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Part Numbers Affected

AP9465
AP9470
AP9475
AP94VMTRL

Minimum System Requirements

The StruxureWare Data Center Expert console is a stand-alone Java application that runs on systems that meet the following requirements:

- A PC with a 1-GHz or better AMD/Intel processor running Microsoft® Windows® 2003 Server (SP2), 2008, 2012, or 2016, Microsoft Windows XP (SP1, SP2, or SP3), Windows Vista, Windows 7, Windows 8, or Windows 10, Red Hat® Enterprise Linux® version 5.0
- At least 1 GB of RAM
- Screen resolution should be set to at least 1024 x 768.
- Supported browsers: Microsoft Internet Explorer® 8, 9,10, 11; Mozilla® Firefox® 62.0; Google Chrome™ 67.0

New Features

Data Center Expert v7.6.0 New Features

- **Enhancements to Maintenance Mode**
  Administration and Device View and Control users can now schedule when to disable or re-enable notifications for any device or device group. The Maintenance Mode Schedules window displays the schedules to enter and exit maintenance mode, and provides options to view and modify schedules and comments.

- **Compressed backups**
  You can now choose to compress a backup. The compressed backup is a single tar.gz file with a .dce file extension for easier filename filtering.

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- **EcoStruxure IT**
  The name of the StruxureOn option was updated to EcoStruxure IT. There is no change to the connection to EcoStruxure IT (formerly StruxureOn) from DCE.

- **IP addresses of discovered nodes**
  You can now change the IP addresses of discovered nodes without losing data.

Software vulnerabilities fixed in v7.6.0
CVE-2018-8897 - Kernel: error in exception handling leads to Denial of Service
CVE-2018-3620, CVE-2018-3646 - Kernel Side-Channel Attack using L1 Terminal Fault
CVE-2018-5390 - Kernel TCP "SegmentSmack" vulnerability
CVE-2014-6071, CVE-2012-6708 - jQuery Vulnerability
CVE-2018-8897 - Kernel: error in exception handling leads to DoS
CVE-2011-3192 - DoS vulnerability for Apache HTTPD prior to 2.2.20

See the Data Center Expert Security section in the Help Center for more information.

Data Center Expert v7.5.0 New Features

- **Maintenance Mode improvements**
  Device view and control users can now use maintenance mode. This action is now recorded in the web client event log. An alert comment was added so you can see which user placed the device into maintenance mode.

  Note: The maintenance alert is cleared when the DCE server is rebooted while devices are in maintenance mode, and a new alert is activated when the server comes back online that states the DCE server put the device into maintenance mode.
  You can look at the alert history to see the previous maintenance alert that names the user who originally put the device into maintenance mode.

- **SSL protocol selection**
  You can now select the allowed SSL protocols for the web server and private proxy in the **System** > **Administration Settings** > **Server Access** option. You can select multiple TLS and SSL protocol versions for the web server. You can select only one protocol for the private proxy.

- **Improvements to Device Definition File (DDF) support**
  Device Definition Files (DDF) for MGE and third-party devices including Tripp Lite, Liebert, and Eaton have been updated to address duplicate sensor entries in Data Center Expert. Contact your local technical support if you have questions about a specific sensor value.
  For more information, see Unplugged sensors in DCE 7.4.3 in the Help Center.

The v7.5.0 release updates the server operating system to improve security and updates to Java 8 version 151.

Software vulnerabilities fixed in v7.5.0
CVE-2017-5754 – Meltdown
CVE-2017-5753 – Spectre
CVE-2017-5715 – Spectre
CVE-2016-2177 – OpenSSL- Integer Overflow
CVE-2016-6304 – OpenSSL - Denial of Service
CVE-2016-5195 – COW- Linux Kernel Privilege Escalation Vulnerability

See the Data Center Expert Security section in the Help Center for more information.

Data Center Expert v7.4.3 New Features

- **StruxureOn Digital Service registration improvements**
    - You now register your Data Center Expert server using the claim code link in the **StruxureOn > Registration** option.
    - You now manage your contact list on https://struxureon.com/manage instead of in Data Center Expert.

    Note: If you registered for the StruxureOn Digital Service in Data Center Expert v7.4.1, you will be required to provide your registration information again on https://struxureon.com/manage.

Data Center Expert v7.4.1 New Features
See Data Center Expert v7.4.0 New Features below.

