

Lenovo

Lenovo Bootable Media Creator Installation and User Guide



Version 12.0.0

Note

Before using this information and the product it supports, read the information in Appendix C “Notices” on page 43.

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About this publication

This publication provides information about how to download and use Lenovo XClarity® Essentials Bootable Media Creator (hereinafter referred to as BoMC), including creating and using BoMC to update, diagnose, manage, troubleshoot, and support systems.

Conventions and terminology

Paragraphs that start with a Note, Important, or Attention in bold have specific meanings to highlight key information:

Note: These notices provide important tips, guidance, or advice.

Important: These notices provide information or advice that might help you avoid inconvenient or difficult situations.

Attention: These notices indicate possible damage to programs, devices, or data. An attention notice appears before the instruction or situation in which damage can occur.

In this book, when you are instructed to enter a command, type the command and press Enter.

The following table provides a description of commonly used acronyms in the *Lenovo Bootable Media Creator Users Guide* and graphical user interface.

Table 1. Acronyms

Acronym	Definition
AMM	Advanced Management Module
BIOS	Basic Input Output System
BMC	Base Management Controller
CLI	Command Line Interface
DHCP	Dynamic Host Configuration Protocol
DSA	Dynamic System Analysis
EFI	Extensible Firmware Interface
FTP	File Transfer Protocol
GUI	Graphical User Interface
HBA	Host Bus Adapter
HTTP	Hypertext Transfer Protocol
IMM	Integrated Management Module
IPv6	Internet Protocol version 6
ISO	International Organization for Standardization
NFS	Network File System
PXE	Preboot Execute Environment
RSA	Remote Supervisor Adapter

Table 1. Acronyms (continued)

Acronym	Definition
SOL	Serial Over LAN
SSL	Secured Socket Layer
TFTP	Trivial File Transport Protocol
uEFI	Unified Extensible Firmware Interface
USB	Unified Serial Bus
UXSP	UpdateXpress System Pack
VLAN	Virtual Local Area Network

Publications and related information

To view a PDF file, you need Adobe Acrobat Reader, which can be downloaded for free from the Web site at: <http://www.adobe.com/products/acrobat/readstep.html>

Publications

[Lenovo Bootable Media Creator \(BoMC\) User Guide](#)

Use this Web site to download the most up-to-date version of *Lenovo Bootable Media Creator Installation and User Guide*.

Web resources

The following Web sites provide tool and information resources for Bootable Media Creator.

Web sites

- [Bootable Media Creator \(BoMC\) for Lenovo x86 servers](#)

Use this Web site to download the Lenovo XClarity Essentials Bootable Media Creator tool and documentation.

- [Lenovo XClarity Essential website](#)

Use this Web site to download tools that support ThinkSystem, System x, and BladeCenter products.

These Web sites provide information about product compatibility and support, warranties and licenses, and various technical resources:

- [Lenovo BladeCenter Support products and services](#)
- [Lenovo ServerProven](#)
- [Lenovo Server and Storage Resource Library](#)

Forums

Use these Web sites to learn about various forums that are available to discuss technology-related and product-related issues pertaining to ThinkSystem, System x, and BladeCenter hardware and software products. These Web sites include links for obtaining the forums using Rich Site Summary (RSS) feeds.

- [ThinkSystem Forum Web site](#)
- [System x Forum Web site](#)
- [BladeCenter Forum website](#)

Chapter 1. Technical overview

Users can use Lenovo XClarity Essentials Bootable Media Creator (hereinafter referred to as BoMC) to create bootable media suitable for firmware updates, VPD updates, inventory and FFDC collection, advanced system configuration, FoD Keys management, and diagnostics on supported ThinkSystem, System x, BladeCenter systems, and storage platform.

Using BoMC, users can create a single bootable image on supported media (such as CD, DVD, ISO image, USB flash drive, or set of PXE files) that bundles multiple ThinkSystem, System x, and BladeCenter systems updates from UpdateXpress System Packs containing firmware update packages. From V11.4.0, BoMC supports users to update firmware on supported storage platforms through bootable ISO. From V11.5.1, BoMC supports users to create a full (all-in-one) bootable image for full management function, including firmware update, VPD update, inventory and FFDC collection, advanced system configuration, FoD Keys management, diagnostics, RAID configuration, and secure erase.

Important: Device drivers are not included in the bootable image and must be updated separately.

