



Dell™ NetVault™ Backup Plug-in for VMware® 10.5 Release Notes

September 2015

These release notes provide information about the Dell™ NetVault™ Backup Plug-in for VMware® release.

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About this release

Dell NetVault Backup Plug-in for VMware (Plug-in for VMware) protects your virtual machines from disaster, media failure, and data corruption. Its intuitive, easy-to-use interface gives you a single, centralized console to configure backup and restore policies for your virtual environments. The Plug-in for VMware is integrated with VMware vStorage APIs for Data Protection (VADP). It allows you to protect your virtual environment without the need for complex scripting or deep understanding of VMware® ESX® or VADP internals. The plug-in minimizes downtime by allowing you to restore complete virtual machine images or individual files quickly and reliably with minimal interaction. Through automatic integration with a wide range of backup devices, your virtualized data can be protected and safely stored off-site to meet your disaster recovery and business continuity goals.

Dell NetVault Backup Plug-in for VMware 10.5 is a minor release, with new features and functionality. See [New features](#) and [Enhancements](#).

IMPORTANT: Starting with 10.0, NetVault Backup provides a web-based user interface to configure, manage, and monitor your NetVault Backup system and installed plug-ins. The procedures described in the user's guide for this version of the plug-in are intended for the new NetVault WebUI. For procedures based on the NetVault Backup Console (user interface available with NetVault Backup 9.x), see the documentation for an earlier version of the plug-in.

IMPORTANT: The Plug-in for VMware 10.5 can only be installed on 64-bit operating systems as the 32-bit libraries are no longer supported by the Virtual Disk Development Kit (VDDK). This applies to both Windows® and Linux® systems.

New features

New features in Plug-in for VMware 10.5:

- **Added the ability to restart failed backups:** The Plug-in for VMware lets you to restart a job to back up only those virtual machines that failed previously. To use this method, you must configure the backup option **Enable Restartable backups** for the job. When you restart a job, the plug-in runs an Incremental Backup job to back up the failed virtual machines.

NOTE: The Restart method can only be used with NetVault Backup 11.0 and later.

- **Added a Diagnose Virtual Machine method:** The **Diagnose Virtual Machine** method includes some pre-defined tests, which are used to identify issues in virtual machine setup that can cause failures when the plug-in performs the following activities:
 - Access the VMDK files
 - Check CBT status and capabilities
 - Create quiesced snapshots

See also:

- [Enhancements](#)
- [Resolved issues](#)

Enhancements

The following is a list of enhancements implemented in Plug-in for VMware 10.5.

Table 1. Enhancements

Enhancement	Issue ID
Added the option to disable quiescing of virtual machines. When you disable quiescing, the plug-in uses crash-consistent snapshots to perform backups.	21161
Improved log messages to make it easier to diagnose faults.	27829
Other logging-related changes: <ul style="list-style-type: none">• Updated log messages to display virtual machine names instead of task IDs and process IDs.• Added a warning message for unsupported vCenter/ESXi Server versions.	
Added context object to the log message "<n> files could not be indexed" to provide the list of fragmented files that could not be indexed during file-level backups.	27951
Changed the default transport mode to Auto on new installations. Depending on your setup, the plug-in automatically selects the SAN or SCSI HotAdd mode without requiring any re-configuration.	28876
Removed the Use Volume Shadow Copy Service check box from the Backup Preferences dialog box. This option is not supported by plug-in versions 2.x and later.	29182
Removed SAN and SCSI HotAdd mode from the fallback transport mode list to prevent incorrect configuration.	29385

Resolved issues

The following is a list of issues addressed in Plug-in for VMware 10.5.