The v7.4.1 release improves StruxureOn Digital Service registration.

Data Center Expert v7.4.0 New Features

The v7.4.0 release patches the latest OpenSSL vulnerabilities to improve security and updates to Java 8 version 102.

- **StruxureOn Digital Service**
  You can now connect your Data Center Expert server to the StruxureOn Digital Service. StruxureOn protects your critical equipment with smart alarming, remote troubleshooting and data-driven insights delivered by experts monitoring your connected data center assets 24/7. Live data is delivered directly to your smartphone.
  See https://struxureon.com for more information.

- **New mobile phone number field for users**
  There is now a mobile phone number field on the User Information tab for each user. A mobile phone number is required by the StruxureOn Digital Service.

- **Edit email address for remote users**
  You can now change the email address for LDAP and Active Directory users.

- **New address field for device groups**
  You can now specify an address for each device group (optional).

- **Prompt to change the default username and password**
  You are now prompted to change the default username and password when you first log in to the client. You can change the default credentials at that time, at a later time, or opt to keep the default credentials.

Data Center Expert v7.3.1 New Features

- **Modbus communication**
  The v7.3.1 release addresses an issue with Modbus device communication. See Issues Fixed on page 5.

- **Support for Adding, Deleting, and Modifying Users on NMC v6.x Devices**
  In the APC SNMP Device Configuration option, the "Configuration Type" display is now available when at least one monitored APC SNMP device has firmware v6.0.0 and higher, excluding v6.0.6 - v6.1.1. There are now two device configuration types:

    - **Standard device configuration settings**: Select one or more monitored APC SNMP devices and configure them to use settings shared with a selected APC SNMP device, or settings saved as a template.

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- **User configuration (APC AOS versions v6.0.0 and higher, excluding v6.0.6 through v6.1.1)**: Modify user management options on devices with firmware v6.0.0 and higher, excluding v6.0.6 - v6.1.1.

Note: You must upload a .csf file directly to the device to configure users on devices with older firmware v6.0.6 - v6.1.1. See the Data Center Expert documentation in the Help Center for more information.

- **Additional NFS options**
  Users can now configure the transport protocol (TCP or UDP) and NFS version (v2.0, v3.0, v4.0, or v4.1) for the Server Backup/Restore NFS option in the System > Server Administration menu and the Manage Export Scheduling option in the Reports menu.

Additional Windows Share options
  Users can now configure the NT LAN Manager authentication level (NTLM, NTMLi, NTLMv2, NTLMv2i, NTLMSSP, or NTLMSSPi) for the Server Backup/Restore options in the System > Server Administration menu and the Manage Export Scheduling option in the Reports menu.

- **Modbus discovery retries**
  Users can now specify how many times Data Center Expert will try to discover a Modbus device and communicate with it after the first attempt is unsuccessful.

The v7.3.1 release updates the server operating system to improve security and updates to Java 8 version 65.

Issues Fixed

The following are issues fixed in Data Center Expert v7.6.0:

- Unmounting occurs as expected after a restore is cancelled.
- The **Test Proxy** option in **System** > **Server Administration Settings** > **Server Proxy Settings** now returns a valid result.
- The Device Launch Settings option is now available for the APC InRow RC (ACRC301S).
- A null pointer exception in DHCP leases file parsing has been fixed.

The following are issues fixed in Data Center Expert v7.5.0:

- **Improvements to Device Definition File (DDF) support**
  Device Definition Files (DDF) for MGE Upsilon STS 160A UPS, and third-party devices including Tripp Lite, Liebert, and Eaton have been updated to address most duplicate sensor entries in Data Center Expert. Contact your local technical support if you have questions about a specific sensor value.
  For more information, see Unplugged sensors in DCE 7.4.3 in the Help Center.

The following are issues fixed in Data Center Expert v7.4.3:

- **Improvements to Device Definition File (DDF) support**
  Device Definition Files (DDF) for APC Smart-UPS, ACRC301, APC DC Magnum, and EcoBreeze have been updated to address most duplicate sensor entries in Data Center Expert. Contact your local technical support if you have questions about a specific sensor value.
  For more information, see Unplugged sensors in DCE 7.4.3 in the Help Center.

- **Improvements to Modbus polling**
  Modbus polling is no longer affected by prolonged network disruptions.