BoMC can acquire the latest bootable environment, UpdateXpress System Pack, individual updates, and other required components from the local system. You can also download these components from the Lenovo Web site. You can use an HTTP proxy server when connecting to the Lenovo Web site. The server shall support SSL.

You can run only one instance of Bootable Media Creator on a system at a time, whether it is started from the graphical or command-line interface.

You must have administrator or root-equivalent operating-system privileges to use Bootable Media Creator.

Chapter 2. Hardware and software requirements

Lenovo XClarity Essentials Bootable Media Creator has specific requirements for hardware and software. These requirements include support for operating systems and hardware running Bootable Media Creator, and support for certain hardware for creating and using bootable media. This section provides information about the hardware and software requirements of BoMC.

Hardware requirements

To successfully run BoMC, the system installed with BoMC should meet the following hardware requirements.

- The system running BoMC should have 1.5 GB or more of available disk space.

Note: The required disk space depends on the size of bootable media that you want to create. You must have at least four times the disk space used by the working directory, which includes the bootable environment, update packages, and tools. For example, if the size of the bootable ISO image and the working directory you create is 600 MB, the required free disk space is: $4 * 600 \text{ MB} = 2.4 \text{ GB}$.

- The Intel or AMD x86 processor-based systems booted by the created bootable media should have 1.5 GB or more of available memory.
- For PXE media, you must have at least four times the memory of the created PXE image. For example, if the created PXE image is 600 MB, the required memory is $4 * 600 \text{ MB} = 2.4 \text{ GB}$ to boot the PXE image.

Supported server models

You can use Bootable Media Creator to create bootable media that supports various ThinkSystem, BladeCenter, Flex System, and System x servers.

Table 2. Supported Lenovo platforms

Series	Server models	
ThinkSystem	<ul style="list-style-type: none"> • SD530 (7X21) • SD650 DWC (7X58) • SE350 (7D1X, 7Z46) • SN550 (7X16) • SN850 (7X15) • SR150/SR158 (7Y54, 7Y55) • SR250/SR258 (7Y51, 7Y52, 7Y53, 7Y72, 7Y73) • SR530 (7X07, 7X08) • SR550 (7X03, 7X04) • SR570 (7Y02, 7Y03) • SR590 (7X98, 7X99) • SR630 (7X01, 7X02) • *SR635 (7Y98, 7Y99) 	<ul style="list-style-type: none"> • SR645 (7D2X, 7D2Y) • SR650 (7X05, 7X06) • *SR655 (7Y00, 7Z01) • SR665 (7D2V, 7D2W) • SR670 (7Y36, 7Y37, 7Y38) • SR850 (7X18, 7X19) • SR850P (7D2H, 7D2F, 7D2G) • SR860 (7X69, 7X70) • SR950 (7X11, 7X12, 7X13) • ST250/ST258 (7Y45, 7Y46, 7Y47) • ST550 (7X09, 7X10) • ST558 (7Y15, 7Y16)
Solutions	<ul style="list-style-type: none"> • ThinkAgile VX Series (7D2Z, 7Y12, 7Y13, 7Y14, 7Y92, 7Y93, 7Y94, 7Z12, 7Z13, 7Z58) • ThinkAgile MX Certified (7D1B, 7D1H, 7D2E, 7D5R, 7D5S, 7D5T, 7Z20) 	<ul style="list-style-type: none"> • ThinkAgile HX Series (7D1Z, 7D20, 7Z29, 7D2T, 7X82, 7X83, 7X84, 7Y88, 7Y89, 7Y90, 7Y95, 7Y96, 7Z03, 7Z04, 7Z05, 7Z06, 7Z07, 7Z08, 7Z09)

Table 2. Supported Lenovo platforms (continued)

Series	Server models
ThinkServer	<ul style="list-style-type: none"> SR590 (7D4M)
<p>Note: The server models starting with an asterisk (*) are AMD one socket processor-based servers, whose full media only support partial functions in Menu. For more information, refer to Table 7 “Main menus of ThinkSystem and System x (for Lenovo or IBM)” on page 23.</p>	