Table 2. Resolved issues: Plug-in for VMware 10.5

Resolved issue	Issue ID
Implemented changes to discard partial index entries if all components are not backed up successfully for a virtual machine. This change ensures that only successful virtual machines are listed in the restore selection tree.	2640
Improved handling of non-ASCII character sets so that messages are displayed correctly when Character Code Conversions do not match for the vCenter/ESX Server and the NetVault Backup Server.	13754
Modified the file-level indexing process to discard invalid entries if indexing fails for a virtual machine.	22036
Corrected an issue that caused a restore job to fail when a file that was included in a Full image-level backup was restored from an Incremental Backup of the virtual machine.	22321
Addressed an issue that caused the plug-in to report job status as “completed with warnings” when all selected virtual disks were successfully backed up. The plug-in generated warnings for virtual disks that were not selected for backup.	26364
Modified the plug-in to use positive DeviceKey IDs when restoring SATA CDROM devices.	26374
Corrected an issue that caused the file-level restore jobs to crash when restoring NTFS sparse files.	27587
Corrected an issue that caused a restore job to fail when the virtual disks were stored on different datastores.	27804
Addressed an issue that caused restore jobs to fail with the error “Failed to uniquely locate VM in server inventory” when individual disks were selected for restore.	28942
Corrected an issue that caused a restore job to fail with the errors “Snapshot load failed” and “File not found” when a virtual machine was renamed during restore.	28993
Addressed issues that caused file-level indexing to fail if the backup selection included files that were marked as “not in use.”	29091
Updated the plug-in to remove snapshots for hotadded disks when a backup job fails or it is aborted. Previously, the snapshots were left in a locked state and the vSphere Client displayed an error message when you tried to consolidate the virtual machine.	29256
Corrected an issue that caused a crash when printing filenames of omitted files.	29295
Corrected an issue that caused a child process to crash when the plug-in opened the virtual disks for restore. The process generated the following trace log message: VixDiskLibVim_GetNfcTicket: Get NFC ticket for [datastore]	29619

Known issues

The following is a list of issues, including those attributed to third-party products, known to exist at the time of release.

Table 3. Known issues

Known issue	Issue ID
When restoring data to an alternate datastore, the plug-in does not check if the datastore is available. You must verify that the datastore is valid and has sufficient disk space to accommodate the virtual machine.	1714
If you remove a VMware Server, and re-add the server with the same name but a different hostname (or IP address), the plug-in does not allow you to open the server node without first terminating the <code>nvvmware.exe</code> process from the Windows Task Manager.	2338
The “.nvram” and “.vmx” files must reside in the same directory. Otherwise, you must manually edit the file path for the “.nvram” file after restoring the data.	2368
Raw Disk Mapping (RDM) disks in virtual compatibility mode are restored to flat “.vmdk” files and not to the original RDM. The alternative is to omit these disks during a restore.	2371
On Linux-based clients, an image-level backup job may fail if a failover occurs during the job. If this error occurs, you must re-run the job after the failover completes.	2383
If you select the Auto setting as the primary transport mode, during the backup of a virtual machine that has disks on SAN storage as well as storage accessible only through the network, the NetVault Backup logs may report the transport mode incorrectly as “san” when the disk is opened in a network-based mode (nbd or nbdssl).	2394
VDDK uses a kernel-mode driver for mounting a virtual machine during file-level backup and browse operations. The Plug-in for VMware automatically starts a service for the driver when you install the plug-in, but it does not delete the service when you remove the plug-in. Moreover, the plug-in does not check if the service is running when you perform an upgrade or a reinstallation. If this service is not running on the client, the plug-in fails to complete the mount request and reports the error “Driver not found.”	2810
The configuration setting [Custom:MountOperationTimeoutSecs], which is stored in the <code>vmware.cfg</code> file, determines how long the plug-in process waits for the mount daemon to respond to a request. The default value is set to 600 seconds during a fresh install and 300 seconds during an upgrade. If the mount daemon is unable to complete a request within the specified interval, the virtual machine is left in a mounted state. If you have a large number of backups running simultaneously or your server is running under heavy load, modify the value for the [Custom:MountOperationTimeoutSecs] setting to avoid running into this situation.	3131
VDDK does not support non-UTF8 locales. On Linux-based clients that use non-UTF8 locales, the plug-in reports the error “Child Process died unexpectedly” and exits abnormally.	3340
When you use the NetVault Backup Plug-in for Consolidation, the image-level backups of virtual machines are displayed on the Create Selection Set page, but you cannot consolidate these savesets.	6598
When you browse a localized virtual machine from an X11 or Motif GUI, the encoding of the name can cause the display to be scrambled or to not appear at all.	13679
You cannot back up virtual machine templates using the Plug-in for VMware. Workaround: The workaround is to convert the template to a virtual machine.	13728
Restore to alternate ESX Server fails when you use vNetwork Distributed Switch (vDS).	13744
A virtual machine cannot be restored if the name of the target resource pool includes characters from the double-byte character set. Workaround: Restore the virtual machine to the root resource pool by specifying “/” in the Allocate to Different Resource Pool box. After the restore completes, manually move the virtual machine to the desired resource pool using the vSphere Client.	13782

