`Action`, `Component`.`Installed`, `DisplayResourceDLL`, `DisplayResourceId`, `DescriptionResourceDLL`, `DescriptionResourceId` From `Shortcut`, `Feature`, `Component`, `File` WHERE `Target` = `Feature` AND `Shortcut`.`Component_` = `Component` AND `Component`.`KeyPath` = `File`.`File` AND ((`Feature`.`Action` = 1 OR `Feature`.`Action` = 2) OR (`Feature`.`Action` = 4 AND `Feature`.`Installed` = 0) OR (`Feature`.`Action` = 3 AND (`Feature`.`Installed` = 1 OR `Feature`.`Installed` = 2 OR `Feature`.`Installed` = 4)) OR (`Feature`.`Action` = NULL AND (`Component`.`Action` = 1 OR `Component`.`Action` = 2) AND (`Feature`.`Installed` = 1 OR `Feature`.`Installed` = 2 OR `Feature`.`Installed` = 4)))

MSI (s) (38:90) [22:18:07:489]: Note: 1: 2235 2: 3: DisplayResourceDLL 4: SELECT `Name`, `Target`, null, `Arguments`, `WkDir`, `Icon_`, `IconIndex`, `Hotkey`, `ShowCmd`, `Shortcut`.`Description`, `Shortcut`.`Directory_`, `Component`.`RuntimeFlags`, null, null, null, null, null, `DisplayResourceDLL`, `DisplayResourceId`, `DescriptionResourceDLL`, `DescriptionResourceId` From `Shortcut`, `Component` WHERE `Shortcut`.`Component_` = `Component` AND (`Component`.`Action` = 1 OR `Component`.`Action` = 2)

CreateShortcuts: Shortcut: Creating shortcuts ...

Action ended 22:18:07: CreateShortcuts. Return value 1.

MSI (s) (38:90) [22:18:07:492]: Doing action: RegisterClassInfo

Action 22:18:07: RegisterClassInfo. Registering Class servers ...

Action start 22:18:07: RegisterClassInfo.

MSI (s) (38:90) [22:18:07:494]: Note: 1: 2262 2: Class 3: -2147287038

Action ended 22:18:07: RegisterClassInfo. Return value 1.

MSI (s) (38:90) [22:18:07:496]: Doing action: RegisterExtensionInfo

Action 22:18:07: RegisterExtensionInfo. Registering extension servers ...

Action start 22:18:07: RegisterExtensionInfo.

MSI (s) (38:90) [22:18:07:498]: Note: 1: 2262 2: Extension 3: -2147287038

Action ended 22:18:07: RegisterExtensionInfo. Return value 1.

MSI (s) (38:90) [22:18:07:499]: Doing action: RegisterProgIdInfo

Action 22:18:07: RegisterProgIdInfo. Unregistering program identifiers ...

Action start 22:18:07: RegisterProgIdInfo.

MSI (s) (38:90) [22:18:07:501]: Note: 1: 2262 2: ProgId 3: -2147287038

MSI (s) (38:90) [22:18:07:501]: Note: 1: 2262 2: Class 3: -2147287038

MSI (s) (38:90) [22:18:07:502]: Note: 1: 2262 2: ProgId 3: -2147287038

MSI (s) (38:90) [22:18:07:502]: Note: 1: 2262 2: Extension 3: -2147287038

Action ended 22:18:07: RegisterProgIdInfo. Return value 1.

MSI (s) (38:90) [22:18:07:504]: Doing action: RegisterMIMEInfo

Action 22:18:07: RegisterMIMEInfo. Registering MIME info ...

Action start 22:18:07: RegisterMIMEInfo.

MSI (s) (38:90) [22:18:07:507]: Note: 1: 2262 2: MIME 3: -2147287038

MSI (s) (38:90) [22:18:07:507]: Note: 1: 2262 2: Extension 3: -2147287038

Action ended 22:18:07: RegisterMIMEInfo. Return value 1.

MSI (s) (38:90) [22:18:07:508]: Doing action: WriteRegistryValues

Action 22:18:07: WriteRegistryValues. Writing system registry values ...

Action start 22:18:07: WriteRegistryValues.