Table 3. Supported IBM platforms

Series	Server models
System x	<ul style="list-style-type: none"> dx360 M4 (7912, 7913) dx360 M4 Water Cooled server (7918, 7919) dx360 M2 server (6391, 7621, 7323) HS22 (7809, 7870, 1936, 1911) HS22V (7871, 1949) HS23 (1929, 7875) HS23E (8038, 8039) HX Series (8693, 8695) *HX5 (1909, 1910, 7872, 7873) nx360 M4 (5455) nx360 M5 (5465) nx360 M5 DWC (5467) Smart Analytics System (7949) x220 Compute Node (7906, 7916) x240 (7162, 2588) x240 Compute Node (8738, 8737, 7863, 8956) x240 M5 (2591, 9532) *x280/X480/X880 X6 (4259, 7903) x440 Compute Node (7917) *x880 X6 (7196, 4258) x3100 M4 (2582) x3100 M5 (5457) x3200 M2 (4367, 4368) x3200 M3 (7327, 7328) x3250 M2 (4194, 4190, 7657, 4191) x3250 M3 (4261, 4251, 4252) x3250 M4 (2583) x3250 M5 (5458) x3250 M6 (3633, 3943) x3300 M4 (7382) x3400 M2 (7836, 7837) x3400 M3 (7378, 7379) x3500 M2 (7839) x3500 M2 (7380) x3500 M4 (7383) x3500 M5 (5464) x3530 M4 (7160) x3550 M2 (4198, 7946) x3550 M3 (7944, 4254) x3550 M4 (7914) x3350 M5 (5463, 8869) x3620 M3 (7376) x3630 M3 (7377) x3630 M4 (7158) x3650 M2 (7947, 4199) x3650 M3 (7945, 5454, 4255) x3650 M4 (7915) x3650 M4 BD (5460, 5466) x3650 M5 (5462, 8871) x3690 X5 (7147, 7149, 7192, 7148) x3750 M4 (8733, 8718, 8722, 8752, 8753) x3755 M3 (7164) *x3850 X5/X3950 X5 (7143, 7145, 7146, 7191) *x3850 X6/X3950 X6 (6241) x3850/X3950 X6 (3839, 3837) x440 M5 (2590, 7167)
<p>Note: The sever models starting with an asterisk (*) support both single node and multiple node.</p>	

Table 4. Supported Storage platforms

Series	Server models
Storage	<ul style="list-style-type: none"> D1212/D1224 (4587) D3284 (6413)

EFI Boot

BoMC supports creating EFI bootable media. uEFI supports the *Legacy* mode and the *EFI* mode. The boot modes in the uEFI settings should be set to *UEFI Only* or *UEFI and Legacy*.

For Lenovo system, the bootable media created by BoMC V11.5.1 or later versions supports both the EFI mode and the Legacy mode. For IBM system, all created bootable media supports the EFI mode, and only

PXE bootable media supports the Legacy mode. For more information, refer to [Supported boot modes of bootable media](#).

IPv6 enablement

From V9.20, BoMC supports IPv6 addressing. This section provides information about enabling IPv6 compatibility.

SOL connections

To use BoMC on a SOL connection in an IPv6 network, all of the following requirements should be met:

- The network connectivity between the SOL console and the target server uses IPv6.
- Network connectivity for a file transfer in the unattended mode has been set up before establishing the SOL connection.

Acquisition

- BoMC can perform acquisition over a direct LAN connection by using IPv6.
- BoMC can acquire and update the support list through a proxy server with IPv6. The network connection between the proxy server and the target server is not restricted by IPv6.

Connection test

- You can test the connectivity from the HTTP Proxy page of the BoMC by inputting an IPv6 address enclosed in brackets: [2002:325b:1000::97d:5a20].
- The IPv6 protocol stack is preinstalled on the system running BoMC.

Software requirements

To successfully run BoMC, the system installed with BoMC should meet the following software requirements.

Supported operating systems

Lenovo XClarity Essentials Bootable Media Creator supports the following operating systems, which include 32-bit and 64-bit versions.