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The following are issues fixed in Data Center Expert v7.4.0:

- Changes to search indexing have improved performance on systems with a high sensor count.
- When the client is installed on Windows 8, thumbnails are now visible in Surveillance view.
- Exported MPEG video files are now the correct length.
- DDFs are now properly named and validated.

The following are issues fixed in Data Center Expert v7.3.1:

- Modbus devices no longer report a Communication Lost event when a register responds with an error code.

The following are issues fixed in Data Center Expert v7.3.0:

- The language packs installed on APC devices are no longer removed when you launch to the device from the internal web browser.
- The self-signed certificate generated by the Data Center Expert server now uses SHA-256.
- Alarm acknowledgement for EcoStruxure web services through Data Center Expert is now supported.
- Configuring SNMPv3 settings using the APC SNMP Device Configuration option no longer causes commmunication to be lost, and the SNMPv3 device type remains set as expected in Data Center Expert.
- Columns for both the APC OS Version and Application Version now appear in the "Select Destination Devices" display of the APC SNMP Device Configuration menu > User Configuration (APC OS versions 6.00 and higher, excluding v6.0.6 - v6.1.1) option.
- The Users and Group Access display now updates immediately after a change is made.
- The graph included in email notifications now displays units based on the server locale.
- Modbus devices with local IDs 247 - 255 can now be discovered by Data Center Expert.
- The device type list is now sorted alphabetically in the Modbus Discovery Settings display.

The following are issues fixed in Data Center Expert v7.2.7:

- User access permission is more efficient, improving system performance for Device Viewer users.
- The server now responds to device alarms after using device control functionality.
- The correct name for the EcoBreeze cooling product is now displayed.
- Device file transfers now complete when devices do not respond to ping.
- The status of NetBotz devices is now correct after restoring from a backup or after the server reboots.
- There are no longer translation errors in the Japanese client.

The following are issues fixed in Data Center Expert v7.2.6:

- The web services getSensorsByType call now reports the sensor type correctly after the sensor type mapping is changed.
- The DNS settings can now be modified on a Data Center Expert virtual appliance with no private network.
- In the Reports perspective, information in the location field is now displayed as expected in the "Choose devices and device groups" display.
- In the Users and Device Groups option, device groups no longer open when the display refreshes.
- There are no longer duplicate sensors on MGE UPS devices.

The following are issues fixed in Data Center Expert v7.2.4:

- Only the control OIDs for the PX-HID are now scanned when door access is configured in the NetBotz Device Configuration "Rack Access Settings" display.

The following are issues fixed in Data Center Expert v7.2.2:

- A system email is now sent to administrator users when a failure to accept user credentials occurs during Remote Monitoring Service (RMS) registration.
- Alarms from the NetBotz 200 with firmware v3.7.5 are now localized.
- Users can now add up to 200 rack access cards to the list in the NetBotz Device Configuration "Rack Access Settings" display.
- Configuring door access in the "Rack Access Settings" display no longer causes a null pointer exception.
- Cross-site scripting vulnerabilities affecting the Data Center Expert Web Client were corrected.
- Mass configuration of SNMP devices is now executed more efficiently.

The following are issues fixed in Data Center Expert v7.2.0:

- Users who inherit access from an LDAP group added to Data Center Expert can now comment and acknowledge alarms.
- VA per phase calculations for MGE UPSs are now accurate.
- Web services now correctly reports power module sensors for the modular PDU.
- Apparent power sensors for input phase and input total are now included for the following 3-phase UPS device families: Symmetra; Symmetra PX; Symmetra PX2; DP300E; and Gutor.

Known Issues

- **Some APC SNMP Device Configuration Changes in v7.3 Are Sent One Command at a Time**
  Configuration changes on APC SNMP devices with firmware v6.0.0 and higher, excluding v6.0.6 - v6.1.1, are sent to the device one command at a time. It can take up to 30 seconds per user after the "Device Configuration Status" display reports the configuration is complete to apply all the options.

- **APC SNMP Device Configuration File Transfer Using SCP Fails**
  File transfer using SCP fails on some APC SNMP devices with firmware lower than AOS v6.3.3. For best results, enable FTP on the device, and set the protocol to FTP Only in the "Device File Transfer Settings" display before you select the devices you want to update. Additionally, both SCP and FTP file transfer fails on all v6.x devices with touch screens (apc_hw06_aos_xxx). See the Data Center Expert documentation in the Help Center for the most recent information on APC SNMP Device Configuration.