Table 3. Known issues

Known issue	Issue ID
To avoid file fragmentation, the Plug-in for VMware pre-allocates disk space before restoring files to disk. On Linux-based systems, files that are larger than 50MB in size are not pre-allocated full disk space. Such files are handled like sparse files and allocated disk space as needed during restore. If the disk does not have sufficient space to fully restore files that are larger than 50MB in size, the job fails when the disk runs out of space.	21755
The file-level indexing process does not generate indexes for symlinks.	21793
The file-level indexing process does not treat hard links in any special way and generates index entries for them as if they are completely separate entities. When you restore a saveset that includes a hard link, the plug-in crashes.	21794
When a standalone VMware ESX or VMware® ESXi™ Server is added to the plug-in, a backup selection at a Resource Pool level does not back up any virtual machines in the resource pool.	22030
When restoring the virtual machine disk and configuration files from an image-level backup, if you select an Incremental Backup with the Restore Files from Backup method, the plug-in only restores the Full Backup for the selected backup sequence.	22043
If the virtual machine name includes non-ASCII characters, the Restore Files from Backup method restores an invalid ".vmx" file, which cannot be used to create a virtual machine using the VMware Converter utility. For such virtual machines, you must manually create a new virtual machine using the restored ".vmdk" files.	23036 23037
Plug-in for VMware 2.6 issues:	24156
<ul style="list-style-type: none"> When you upgrade to NetVault Backup 10.0 Server on a Windows machine running Plug-in for VMware 2.6, the existing version of the SSL DLLs are overwritten. When you remove Plug-in for VMware 2.6, these DLLs are also removed. Therefore, before removing the plug-in, you must take a copy of the libeay32.dll and ssleay32.dll files from the <NetVault Home>\bin directory, and restore them to the same directory after removing the plug-in. Otherwise, the NetVault Backup Service does not start. If you install Plug-in for VMware 2.6 on a Windows-based NetVault Backup 10.0 Server, the NetVault Backup Service does not start. 	
When restoring an Incremental or a Differential Backup using SAN mode, the plug-in, in some configurations, may not automatically fall back to NBD mode. Workaround: Set the transport mode manually to NBD.	25414
When using the NBD transport mode, a large Read Block Size may prevent multiple backup processes from running at the same time. Workaround: Use SAN or SCSI Hot-Add transport modes or decrease Read Block Size .	28815
When restoring NTFS sparse files, if the actual allocated size of a data run is smaller than the total size of the data run, the restored file might be corrupted.	29043
If the Diagnose Virtual Machine method is unable to return any result within the timeout interval (five minutes), the Web Service process displays the following message: "Error: The remote machine: <Name of the NetVault Backup Server> is unavailable" You can close this dialog box to continue the current operation. In the background, the Diagnose Virtual Machine method runs the cleanup process to remove any snapshot that it has created.	29795

Table 4. Third-party known issues

Known issue	Issue ID
When backing up a powered on virtual machine through a VMware® vCenter™ Server, the plug-in may fail to back up the ".nvram", ".vmx" and ".log" files. For more information, see http://kb.vmware.com/kb/1019286 .	
When a snapshot is created on a virtual machine that uses thin-provisioned disks, VMware vSphere® (the client and the underlying disk library) identifies the disk as thick. For more information, see http://kb.vmware.com/kb/1020137 .	