Table 5. Operating systems supported by BoMC

Operating systems	Editions
Windows	<ul style="list-style-type: none"> • Microsoft Windows 7 • Microsoft Windows 8 • Microsoft Windows 10 • Microsoft Windows 2008 R2 • Microsoft Windows Server 2012 • Microsoft Windows Server 2012 R2 • Microsoft Windows Server 2016 • Microsoft Windows Server 2019
Linux	RedHat <ul style="list-style-type: none"> • Red Hat Enterprise Linux 7 Server (x64) Editions (up to SP8) • Red Hat Enterprise Linux8 Server (x64) Editions (up to SP2)
	SUSE <ul style="list-style-type: none"> • SUSE Linux Enterprise Server 12 (x64) (up to SP5) • SUSE Linux Enterprise Server 15 (x64) (up to SP2)
Notes: <ul style="list-style-type: none"> • Because there is no executable file for the Windows 64-bit operating system, you can run the executable file for the Windows 32-bit operating system through Windows on Windows (WOW). • You cannot run Bootable Media Creator on Windows Preinstallation Environment (WinPE). 	

Supported bootable media

Lenovo XClarity Essentials Bootable Media Creator creates bootable images on several forms of media, including CD, DVD, ISO image, PXE files, and USB flash drive.

Supported PXE servers

You can create bootable Preboot Execution Environment (PXE) files for the following PXE servers:

- Altiris PXE server (Windows only)
- Dynamic Host Configuration Protocol (DHCP) server (Linux only)
- Trivial File Transport Protocol (TFTP) server (Linux only)

Supported USB flash drives

You can create bootable media on the following USB flash drives:

- Lexar USB flash drives, including the JumpDrive Lightning series
- SanDisk USB flash drives, including the Cruzer Micro series

Important: If the capacity of USB flash drive is larger than 32GB, only 32GB is formatted and used by the bootable media. You need to manually format the extra space if you want to use it for other tasks.

Supported bootable environment

Lenovo XClarity Essentials Bootable Media Creator requires a compatible bootable environment for creating bootable media. Each bootable environment version listed in the following table is aligned with a version number in the bootable environment zip file.

Table 6. Supported bootable environment

BoMC version	Bootable Environment Version
Before BoMC 9.50	140
Between 9.50 and 9.63	141
BoMC 10.0, 10.1, 10.2, and 10.3	7.42

Table 6. Supported bootable environment (continued)

BoMC version	Bootable Environment Version
BoMC 11.0, 11.1.0	7.42 and 1.0.0-1.0.0
BoMC 11.2.0, 11.3.0, 11.4.0, 11.5.0	7.42, 1.0.0-1.0.1 and later versions
BoMC 11.5.1, 11.6.0	7.50, 1.0.0-1.3.6 and later versions
BoMC 11.7.0 and later versions	7.50, 1.0.0-1.3.9 and later versions
BoMC 11.8.0 and later versions	7.50, 1.0.0-1.4.3 and later versions
BoMC 11.9.0 and later versions	7.50, 1.0.0-1.4.4 and later versions
BoMC 12.0.0 and later versions	7.50, 1.0.0-1.4.5 and later versions

Note: If you create media from a local repository and specify the --toolzip or -t option, BoMC reports the following warning message: The bootable environment is not the supported version. It may cause failure to create media. Are you sure you want to continue? (y or n)

Network requirements for acquiring update packages

BoMC supports to acquire the updates for the Lenovo system and the IBM system.

- To acquire the updates for the Lenovo system from Lenovo Web site, ensure that the firewall allows the following DNS and ports. Users can also obtain the URL from <https://support.lenovo.com/services/ContentService/SearchDrivers>.

DNS	Port	Protocol
support.lenovo.com	443 and 80	HTTP and HTTPS
download.lenovo.com	443 and 80	HTTPS

- To acquire the updates for the IBM system from IBM Web site, ensure that the firewall allows the following DNS and ports. Users can also obtain the URL from <https://www-03.ibm.com/services/projects/ecc/serviceProviderIBM.gzip>.

DNS	IP address	Port	Protocol
www.ibm.com	/	/	/
www-03.ibm.com	204.146.30.17	443 and 80	HTTP and HTTPS
eccgw01.boulder.ibm.com	207.25.252.197	443	HTTPS

Notes: To use a proxy to acquire updates, ensure that the proxy meets the following requirements:

- The proxy is accessible to one of the following DNS: www.ibm.com, www-03.ibm.com, eccgw01.boulder.ibm.com, support.lenovo.com, and download.lenovo.com.
- The proxy is set to “Use basic authentication”.
- The proxy is a non-terminating and forwarding proxy.

Chapter 3. Downloading and updating Lenovo XClarity Essentials Bootable Media Creator

This section provides information about downloading and updating BoMC.