WriteRegistryValues: Key: Writing system registry values ..., Name: , Value:

MSI (s) (38:90) [22:18:07:512]: Note: 1: 2262 2: LockPermissions 3: -2147287038

Action ended 22:18:07: WriteRegistryValues. Return value 1.
MSI (s) (38:90) [22:18:07:514]: Doing action: WriteIniValues
Action 22:18:07: WriteIniValues. Writing INI files values ...
Action start 22:18:07: WriteIniValues.
Action ended 22:18:07: WriteIniValues. Return value 1.
MSI (s) (38:90) [22:18:07:516]: Doing action: WriteEnvironmentStrings
Action 22:18:07: WriteEnvironmentStrings. Updating environment strings ...
Action start 22:18:07: WriteEnvironmentStrings.
MSI (s) (38:90) [22:18:07:518]: Note: 1: 2262 2: Environment 3: -2147287038
Action ended 22:18:07: WriteEnvironmentStrings. Return value 1.
MSI (s) (38:90) [22:18:07:519]: Doing action: RegisterFonts
Action 22:18:07: RegisterFonts. Registering fonts ...
Action start 22:18:07: RegisterFonts.
MSI (s) (38:90) [22:18:07:520]: Note: 1: 2262 2: Font 3: -2147287038
Action ended 22:18:07: RegisterFonts. Return value 1.
MSI (s) (38:90) [22:18:07:521]: Doing action: InstallODBC
Action 22:18:07: InstallODBC. Installing ODBC components ...
Action start 22:18:07: InstallODBC.
MSI (s) (38:90) [22:18:07:524]: Note: 1: 2711 2: ODBCDriverManager
MSI (s) (38:90) [22:18:07:524]: Note: 1: 2711 2: ODBCDriverManager64
MSI (s) (38:90) [22:18:07:524]: Note: 1: 2262 2: ODBCDriver 3: -2147287038
MSI (s) (38:90) [22:18:07:524]: Note: 1: 2262 2: ODBCAttribute 3: -2147287038
MSI (s) (38:90) [22:18:07:524]: Note: 1: 2262 2: ODBCDriver 3: -2147287038
MSI (s) (38:90) [22:18:07:524]: Note: 1: 2262 2: ODBCAttribute 3: -2147287038
MSI (s) (38:90) [22:18:07:524]: Note: 1: 2262 2: ODBCTranslator 3: -2147287038
MSI (s) (38:90) [22:18:07:524]: Note: 1: 2262 2: ODBCTranslator 3: -2147287038
MSI (s) (38:90) [22:18:07:524]: Note: 1: 2262 2: ODBCDataSource 3: -2147287038
MSI (s) (38:90) [22:18:07:525]: Note: 1: 2262 2: ODBCSourceAttribute 3: -2147287038
MSI (s) (38:90) [22:18:07:525]: Note: 1: 2262 2: ODBCDataSource 3: -2147287038
MSI (s) (38:90) [22:18:07:525]: Note: 1: 2262 2: ODBCSourceAttribute 3: -2147287038
Action ended 22:18:07: InstallODBC. Return value 0.
MSI (s) (38:90) [22:18:07:525]: Doing action: RegisterTypeLibraries
Action 22:18:07: RegisterTypeLibraries. Registering type libraries ...
Action start 22:18:07: RegisterTypeLibraries.
Action ended 22:18:07: RegisterTypeLibraries. Return value 1.
MSI (s) (38:90) [22:18:07:528]: Doing action: SelfRegModules
Action 22:18:07: SelfRegModules. Registering modules ...
Action start 22:18:07: SelfRegModules.
MSI (s) (38:90) [22:18:07:530]: Note: 1: 2262 2: SelfReg 3: -2147287038
Action ended 22:18:07: SelfRegModules. Return value 1.
MSI (s) (38:90) [22:18:07:530]: Doing action: RegisterComPlus
Action 22:18:07: RegisterComPlus. Registering COM+ Applications and Components ...
Action start 22:18:07: RegisterComPlus.
MSI (s) (38:90) [22:18:07:532]: Note: 1: 2262 2: Complus 3: -2147287038
Action ended 22:18:07: RegisterComPlus. Return value 1.
MSI (s) (38:90) [22:18:07:533]: Doing action: InstallServices
Action 22:18:07: InstallServices. Installing new services ...
Action start 22:18:07: InstallServices.
MSI (s) (38:90) [22:18:07:535]: Note: 1: 2262 2: ServiceInstall 3: -2147287038