Table 4. Third-party known issues

Known issue	Issue ID
<p>At the time of enabling CBT for a virtual machine, no snapshots must exist on it. For more information, see http://kb.vmware.com/kb/1033816.</p>	
<p>If an ESXi 5.x host is managed by a vCenter Server, the virtual machines should not be restored when connected directly to the ESXi host. This restriction is due to a feature introduced in vSphere 5. For more information, see http://www.vmware.com/support/developer/vddk/VDDK-500-ReleaseNotes.html#knownissues.</p>	
<p>To prevent the migration of a virtual machine while its disks are being accessed for a backup or restore, the plug-in uses VDDK APIs to lock and unlock a virtual machine. This functionality is disabled by default. To enable it, see the user's guide for the plug-in. Currently, the locking functionality has the following known issues:</p> <ul style="list-style-type: none"> • Locking a virtual machine may not always succeed even though API indicates success. This issue is under review with VMware. This failure can be ignored in most cases. • Unlocking is known to fail occasionally. This issue has been documented in the VDDK 5 release notes. For details, review the “EndAccess sometimes does not reenable migration after PrepareForAccess” section in the VDDK 5.0 Release Notes. • If the plug-in exits unexpectedly after locking a virtual machine, the virtual machine may be left in a locked state so that it is disabled for migration. <p>For information about removing the lock and enabling migration for the virtual machine, see http://kb.vmware.com/kb/2008957.</p>	
<p>VDDK 5 issues:</p> <ul style="list-style-type: none"> • Backup fails on a Linux-based client if any other virtual machine is in a powered on state on the same datastore. • Backup fails on a Linux-based client if parallel backup jobs (performed from different clients) access the same datastore. 	
<p>When you restore a virtual machine that was previously renamed on a vCenter Server, the plug-in creates both the old and new virtual machines on the server.</p> <p>Workaround: After restoring the backup, rename the virtual machine, and then, move the virtual machine to another datastore. This merges the two folders created during the restore into a single folder.</p>	
<p>ESX/ESXi Servers do not support non-ASCII characters; this causes the restore jobs to fail if the virtual machine name uses multibyte characters. For more information, see http://kb.vmware.com/kb/1003866.</p>	
<p>On a Windows 2012 virtual machine, data corruption may occur during or after a network copy operation. For more information, see http://kb.vmware.com/kb/2058692.</p>	
<p>If the size of a virtual disk is 2TB or a multiple of 2TB, the disk is always opened in NBD mode instead of SAN. This issue only affects virtual machines that use hardware version 10 (vmx-10).</p> <p>Workaround: Increase or decrease the size of the virtual disk (for example, to 2.01 TB, 3.99 TB).</p>	27742
<p>When a virtual machine is cloned outside the vCenter Server, it may have the same UUID as the original virtual machine. If this cloned virtual machine is selected for a backup, the plug-in may back up the original virtual machine instead of the clone. To correct this issue, you must change the UUID of the cloned virtual machine. For more information about changing the UUID of a virtual machine, see http://kb.vmware.com/kb/1002403.</p>	28921

System requirements

Before installing the Plug-in for VMware 10.5, ensure that your system meets the following requirements.

Table 5. System requirements

Requirement	Details
Operating systems	For a list of supported OS distributions and versions, see the VDDK 6.0 Release Notes available at https://www.vmware.com/support/developer/vddk/vddk-600-releasenotes.html .
NetVault Backup versions	The Plug-in for VMware 10.5 requires NetVault Backup 9.2 or later. For complete supported-platform information, see the <i>NetVault Backup Plug-in Compatibility Guide</i> available at https://support.software.dell.com/ .