- **Repeat Email Notifications are Sent for a Single Active Alarm**
  When the Data Center Expert server approaches approximately 500 days of uptime, it is possible to receive many repeat email notifications for a single active alarm. Reboot the Data Center Expert server to stop the repeat notifications.

- **NetBotz Lost Communication Email Notifications are Sent to All Users**
  Notifications for NetBotz Communication Lost events are sent to all Data Center Expert users configured with an e-mail address.

- **BootMonitor Module Not Included in APC Device Firmware Update**
  The Data Center Expert server does not apply the BootMonitor module as part of the APC device firmware update.

- **InfraStruxure Manager Certificates Must Be Updated Before Using InfraStruxure Manager Migration Utility**
  Before using the InfraStruxure Manager Migration Utility to migrate settings and data from InfraStruxure Manager v4.7 to the Data Center Expert v7.2.2 server and above, users must update the InfraStruxure Manager SSL certificates. Contact Technical Support for instructions: http://www.apc.com/support/index.cfm.

- **Additional RAM for Data Center Expert Virtual Appliance with Remote Monitoring Service**
  When the Remote Monitoring Service (RMS) is enabled on a Data Center Expert virtual appliance monitoring more than 1025 devices, increasing the hardware resources to up to 8 GB of RAM is recommended.

- **Data Center Expert Web Client Search Feature Supports English Only**
  The search feature in the Data Center Expert web client supports English only. Accented letters and characters that do not appear in English are not returned in the search results.

- **Data Center Expert Web Client Search Parameters Require Quotes for Special Characters**
  Search strings containing special characters must be surrounded by double quotes to return results. For example, to search for a device by MAC address, the user must type "XX:XX:XX:XX:XX:XX".
  Note: As the user types a MAC address in the search field, the search bar displays a suggestion without quotes. Using this search suggestion will return no results.

- **Data Center Expert Web Client Customized Pages Unresponsive on Older Browsers**
  Due to performance considerations, certain browsers may not display all the gadgets on a customized page in the Data Center Expert web client. Upgrading your browser to the latest version is recommended. If you use Internet Explorer, and cannot upgrade to a later version, consider using Google Chrome Frame to enable open web technologies.

- **Data Center Expert Web Client Graphs Require Support for Scalable Vector Graphics (SVG)**
  The Data Center Expert web client displays graphs only on browsers that support Scalable Vector Graphics (SVG).

- **Firefox Displays Data Center Expert Web Client Mobile Version on an Android Tablet**
  When the Data Center Expert web client is accessed in Firefox on an Android tablet, the mobile version is displayed. To view the tablet version, users can change the URL from *<servername>/mobile* to *<servername>/tablet*.

- **NetBotz Web Client Does Not Load When Launched to a NetBotz Appliance on the Private LAN**
  The NetBotz Web Client does not load completely when it is launched from the Data Center Expert user interface to a NetBotz appliance on the private LAN. Users accessing Data Center Expert from the public LAN must use Advanced View to connect to a NetBotz appliance on the private LAN. Alternatively, to use the NetBotz Web Client, users can connect directly to a NetBotz appliance from a system on the private LAN.

- **Default Device Node Count Displayed for Data Center Expert Virtual Appliance Demo Version**
  The Data Center Expert v7.2.x virtual appliance demo version supports up to 5 device nodes and one camera enabled for surveillance. To monitor 25 device nodes, displayed by default in the "License Keys" display, you must apply the virtual appliance activation license.

- **Limitation on Number of Virtual Sensors**
  The number of virtual sensors created can affect server performance. The recommended number of virtual sensors for a Data Center Expert server to monitor is:
    - Basic server: A maximum of 300 virtual sensors
    - Standard server: A maximum of 600 virtual sensors
    - Enterprise server: A maximum of 4000 virtual sensors

- **Restore Fails When Capacity Manager v6.2 is Enabled and Capacity Tags are Configured**
  When users perform a restore from a backup of an InfraStruxure Central v6.2, StruxureWare Central v6.3, or StruxureWare Central v7.0 server with Capacity Manager v6.2 enabled, the restore fails if capacity tags are configured. When the restore is performed on a server with the Operations key installed, the error is seen immediately. When the restore is performed on a new hardware server or virtual appliance, the server fails to boot once the Operations key is installed. Users must contact Technical Support to resolve this issue.