Action ended 22:18:07: InstallServices. Return value 1.
MSI (s) (38:90) [22:18:07:535]: Doing action: StartServices
Action 22:18:07: StartServices. Starting services ...
Action start 22:18:07: StartServices.
MSI (s) (38:90) [22:18:07:537]: Note: 1: 2262 2: ServiceControl 3: -2147287038
Action ended 22:18:07: StartServices. Return value 1.
MSI (s) (38:90) [22:18:07:537]: Doing action: RegisterUser
Action 22:18:07: RegisterUser. Registering user ...
Action start 22:18:07: RegisterUser.
RegisterUser: Registering user ...
Action ended 22:18:07: RegisterUser. Return value 1.
MSI (s) (38:90) [22:18:07:540]: Doing action: RegisterProduct
Action 22:18:07: RegisterProduct. Registering product ...
Action start 22:18:07: RegisterProduct.
RegisterProduct: Registering product ...
MSI (s) (38:90) [22:18:07:544]: PROPERTY CHANGE: Adding ProductToBeRegistered property. Its value is '1'.
Action ended 22:18:07: RegisterProduct. Return value 1.
MSI (s) (38:90) [22:18:07:546]: Doing action: PublishComponents
Action 22:18:07: PublishComponents. Publishing Qualified Components ...
Action start 22:18:07: PublishComponents.
MSI (s) (38:90) [22:18:07:548]: Note: 1: 2262 2: PublishComponent 3: -2147287038
Action ended 22:18:07: PublishComponents. Return value 1.
MSI (s) (38:90) [22:18:07:549]: Doing action: PublishFeatures
Action 22:18:07: PublishFeatures. Publishing Product Features ...
Action start 22:18:07: PublishFeatures.
PublishFeatures: Feature: Publishing Product Features ...
Action ended 22:18:07: PublishFeatures. Return value 1.
MSI (s) (38:90) [22:18:07:560]: Doing action: PublishProduct
Action 22:18:07: PublishProduct. Publishing product information ...
Action start 22:18:07: PublishProduct.
MSI (s) (38:90) [22:18:07:566]: Note: 1: 2262 2: Icon 3: -2147287038
1: Publishing product information ...
Action ended 22:18:07: PublishProduct. Return value 1.

Again, another list of standard actions. Their purpose is detailed in the Installer SDK.

MSI (s) (38:90) [22:18:07:569]: Doing action: InstallFinalize
Action 22:18:07: InstallFinalize.
Action start 22:18:07: InstallFinalize.
MSI (s) (38:90) [22:18:07:578]: Running Script: C:\Windows\Installer\MSID5D6.tmp
MSI (s) (38:90) [22:18:07:578]: PROPERTY CHANGE: Adding UpdateStarted property. Its value is '1'.
MSI (s) (38:90) [22:18:07:580]: Machine policy value 'DisableRollback' is 0

Up to this point of InstallFinalize the Installer has been storing a list of the operations associated with the standard actions in the script file 'MSID5D6.tmp', which it now works through executing these operations.

Note that Rollback is not disabled by policy, so rollback information will be stored so changes can be undone if a problem occurs during install.

MSI (s) (38:90) [22:18:07:589]: Note: 1: 1402 2:
HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Installer\Rollback\Scripts 3: 2