- NOTE:** To use the Virtual Disk Development Kit (VDDK) with OEM ESXi, you require VMware ESX Foundation, Standard, or Enterprise license. This license can be obtained from OEM or VMware directly.

Upgrade and compatibility

- **Edit the programs.cfg file after upgrading to NetVault Backup 11.0:** After installing Plug-in for VMware 10.5, if you upgrade to NetVault Backup 11.0, you must edit the `programs.cfg` file to disable creation of detached processes.

You must also complete this configuration to use the previous versions of the plug-in (Plug-in for VMware 10.0.5 and earlier) with NetVault Backup 11.0.

To disable creation of detached process

- Open the `programs.cfg` file in a text editor. You can find this file in the config directory under the NetVault Backup installation directory.
- Add the following lines:

```
[VMware Plugin]
winnt=bin\nvwmware.exe
detached=false

[Virtual Machines]
winnt=bin\nvwmware.exe
detached=false
```
- Save and close the file.
- **Cannot browse mounted virtual machines after upgrading NetVault Backup:** After installing the plug-in, if you upgrade the NetVault Backup software, you must re-install the plug-in on that machine. Otherwise, you will be unable to open the Drives node of a mounted virtual machine for any new file-level backups.
- **Restart the NetVault Backup Service if “nvwmwmount.exe” was running during upgrade:** If the mount process “nvwmwmount.exe” was running during an upgrade from 2.x, restart the NetVault Backup Service on the client.

- **Select the correct installation package on Linux:** Starting with 10.0, NetVault Backup offers separate client-only and server-only installation packages for Linux-based systems. Both the server and the client packages are available in hybrid and pure 64-bit versions:

- **Hybrid server and client packages:** The hybrid packages (**LinuxX86HybridServer** and **LinuxX86Hybrid**) are intended for Linux users who do not have a pure 64-bit-only requirement.

These packages let you upgrade from pure 32-bit as well as hybrid installations of NetVault Backup. The hybrid packages retain binary compatibility with all previous versions of 32-bit and 64-bit plug-ins. These packages also work on 32-bit systems that do not have 64-bit capability.

- **Pure 64-bit server and client packages:** The pure 64-bit packages (**LinuxX86Pure64Server** and **LinuxX86Pure64**) packages are intended for pure 64-bit Linux distributions. If you have a specific reason that you cannot use any 32-bit components (for example, you are using a Linux distribution that does not run 32-bit code), use these packages.

The pure 64-bit packages cannot be used to upgrade existing pure 32-bit or hybrid NetVault Backup installations. You must remove the existing pure 32-bit or hybrid version and install the pure 64-bit version separately. To reduce confusion, warning messages have been added to both the upgrade and installation packages to ensure that you understand that they are not compatible.

Depending on your OS type, verify that you select the correct installation package to install the NetVault Backup Server or Client software:

- **LinuxX86HybridServer:** Use this package to install or upgrade NetVault Backup Server on 32- or 64-bit Linux systems.
- **LinuxX86Hybrid:** Use this package to install or upgrade NetVault Backup Client on 32- or 64-bit Linux systems.
- **LinuxX86Pure64Server:** Use this package to install or upgrade NetVault Backup Server on pure 64-bit Linux systems.
- **LinuxX86Pure64:** Use this package to install or upgrade NetVault Backup Client on pure 64-bit Linux systems.

Table 6. Pure64 builds

OS	Core Build	Plug-in				
		32-bit	64-bit	Hybrid	Itanium	Pure64
32-bit	32-bit					
	Hybrid					
64-bit	Itanium	N/A	N/A	N/A	N/A	N/A
	64-bit	N/A	N/A	N/A	N/A	N/A
	Hybrid					X
	Pure64					X

NOTE: X = Compatible

This table is only applicable to the Linux version of the Plug-in for VMware.

Product licensing

To obtain the license key for your NetVault Backup Server environment, you must first provide the NetVault Machine ID of your main NetVault Backup Server along with the machine IDs of clients running any licensed plug-in.