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- **Units in Graphs Included in Alarm Notifications are Displayed in English**
  When an email, HTTP POST, or FTP alarm notification includes a graph, the units are displayed in English. The body of the email and the sensor data are displayed in the language for the locale specified in the alarm action.

- **Limitations on Requests for Data Using Web Services**
  Data requests via Web Services exceeding 3.5MB return no data.

- **Data Center Expert Server Reboots While Using the InfraStruxure Manager Migration Utility**
  The Data Center Expert server will reboot while migrating settings and data from InfraStruxure Manager v4.7 to the Data Center Expert server when the InfraStruxure Manager data log is included in the migration, or the time settings on the Data Center Expert server change because of the migration.

- **Subsequent Outlet Control Commands May Fail**
  When the user performs an outlet control command, then immediately follows it with a second command, the second command may fail. The user must wait 5 – 10 seconds to issue a subsequent outlet control command. Users can verify the command was successful in the web interface of the device.

- **Limitation on Global Device Scan Intervals**
  Users cannot set their global device scan settings to less than five minutes if there are more than 2026 devices discovered on their Data Center Expert Enterprise server. This restriction is not enforced on device-specific scan settings, but APC recommends that the same policy be applied to these settings.
  For servers monitoring fewer than 2025 devices, it is recommended that the default 5-minute scanning rate be used for SNMP devices, and only adjusted for small subsets of critical devices.

- **Limitation on Surveillance Settings for Cameras**
  The number of cameras monitored by the Data Center Expert server, and the Camera Resolution and Target Image Capture Rate (frames per second) settings at each camera, can affect server performance. To support a large volume of surveillance data, the recommended camera settings and number of cameras for a Data Center Expert server to monitor, are:
  - Basic server: A maximum of 15 cameras at 10 frames per second, 150 fps total, and a resolution of 640x480
  - Standard server: A maximum of 125 cameras at 2 frames per second, 250 fps total, and a resolution of 640x480
  - Enterprise server: A maximum of 250 cameras at 2 frames per second, 500 fps total, and a resolution of 640x480.

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Upgrade Procedure

The following steps are necessary to upgrade Data Center Expert v7.5.0 to Data Center Expert v7.6.0.

IMPORTANT: The Data Center Expert 7.6.0 update performs a data migration that takes under an hour for most systems. The data migration can take up to four hours if the system has thousands of devices and years of history. **Do not reboot the server during the update.**

> **Note 1:** You must have a valid software support contract to receive the Data Center Expert v7.6.0 upgrade. If you do not, then you will need to purchase one to receive the upgrade.
>
> **Note 2:** Data Center Expert must be at a minimum of version v7.5.0 to upgrade to Data Center Expert v7.6.0. If you are downloading Data Center Expert v7.6.0, you will need access to the Internet.
> **NOTICE:** Before beginning an upgrade, remember to run a full backup on your Data Center Expert. Go to **System** > **Server Administration Settings** > **Server Backup/Restore**, create a backup entry, and then click **Start**.

1. Download the upgrade.zip file, or contact Technical Support for assistance: http://www.apc.com/support/index.cfm.

   Note: The restore.iso file may be needed for later use if a re-installation is required. See Restoring using ISO Format for instructions for restoring your data from a restore.iso file from the ISO format.

2. Extract/expand the upgrade zip file into a separate directory on the hard drive of the system that will be running the Data Center Expert Console.

3. Login to your Data Center Expert v7.5.0 server with full server access. Select **Updates** from the menu bar, then **Apply Server Update**.

4. Click **Import** and look into the subdirectory where extracted files are placed. The structure of the extracted fields should contain two folders, "BW" and "NBCCore", and an index file, "nbcpkg.lst".

5. Select the "nbcpkg.lst" file and click "Open".

6. The Upgrade/New Packages table will update indicating there is an update available for the Data Center Expert server. Check the "Install/Upgrade" option for the package(s) you want to upgrade. Click **Install Selected** to start the upgrade for the selected package(s). You will be prompted to confirm you want to proceed with the upgrade. Click **Install Update** to start the upgrade process.

   Do not reboot the server during the upgrade process.