MSI (s) (38:90) [22:18:07:590]: Executing op:
Header(Signature=1397708873,Version=400,TimeStamp=912699972,LangId=0,Platform=0,ScriptType=1,ScriptMajorVersion=21,ScriptMinorVersion=4,ScriptAttributes=1)
MSI (s) (38:90) [22:18:07:591]: Executing op: ProductInfo(ProductKey={5C741A01-05D6-4306-BA6A-DC8401285AE8},ProductName=Debugging Tools for Windows,PackageName=dbg_x86.msi,Language=0,Version=101056519,Assignment=1,ObsoleteArg=0,,,PackageCode={9513C463-0086-46B9-B294-A36FC314F616},,,,InstanceType=0,LUASetting=0,RemoteURTInstalls=0,ProductDeploymentFlags=2)
MSI (s) (38:90) [22:18:07:591]: Executing op: DialogInfo(Type=0,Argument=0)
MSI (s) (38:90) [22:18:07:592]: Executing op: DialogInfo(Type=1,Argument=Debugging Tools for Windows)
MSI (s) (38:90) [22:18:07:592]: Executing op:
RollbackInfo(RollbackAction=Rollback,RollbackDescription=Rolling back action:,RollbackTemplate=[1],CleanupAction=RollbackCleanup,CleanupDescription=Removing backup files ...,CleanupTemplate=File: [1])
MSI (s) (38:90) [22:18:07:592]: Executing op: SetBaseline(Baseline=0,)
MSI (s) (38:90) [22:18:07:592]: Executing op: SetBaseline(Baseline=1,)
MSI (s) (38:90) [22:18:07:592]: Executing op: ActionStart(Name=ProcessComponents,Description=Updating component registration ...)
Action 22:18:07: ProcessComponents. Updating component registration ...
MSI (s) (38:90) [22:18:07:594]: Executing op: ProgressTotal(Total=1,Type=1,ByteEquivalent=24000)
MSI (s) (38:90) [22:18:07:594]: Executing op: ComponentUnregister(ComponentId={C3FDC2F7-74B0-4282-8CD7-D05A2E9DF01E},,BinaryType=0,PreviouslyPinned=1)
1: {5C741A01-05D6-4306-BA6A-DC8401285AE8} 2: {C3FDC2F7-74B0-4282-8CD7-D05A2E9DF01E}
MSI (s) (38:90) [22:18:07:596]: Note: 1: 1402 2:
UNKNOWN\Components\7F2CDF3C0B472824C87D0DA5E2D90FE1 3: 2
MSI (s) (38:90) [22:18:07:596]: Note: 1: 1402 2:
UNKNOWN\Components\7F2CDF3C0B472824C87D0DA5E2D90FE1 3: 2
MSI (s) (38:90) [22:18:07:596]: Executing op: ProgressTotal(Total=272,Type=1,ByteEquivalent=24000)
MSI (s) (38:90) [22:18:07:597]: Executing op: ComponentRegister(ComponentId={B345628F-C94F-454F-8833-69DEC9413D4B},KeyPath=C:\Program Files\Debugging Tools for Windows\,State=3,,Disk=1,SharedDllRefCount=0,BinaryType=0)
1: {5C741A01-05D6-4306-BA6A-DC8401285AE8} 2: {B345628F-C94F-454F-8833-69DEC9413D4B} 3: C:\Program Files\Debugging Tools for Windows\
MSI (s) (38:90) [22:18:07:598]: Executing op: ComponentRegister(ComponentId={D591AED6-B534-42B6-A4CC-2F21873A7E64},KeyPath=01:\SOFTWARE\Microsoft\DebuggingTools\AddRemove\ProductCode,State=3,,Disk=1,SharedDllRefCount=0,BinaryType=0)
1: {5C741A01-05D6-4306-BA6A-DC8401285AE8} 2: {D591AED6-B534-42B6-A4CC-2F21873A7E64} 3: 01:\SOFTWARE\Microsoft\DebuggingTools\AddRemove\ProductCode

The Installer starts to execute some of the operations, including adding product information to its database and registering new components.

The list of log entries is severely truncated.

Action 22:18:08: CreateFolders. Creating folders ...

MSI (s) (38:90) [22:18:08:974]: Executing op: FolderCreate(Folder=C:\Program Files\Debugging Tools for Windows\,Foreign=0,)

CreateFolders: Folder: C:\Program Files\Debugging Tools for Windows\
MSI (s) (38:90) [22:18:08:976]: Executing op: FolderCreate(Folder=C:\Program Files\Debugging Tools for Windows\,Foreign=0,)

CreateFolders: Folder: C:\Program Files\Debugging Tools for Windows\
MSI (s) (38:90) [22:18:08:977]: Executing op: FolderCreate(Folder=C:\Program Files\Debugging Tools for Windows\Foreign=0,)

CreateFolders: Folder: C:\Program Files\Debugging Tools for Windows\
MSI (s) (38:90) [22:18:08:980]: Executing op: FolderCreate(Folder=C:\Program Files\Debugging Tools for Windows\Foreign=0,)

MSI (s) (38:90) [22:18:09:020]: Executing op: ActionStart(Name=InstallFiles,Description=Copying new files ...,Template=File: [9][1]
Size: [6])

Action 22:18:09: InstallFiles. Copying new files ...

MSI (s) (38:90) [22:18:09:022]: Executing op: ProgressTotal(Total=37755108,Type=0,ByteEquivalent=1)

MSI (s) (38:90) [22:18:09:022]: Executing op: SetTargetFolder(Folder=C:\Program Files\Debugging Tools for Windows\)

MSI (s) (38:90) [22:18:09:022]: Executing op: SetSourceFolder(Folder=1\)

MSI (s) (38:90) [22:18:09:023]: Executing op: ChangeMedia(,MediaPrompt=Please insert the disk: Please insert disk labeled "Debugging Tools for Windows",MediaCabinet=dbgrel.CABinet,BytesPerTick=32768,CopierType=2,ModuleFileName=C:\Windows\Installer\6facc4.msi,,,,,IsFirstPhysicalMedia=1)

MSI (s) (38:90) [22:18:09:023]: Executing op:

FileCopy(SourceName=relnotes.txt,SourceCabKey=_relnotes.txt.DBD5E448_7B86_4212_BF2D_BE62FE48DB21, DestName=relnotes.txt,Attributes=512,FileSize=14070,PerTick=32768,,VerifyMedia=1,,,,CheckCRC=0,,,Install Mode=59244544,,,,,,)

MSI (s) (38:90) [22:18:09:026]: File: C:\Program Files\Debugging Tools for Windows\relnotes.txt; To be installed; Won't patch; No existing file

MSI (s) (38:90) [22:18:09:026]: Source for file '_relnotes.txt.DBD5E448_7B86_4212_BF2D_BE62FE48DB21' is compressed

InstallFiles: File: C:\Program Files\Debugging Tools for Windows\relnotes.txt

Size: 14070

MSI (s) (38:90) [22:18:09:029]: SOFTWARE RESTRICTION POLICY: Verifying object -->

'C:\Windows\Installer\6facc4.msi' against software restriction policy

MSI (s) (38:90) [22:18:09:029]: Note: 1: 2262 2: DigitalSignature 3: -2147287038

MSI (s) (38:90) [22:18:09:029]: SOFTWARE RESTRICTION POLICY: C:\Windows\Installer\6facc4.msi is not digitally signed

MSI (s) (38:90) [22:18:09:031]: SOFTWARE RESTRICTION POLICY: C:\Windows\Installer\6facc4.msi is permitted to run at the 'unrestricted' authorization level.

MSI (s) (38:90) [22:18:09:031]: Note: 1: 2318 2: C:\Program Files\Debugging Tools for Windows\relnotes.txt

The Installer now starts copying the files for the product. For example, from the entries here we can tell the following about the install of the release notes file ('relnotes.txt'):

Target Folder=C:\Program Files\Debugging Tools for Windows\
SourceName=relnotes.txt

SourceCabKey=_relnotes.txt.DBD5E448_7B86_4212_BF2D_BE62FE48DB21

DestName=relnotes.txt

Attributes=512

<= "The file is vital for the accurate operation of the component to which it belongs"

FileSize=14070

PerTick=32768

VerifyMedia=1

CheckCRC=0

InstallMode=59244544

File: C:\Program Files\Debugging Tools for Windows\relnotes.txt

To be installed <= User requested this earlier
Won't patch <= Only install a new version of the file
No existing file <= Only install if no file already exist

The above values are determined using the file versioning rules.

The list of file copies is severely truncated.

MSI (s) (38:90) [22:18:09:054]: Note: 1: 2360
MSI (s) (38:90) [22:18:09:055]: Note: 1: 2360
MSI (s) (38:90) [22:18:09:056]: Note: 1: 2360

These entries are simply progress ticks.

MSI (s) (38:90) [22:18:19:181]: Executing op: ActionStart(Name=CreateShortcuts,Description=Creating shortcuts ...,Template=Shortcut: [1])

Action 22:18:19: CreateShortcuts. Creating shortcuts ...

MSI (s) (38:90) [22:18:19:186]: Executing op: SetTargetFolder(Folder=23\Debugging Tools for Windows\)

MSI (s) (38:90) [22:18:19:188]: SHELL32::SHGetFolderPath returned:

C:\ProgramData\Microsoft\Windows\Start Menu\Programs

MSI (s) (38:90) [22:18:19:188]: Executing op: ShortcutCreate(Name=AddRemove|Add or Remove Debugging Tools for Windows,,File=C:\Windows\system32\msiexec,Arguments=/i {5C741A01-05D6-4306-BA6A-DC8401285AE8},,,ShowCmd=1,Description=Add or remove Windows Debugging Tools components.,,,)

CreateShortcuts: Shortcut: AddRemove|Add or Remove Debugging Tools for Windows

The Installer creates the necessary shortcuts. For example, these entries show the "Add/Remove Programs" shortcut being created in the "Debugging Tools for Windows" folder on the Start Menu.

MSI (s) (38:90) [22:18:19:763]: Executing op: ActionStart(Name=WriteRegistryValues,Description=Writing system registry values ...,Template=Key: [1], Name: [2], Value: [3])

Action 22:18:19: WriteRegistryValues. Writing system registry values ...