You can use the NetVault Configuration Wizard to install the product license keys. Alternatively, you can install the license keys from the **Manage Clients** page.

To obtain the machine ID for a NetVault Backup machine

- 1 Start the NetVault WebUI, and in the Navigation pane, click **Manage Clients**.
- 2 In the **NetVault Backup Clients** list, select the client, and click **Manage**.
- 3 On the **View Clients** page, note the machine ID exactly as it appears in the **Client Summary** table.

To install the license keys using the NetVault Configuration Wizard

- 1 In the Navigation pane, click **Guided Configuration**, and then on the **NetVault Configuration Wizard** page, click **Install Licenses**.
- 2 In the **NetVault Backup Clients** list, select the client on which you want to install the license key, and click **Next**.
- 3 In the **Enter the license key string** box, type or copy and paste the license key, and click **Apply**.
After the key is applied successfully, a message is displayed.

To install the license keys from the Manage Clients page

- 1 In the Navigation pane, click **Manage Clients**.
- 2 In the **NetVault Backup Clients** list, select the client on which you want to install the license key, and click **Manage**.
- 3 On the **View Clients** page, click **Install License**.
- 4 In the **Install License** dialog box, type or copy and paste the license key, and click **Apply**.
After the key is installed successfully, a message is displayed. Click the **Close** button to close the dialog box.

Getting started with Plug-in for VMware 10.5

Upgrade and installation instructions

To upgrade the plug-in

The standard method for upgrading the plug-in is to install the latest version over the previous version of the plug-in.

To use the plug-in for file-level backup operations, complete the following tasks in the given order:

- Verify that no virtual machine is mounted for a file-level browse or backup operation. If any virtual is mounted in a browse session, unmount it, or if it is mounted for a backup, wait until the backup completes.

- From the NetVault Backup Process Viewer, check if any instance of “NetVault VM mount daemon” or “NetVault VM mount CLI” is running on the client. Alternatively, use the Windows Task Manager to see if any instance of `nvvmwmount.exe` is running. If yes, restart the NetVault Backup Service.
- Verify that the Working Directory configured for the plug-in does not contain any subfolders named after the display names of virtual machines. If the directory includes any mount folder, manually remove the folder. For more information, see the user’s guide. If you fail to complete the cleanup routine, a subsequent mount operation fails with the error “A stale mount was found.”
- VDDK uses a kernel-mode driver for mounting a virtual machine during file-level backup and browse operations. The Plug-in for VMware automatically starts a service for the driver when you install the plug-in, but it does not check if the service is running when you perform an upgrade or a reinstallation. For more information about this error condition, see [Known issues](#).

To make sure that this error does not occur, and complete the following steps before upgrading from 2.x.


Table 7. Upgrade requirements for file-level browse and backups

Current installation status	Upgrade procedure
Version 2.x is removed from the client	<ol style="list-style-type: none"> 1 Start the command prompt. 2 Stop the service, if it is running. <code>sc stop vstor2-mntapi20-shared</code> 3 Delete the service. <code>sc delete vstor2-mntapi20-shared</code> 4 Verify that the service has been deleted. <code>sc query vstor2-mntapi20-shared</code> 5 Install the plug-in.
Version 2.x is currently installed on the client	<ol style="list-style-type: none"> 1 Start the command prompt, and type: <code>sc query vstor2-mntapi20-shared</code> 2 If the drive service is found, type: <code>sc qc vstor2-mntapi20-shared</code> This command should return the following output: On 32-bit NetVault Backup Client: <code><NV_HOME>/dynlib/vddk/bin/vstor2-mntapi20-shared.sys</code> On 64-bit NetVault Backup Client: <code><NV_HOME>/dynlib/vddk/bin/vstor2-mntapi20-shared-64.sys</code> 3 If the binary path is valid and exists on the client, do the following: Install the plug-in. Verify that the service has started. <code>sc query vstor2-mntapi20-shared</code> 4 If the binary path is invalid or does not exist, do the following: Stop the service, if it is running. <code>sc stop vstor2-mntapi20-shared</code> Delete the service. <code>sc delete vstor2-mntapi20-shared</code> Verify that the service has been deleted. <code>sc query vstor2-mntapi20-shared</code> Install the plug-in.