7. When the file transfer completes, Data Center Expert will restart and disconnect your console connection. You can point a web browser to the Data Center Expert server for status.

8. When the update is complete, point a web browser to the Data Center Expert server, and select **Install StruxureWare Data Center Expert Client.**

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Restoring using ISO Format (Data Center Expert hardware server only)

NOTICE: Only perform the steps in this section if directed to do so by a Technical Support technician.

Before You Restore: A system restore will erase all data and restore the Data Center Expert hardware server to its factory default settings. Please make sure you have a copy of all installed license keys and network settings prior to restore.

1. Download the restore.iso file to create a bootable USB key, or contact Technical Support for assistance: http://www.apc.com/support/index.cfm.
   a. For a USB Key, follow the instructions provided in Creating a bootable USB Key (Windows or Linux machine) on page 10.

2. Place the USB key in the USB port of your Data Center Expert server.

3. Reboot Data Center Expert.

4. To boot to USB, press F11 during BIOS boot select.

   Note: Depending on the model, servers may have a different startup look, with the option to press F11 displayed earlier or later in the boot process. For more information, see the server manufacturer instructions.

5. Select the BIOS boot menu (may be called BIOS Boot Manager, BIOS boot menu, One-time boot menu, One-shot BIOS Boot Menu, or similar).

6. Select your USB Device from the list.

The restore process takes approximately 10 minutes for the 1U Data Center Expert Basic, 15 minutes for 1U Data Center Expert Standard or 25 minutes for 2U Data Center Expert Enterprise. When the restore is complete, you will be prompted to remove the USB key and press Enter to reboot the server.

Once Data Center Expert has restarted, you may configure the Data Center Expert network settings per instructions in the Data Center Expert Installation Guide.

Migrating a Data Center Expert hardware server to a virtual appliance

Before You Migrate: To migrate a Data Center Expert hardware server to a virtual appliance, you must purchase and apply an activation key. Additionally, you must contact APC Support for new node license keys and application license keys for the virtual appliance.

1. Perform a backup of the Data Center Expert hardware server, using the **Server Backup/Restore** option, accessed from the **Server Administration Settings** option in the **System** menu.

2. Deploy the demo version OVA, and configure it using the hardware equivalents for the Data Center Expert Basic, Standard, or Enterprise server from which you are migrating. **The available disk space for the virtual appliance must be greater than the disk space used by the hardware server.** You cannot restore to a virtual appliance with fewer CPU, fewer network adapters, less RAM, or less available disk space than the hardware server. See help for Deploying and configuring a Data Center Expert virtual appliance, and Data Center Expert virtual appliance equivalent configurations.

3. Perform a restore on the virtual appliance, using the **Server Backup/Restore** option, accessed from the **Server Administration Settings** option in the **System** menu. You cannot restore to a virtual machine other than the Data Center Expert virtual appliance.

4. Apply the activation key to the virtual appliance.

5. Login to the Data Center Expert client. In the "License Keys" display, accessed from the **Server Administration Settings** option in the **System** menu, apply the new node license keys and application license keys you received from APC Support.

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Creating a bootable USB Key (Windows or Linux machine)

Instructions for a Windows machine:

1. Insert USB key (no larger than 4GB) into your system.
2. Extract the following file to a temporary directory:
   DCExpertUsbFlashRestore_Win_7.6.0.zip
3. Open a command prompt to the temporary directory and run mkDCExpertRestoreUsbKey.bat <iso image filename>.
   For example: mkDCExpertRestoreUsbKey.bat c:\tmp\restore.iso
4. Answer the prompts as appropriate.

Instructions for a Linux machine:

1. Insert a 2GB (or larger) USB key into your system.
2. Extract the following file to a temporary directory:
   DCExpertUsbFlashRestore_Linux_7.6.0.tar.gz
3. Open a command prompt to the temporary directory and run mkDCExpertRestoreUsbKey.sh <iso image filename>.
   For example: mkDCExpertRestoreUsbKey.sh /tmp/restore.iso
4. Answer the prompts as appropriate.

Third-party USB key scripts:

The USB key scripts used to create USB keys utilize the following software:

Software	URL	Windows	Linux
Syslinux	http://syslinux.zytor.com/	X	X
7-zip	http://www.7-zip.org	X	
GNU sed	http://unxutils.sourceforge.net	X	

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