MSI (s) (38:90) [22:18:19:765]: Executing op: ProgressTotal(Total=5,Type=1,ByteEquivalent=13200)

MSI (s) (38:90) [22:18:19:771]: Executing op: RegOpenKey(Root=-2147483647,Key=Software\Microsoft\DebuggingTools,,BinaryType=0,)

MSI (s) (38:90) [22:18:19:782]: Executing op: RegAddValue(Name=WinDbg,Value=%C:\Program Files\Debugging Tools for Windows\)

WriteRegistryValues: Key: \Software\Microsoft\DebuggingTools, Name: WinDbg, Value: %C:\Program Files\Debugging Tools for Windows\

The Installer now writes the registry data from the Registry table. Here it is creating the registry value that holds the path to the 'WinDbg' debugger.

The possible 'root' key values are:

2147483647 HKEY_LOCAL_MACHINE if a per-machine install, otherwise HKEY_CURRENT_USER
2147483648 HKEY_CLASSES_ROOT
2147483649 HKEY_CURRENT_USER

2147483650 HKEY_LOCAL_MACHINE
2147483651 HKY_USERS

MSI (s) (38:90) [22:18:19:785]: Executing op: ActionStart(Name=RegisterUser,Description=Registering user ...,Template=[1])

Action 22:18:19: RegisterUser. Registering user ...

MSI (s) (38:90) [22:18:19:787]: Executing op: UserRegister(Owner=Admin,,ProductId=12345-111-1111111-04562)

RegisterUser: {5C741A01-05D6-4306-BA6A-DC8401285AE8}

MSI (s) (38:90) [22:18:19:792]: Executing op: ActionStart(Name=RegisterProduct,Description=Registering product ...,Template=[1])

Action 22:18:19: RegisterProduct. Registering product ...

MSI (s) (38:90) [22:18:19:794]: Executing op: ChangeMedia(,MediaPrompt=Please insert the disk: Please insert disk labeled "Debugging Tools for

Windows",MediaCabinet=dbgrel.CABinet,BytesPerTick=0,CopierType=2,ModuleFileName=C:\Windows\Installer\6facc4.msi,,,,,IsFirstPhysicalMedia=1)

MSI (s) (38:90) [22:18:19:794]: Executing op:

DatabaseCopy(DatabasePath=C:\Windows\Installer\6facc4.msi,ProductCode={5C741A01-05D6-4306-BA6A-DC8401285AE8},CabinetStreams=dbgrel.CABinet;dbghlp.CABinet;dbginc.CABinet;dbglib32.CABinet;dbgsrc0.CABinet;dbgsrc1.CABinet;dbgsrc2.CABinet;dbgsrc3.CABinet;dbgsrc4.CABinet;dbgsrc5.CABinet;dbgsrc6.CABinet;dbgsrc7.CABinet;dbgsrc8.CABinet;dbgsrc9.CABinet;dbglib64.CABinet;dbglibamd.CABinet;dbgsrcsrv.CABinet;dbgsrcsrvx86.CABinet;dbgtls.CABinet;dbgdoc.CABinet;dbgext4f.CABinet;dbgext4c.CABinet;dbgext5f.CABinet;dbgext5c.CABinet;dbgext6.CABinet;dbgextclr.CABinet;dbgtrriage.CABinet;dbgwinext.CABinet;dbggrs.CABinet;dbgman.CABinet;dbg1394.CABinet;dbgusb.CABinet;dbgproxy.CABinet;WinDbgThemes.CABinet,,)

MSI (s) (38:90) [22:18:22:292]: Executing op: ProductRegister(UpgradeCode={AEBA607E-D79B-47EC-9C9B-4B3807853863},VersionString=6.6.7.5,HelpLink=http://www.microsoft.com/ddk/debugging,,,InstallSource=C:\debugger\,Publisher=Microsoft Corporation,,,,,,,,,,,,,EstimatedSize=37282,)

RegisterProduct: {5C741A01-05D6-4306-BA6A-DC8401285AE8}

MSI (s) (38:90) [22:18:22:329]: Executing op: ProductCPDisplayInfoRegister()

MSI (s) (38:90) [22:18:22:333]: Executing op: ActionStart(Name=PublishFeatures,Description=Publishing Product Features ...,Template=Feature: [1])

Action 22:18:22: PublishFeatures. Publishing Product Features ...

MSI (s) (38:90) [22:18:22:337]: Executing op:

FeaturePublish(Feature=DBG,,Absent=2,Component=iEQ\b&&T?='l\$QpgZN3@]Ga`o\$`\$892NVgGmXws-`UJD8.z1K=)Q(%Et,EzkQn!%_6v=p9EnKRz3s\$jCyyhwrel7TAy&{htAEC_!)