Downloading Lenovo XClarity Essentials Bootable Media Creator

Bootable Media Creator is a self-extracting application that does not require installation and is ready to be used after downloading. The files are extracted automatically to a random, temporary directory each time Bootable Media Creator runs.

You can download Bootable Media Creator from the Web site at:
<http://datacentersupport.lenovo.com/us/en/documents/LNVO-BOMC>

Attention: For security reasons, store the Bootable Media Creator application, including its extractions, and all the sensitive logs to a safe place where only authorized users can access.

Updating Lenovo XClarity Essentials Bootable Media Creator

You can download the latest version of BoMC from Lenovo Web site to your local system by using BoMC.

Complete the following procedure to update Bootable Media Creator:

- Step 1. To start the Bootable Media Creator wizard, enter the applicable command name for your operating system with no options on the command line, or double-click BoMC executable file in the file explorer of your operating system.
- Bootable Media Creator command names vary in different operating systems from which you are running the command. The following table lists the name of the command for each supported operating system. xxx_xx.x.x indicates the version of BoMC. For more information about the supported operating systems, see “Supported operating systems” on page 5.

Operating system	Command name
Microsoft Windows	Invgy_utl_lxce_bomcxxx_xx.x.x_windows_i386.exe
Red Hat Enterprise Linux 7.X AMD64/EM64T and above	Invgy_utl_lxce_bomcxxx_xx.x.x_rhel_x86-64.bin
SUSE Linux Enterprise Server 12.X AMD64/EM64T and above	Invgy_utl_lxce_bomcxxx_xx.x.x_sles_x86-64.bin

- Step 2. To check the Web for the latest version of BoMC and download the latest version, click **Check for the latest version of this tool**, and save the file in the directory where the command is running.
- Step 3. Click **Next**.
- Step 4. On the Network Access page, complete the following steps:
- Select a proxy option:

Proxy Server

Select this option if you require an HTTP proxy to connect to the Web, and then complete the following fields:

IP address or Hostname

The host name, IP address, or domain name of the HTTP proxy server.

Port

The port number of the HTTP proxy server.

- b. If credentials must be specified to authenticate to the HTTP proxy server, select **Proxy Authentication**, and complete these fields:

User name

The user name for authenticating to the HTTP proxy server.

Password

The password for the specified user name.

- c. To test the connection to the specified HTTP proxy server, click **Test Connection**.

Network Access

Internet connection is required to download update packages from the Lenovo repository. If this system needs a proxy server to access the Internet, provide the proxy server information here. It is recommended to test the connection to validate that the proxy service is working.

Target	Status
<input type="radio"/> Default Repository	
<input type="radio"/> Other URL: <input type="text"/>	
<input checked="" type="checkbox"/> Proxy Server	
IP address or Hostname <input type="text"/> *	Port: <input type="text"/> *
<input checked="" type="checkbox"/> Proxy Authentication	
User Name: <input type="text"/> *	Password: <input type="text"/>

- d. Click **Next**.

Step 5. Select one of the following options:

If the latest version is not available, click **Next** to continue creating bootable media, or click **Cancel** to close the wizard.

If the latest version is available, click **Download Now** to download the latest version.

Chapter 4. Creating and updating bootable media

You can use Lenovo XClarity Essentials Bootable Media Creator to create and update bootable images on various media. The topics in this section describe how to create and update bootable images for each type of media.

Creating bootable media for Lenovo servers and IBM servers

You can create one of the following bootable images for both Lenovo servers and IBM servers at the same time, including the ThinkSystem and System x servers:

- Bootable ISO image
- Bootable USB storage drive
- Bootable CD/DVD
- Bootable PXE file

Complete the following procedure to create bootable media.

Step 1. On a command line, enter the command name without options to start the Bootable Media Creator wizard.

Note: The command name varies in different operating systems where the commands are running. The following table lists the command name for each supported operating system. For more information about the supported operating systems, see “Supported operating systems” on page 5.

Operating system	Command name
Microsoft Windows	Invgy_utl_lxce_bomcxxx_xx.x.x_windows_i386.exe
Red Hat Enterprise Linux 7.X AMD64/EM64T and above	Invgy_utl_lxce_bomcxxx_xx.x.x_rhel_x86-64.bin
SUSE Linux Enterprise Server 12.X AMD64/EM64T and above	Invgy_utl_lxce_bomcxxx_xx.x.x_sles_x86-64.bin

Step 2. On the Welcome page, input the description in the **Descriptive name** field. The descriptive text is displayed on the screen when you use the bootable media.