To install the plug-in

- 1 In the Navigation pane, click **Guided Configuration**, and then on the **NetVault Configuration Wizard** page, click **Install Plugins**. In the **NetVault Backup Clients** list, select the clients on which you want to install the plug-in.

You can also install the plug-in from the **Manage Clients** page. In the Navigation pane, click **Manage Clients**. In the **NetVault Backup Clients** list, select the client on which you want to install the plug-in, and click **Manage**. At the lower-right corner of the **Installed Software** table, click the **Install Plugin**

button ().

NOTE: The configuration wizard lets you install a plug-in on multiple clients at the same time. Before using this method, you must verify that the selected clients are all of the same type. You must also verify that the binary file is compatible with the client OS and platform.

From the **Manage Clients** page, you can install the plug-in on a single client.

- 2 Click **Choose Plug-in File**, and in the browse window, navigate to the location of the “.npk” installation file for the plug-in (on the installation CD or the directory to which the file was downloaded from the website).
- 3 Select the file named **vmw-w.x.y.z-<platform>.npk** (where **w.x** represents the version number, **y** represents the patch level, and **z** represents the build number), and click **Next** to begin installation.
- 4 After the plug-in is installed successfully, a message is displayed.

More resources

Additional information is available from the following:

- [Online product documentation](#)
- [NetVault community](#)

Globalization

This section contains information about installing and operating this product in non-English configurations, such as those needed by customers outside of North America. This section does not replace the materials about supported platforms and configurations found elsewhere in the product documentation.

This release supports any single-byte or multi-byte character set. It supports simultaneous operation with multilingual data. This release is targeted to support operations in the following regions: North America, Western Europe and Latin America, Central and Eastern Europe, Far-East Asia, and Japan.

The release is localized to the following languages: Chinese (Simplified), French, German, Japanese, and Korean.

About Dell

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Contacting Dell

For sales or other inquiries, visit <http://software.dell.com/company/contact-us.aspx> or call 1-949-754-8000.

Technical support resources

Technical support is available to customers who have purchased Dell software with a valid maintenance contract and to customers who have trial versions. To access the Support Portal, go to <https://support.software.dell.com/>.

The Support Portal provides self-help tools you can use to solve problems quickly and independently, 24 hours a day, 365 days a year. In addition, the portal provides direct access to product support engineers through an online Service Request system.

The site enables you to:

- Create, update, and manage Service Requests (cases)
- View Knowledge Base articles
- Obtain product notifications
- Download software. For trial software, go to [Trial Downloads](#).
- View how-to videos
- Engage in community discussions
- Chat with a support engineer

Third-party contributions

This product contains the third-party components listed below. For third-party license information, go to <http://software.dell.com/legal/license-agreements.aspx>. Source code for components marked with an asterisk (*) is available at <http://opensource.dell.com>.

Table 8. List of third-party contributions

Component	License or acknowledgement
libcurl 7.21.0	MIT/X derivate Copyright (c) 1996 - 2011, Daniel Stenberg, <daniel@haxx.se>. All rights reserved.
OpenSSL 1.0.1j	OpenSSL 1.0 Copyright (c) 1998-2015 The OpenSSL Project. All rights reserved. LICENSE ISSUES The OpenSSL toolkit stays under a dual license, i.e. both the conditions of the OpenSSL License and the original SSLeay license apply to the toolkit. See below for the actual license texts. Actually both licenses are BSD-style Open Source licenses. In case of any license issues related to OpenSSL please contact openssl-core@openssl.org . OpenSSL License Copyright (c) 1998-2007 The OpenSSL Project. All rights reserved. Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: <ol style="list-style-type: none">1 Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Table 8. List of third-party contributions

Component	License or acknowledgement
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