PublishFeatures: Feature: DBG

MSI (s) (38:90) [22:18:22:361]: Executing op:

FeaturePublish(Feature=DBG.DbgExts,Parent=DBG,Absent=2,Component=er=`-qXXI9ZBvkW@Pd+Cc4*9]T]b0@]gVtc_N.]k[_XWf2BTD?(cG)^EvYjH)

PublishFeatures: Feature: DBG.DbgExts

MSI (s) (38:90) [22:18:22:366]: Executing op:

FeaturePublish(Feature=DBG.DbgExts.Nt4Chk,Parent=DBG.DbgExts,Absent=2,Component=l?fy'1Dvf(6oAefwny7\$S!=b68Gvf(?!Befwny7\$76pY88Gvf(?!Befwny7\$xBL=8Gvf(?!Befwny7\$@`v3@8Gvf(?!Befwny7\$q-RT5*Gvf(={Aefwny7\$cG]rTqO)o8IbOWTobO2qHVKX+vMvf(@&Befwny7\$J@nx[~@Ad9VJ40T\$3.k6~=.e?J[LR?ZE]SMJ3_I)IOM^lu!6k9&_nxKy{I\$.@M353T9i=96&Vd5JtRovo]pp90Dvf(6oAefwny7\$`Ys{?}\$?}%0=,W23L]4xF'*kr`D)G~p@nDAN_+VPEZeLqn4vMvf(@&Befwny7\$}`-7J.0iO9{,StbDjPid',WkmPw'f?6KN*-(4he)!{+b\$`?ZM9g4Y8FV0E1?rIp][&(l-@Mz`VnJyx=796QhZ[9[V=dqzd5O@-

Qe,dKnf]zoRA6rdyKv1^ASn%ID^b\$zKAPS(NBc.5Wj&k?&A)\$Ef80%gk?a1G[?{,c!Mt)4KAm].@o85gohbvtx'jFLM?B42ga{37D?6\$klGJjgs=N+Nxi(heV^]Sc@RS0cx?@lldn*ma4%8&%X`*i')=7bq{^P{\$[gjNC+6}S-KAW`pst}m6~8C&~cCH`[2@9yf8*X_~8=*OlweV]]1?WmV*=0ww&+Y[n2n8o'Y9Ukao,@Yfirt`*ceuu6NY90`!TuSD}h6KCO2%oZEI@r)K%xG6p{DsQCJT8N[]@bDdVQVHFQB)

The Installer stores feature information in the registry. Here the 'DBG.DbgExts.Nt4Chk' feature is being published. In this case, the information shown is stored in this location:

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Installer\UserData\S-1-5-18\Products\10A147C56D506034ABA6CD481082A58E\Features

Notice that the data is deliberately obfuscated. Manually editing this information is highly discouraged. Always use the Installer API to get/set Installer-related information.

MSI (s) (38:90) [22:18:22:485]: Executing op: ActionStart(Name=PublishProduct,Description=Publishing product information ...,)
Action 22:18:22: PublishProduct. Publishing product information ...
MSI (s) (38:90) [22:18:22:487]: Executing op: CleanupConfigData()
MSI (s) (38:90) [22:18:22:487]: Note: 1: 1402 2:
HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Installer\UserData\S-1-5-18\Products\10A147C56D506034ABA6CD481082A58E\Patches 3: 2
MSI (s) (38:90) [22:18:22:487]: Executing op: RegisterPatchOrder(Continue=0,SequenceType=1,Remove=0)
MSI (s) (38:90) [22:18:22:487]: Note: 1: 1402 2:
UNKNOWN\Products\10A147C56D506034ABA6CD481082A58E\Patches 3: 2
MSI (s) (38:90) [22:18:22:489]: Executing op: ProductPublish(PackageKey={9513C463-0086-46B9-B294-A36FC314F616})
1: {5C741A01-05D6-4306-BA6A-DC8401285AE8}
MSI (s) (38:90) [22:18:22:491]: Note: 1: 1402 2:
UNKNOWN\Installer\Products\10A147C56D506034ABA6CD481082A58E 3: 2
MSI (s) (38:90) [22:18:22:491]: Note: 1: 1402 2:
UNKNOWN\Installer\Products\10A147C56D506034ABA6CD481082A58E 3: 2
MSI (s) (38:90) [22:18:22:491]: Note: 1: 1402 2:
UNKNOWN\Installer\Products\10A147C56D506034ABA6CD481082A58E 3: 2

This is the ProductPublish operation.

There are multiple data locations impacted by the ProductPublish opcode as well as some processing that occurs.

MSI (s) (38:90) [22:18:22:534]: Executing op: SourceListRegisterLastUsed(SourceProduct={5C741A01-05D6-4306-BA6A-DC8401285AE8},LastUsedSource=C:\debugger\
MSI (s) (38:90) [22:18:22:534]: Entering CMsiConfigurationManager::SetLastUsedSource.

The Installer is setting the location that the product was installed from. In this case 'C:\debugger'

Action 22:18:22: RollbackCleanup. Removing backup files ...

MSI (s) (38:90) [22:18:22:563]: Calling SRSetRestorePoint API. dwRestorePtType: 0, dwEventType: 103, llSequenceNumber: 121, szDescription: "".

MSI (s) (38:90) [22:18:22:565]: The call to SRSetRestorePoint API succeeded. Returned status: 0.

MSI (s) (38:90) [22:18:22:565]: Unlocking Server

MSI (s) (38:90) [22:18:22:565]: PROPERTY CHANGE: Deleting UpdateStarted property. Its current value is '1'.

Action ended 22:18:22: InstallFinalize. Return value 1.

The installation is essentially done. System Restore API is called again with the previous sequence number in order to complete the change.

Property(S): EXISTINGINSTLOCATION = None
Property(S): ReinstallRepair = r
Property(S): TARGETDIR = C:\
Property(S): NewFolder = NewFolder-NOTUSED
Property(S): INSTDIR = C:\Program Files\Debugging Tools for Windows\
Property(S): InstallMode = Typical
Property(S): ProductName = Debugging Tools for Windows
Property(S): ErrorDialog = ErrorDialog
Property(S): USERNAME = Admin
Property(S): PIDKEY = 111-1111111
Property(S): Accept = No
Property(S): MaintenanceMode = AddRemove
Property(S): ReinstallChoice = Normal
Property(S): UpgradeMode = Upgrade

The Installer dumps a list of all of the properties it used during the install.

The list of properties shown is severely truncated from the original.

MSI (s) (38:90) [22:18:22:645]: MainEngineThread is returning 0

MSI (s) (38:A8) [22:18:22:646]: RESTART MANAGER: Session closed.

The Restart Manager (RM) is a new feature of Windows Vista aimed at minimising the need to restart the system when patching applications. Applications can be closed down temporarily, releasing any files they are using in order for them to be updated.

The debugger package doesn't have anything in it for restart manager because it doesn't have the RMFilesInUse dialog authored. It's a legacy files in use authored package, although it doesn't require legacy files in use detection during install (it uses the legacy dialog for display but restart manager runs for detection).

MSI (c) (C0:6C) [22:18:22:649]: Back from server. Return value: 0

MSI (c) (C0:6C) [22:18:22:649]: Decrementing counter to disable shutdown. If counter >= 0, shutdown will be denied. Counter after decrement: -1

MSI (c) (C0:6C) [22:18:22:650]: PROPERTY CHANGE: Deleting SECONDSEQUENCE property. Its current value is '1'.

Action ended 22:18:22: ExecuteAction. Return value 1.

MSI (c) (C0:6C) [22:18:22:650]: Doing action: ExitDialog

Action 22:18:22: ExitDialog.

Action start 22:18:22: ExitDialog.

MSI (c) (C0:6C) [22:18:22:658]: Note: 1: 2262 2: CustomAction 3: -2147287038

Action 22:18:22: ExitDialog. Dialog created

Action ended 22:18:26: ExitDialog. Return value 1.

Action ended 22:18:26: INSTALL. Return value 1.

The install ended successfully.

=== Logging stopped: 06/03/2007 22:18:26 ===

MSI (c) (C0:6C) [22:18:26:474]: Note: 1: 1707

MSI (c) (C0:6C) [22:18:26:475]: Product: Debugging Tools for Windows -- Installation operation completed successfully.

Everything went well.

Note 1707 translates as 'Installation operation completed successfully.'

MSI (c) (C0:6C) [22:18:26:477]: Windows Installer installed the product. Product Name: Debugging Tools for Windows. Product Version: 6.6.7.5. Product Language: 1033. Installation success or error status: 0.

MSI (c) (C0:6C) [22:18:26:481]: Grabbed execution mutex.

MSI (c) (C0:6C) [22:18:26:481]: Cleaning up uninstalled install packages, if any exist

MSI (c) (C0:6C) [22:18:26:483]: MainEngineThread is returning 0

=== Verbose logging stopped: 06/03/2007 22:18:26 ===

We're done