Step 3. Click **Next**.

Step 4. On the Targeted System page, select one or more machine types to be supported by the bootable media, click **Next**, and do one of the following based on your needs:

- To update the system support list for all functions, click **Update List**.
- To roll back to the original system support lists bundled with each function, click **Rollback**.
- To add or delete machine types for Lenovo systems, click + or -.

Notes:

- If you select the machine types in the Lenovo Platforms table or the IBM Platforms table, you cannot select the machine types in the Storage Platforms table.
- If you select the machine types in the Lenovo Platforms table and the IBM Platforms table at the same time, you can only select “Full” in next step.

- If a function is not supported by a system, selection of the unsupported function is disabled in this system.

Step 5. On the Media Purpose page, complete the following fields, and click **Next**:

Updates

Select this option to bundle LXCE UpdateXpress and firmware updates for the targeted systems on the bootable media.

- If you create a bootable media on the system whose machine type is the same as the target system or on the system in the supported systems list, the machine type is automatically highlighted and selected.
- The firmware is updated in LXCE UpdateXpress.
- This function updates only firmware. Device drivers must be updated separately.
- If both Lenovo and IBM systems are selected, the update function is not supported.

Full

Select this option to integrate all functions in one image, including firmware updates, VPD updates, inventory and FFDC collection, advanced system configuration, diagnostics, RAID configuration, secure erase, and so on.

To generate the RAID configuration, select **Look in a local directory for the RAID configuration file (*.ini)**, then the RAID configuration file will be generated in the specified path.

Step 6. On the Acquire Location page, complete the following fields, and then click **Next**:

Check the Lenovo Web site

Before creating the bootable media, select this radio button to acquire the latest updates from the Lenovo Web site.

UpdateXpress System Pack (UXSPs)

It is the preferred method to obtain updates.

Select this radio button to acquire complete UpdateXpress System Packs. Each UpdateXpress System Pack contains an integration-tested bundle of online, firmware updates for each ThinkSystem, System x, and BladeCenter system.

Latest available individual updates

Select this option to acquire individual updates.

Look in a local directory

Select this option to acquire updates, tools, and boot environment from the local system. Input the fully qualified path and file name in the given field, or click the **Browse** to select the file.

Step 7. On the Network Access page, complete the following steps:

- Select a proxy option:

Proxy Server

Select this option if you require an HTTP proxy to connect to the Web, and then complete the following fields:

IP address or Hostname

The host name, IP address, or domain name of the HTTP proxy server.

Port

The port number for the HTTP proxy server.

- b. If credentials must be specified to authenticate to the HTTP proxy server, select **Proxy Authentication**, and complete the following fields:

User name

The user name for authenticating to the HTTP proxy server.

Password

The password for the specified user name.

- c. To test the connection to the specified HTTP proxy server, or check the network connection of the default repository or URL, click **Test Connection**.

Network Access

Internet connection is required to download update packages from the Lenovo repository. If this system needs a proxy server to access the Internet, provide the proxy server information here. It is recommended to test the connection to validate that the proxy service is working.

Target	Status
<input checked="" type="radio"/> Default Repository	
<input type="radio"/> Other URL: <input type="text"/>	
<input checked="" type="checkbox"/> Proxy Server	
IP address or Hostname <input type="text"/> *	Port: <input type="text"/> *
<input checked="" type="checkbox"/> Proxy Authentication	
User Name: <input type="text"/> *	Password: <input type="text"/>

Step 8. Click **Next** to go to the Target Directory page.

Step 9. On the Target Directory page, specify the directory where you want to store the downloaded files.

Step 10. On the Media Format page, specify the format to use for the bootable media.

To create an ISO image:

1. For **Device type**, select **CD/DVD**.
2. Select **Write to image file** and then type the fully qualified path and file name for the ISO image in the given field.

To create a CD or DVD:

1. For **Device type**, select **CD/DVD**.
2. Select **Write directly to device** to write the bootable medium to the specified CD or DVD drive.
3. For **Disk**, select the letter associated with the CD or DVD drive for Windows (such as E:) or the device name for Linux (such as /dev/hdb).

To create a USB flash drive:

1. For **Device type**, select **USB**.
2. Select **Write directly to device** to write the bootable medium to the specified USB flash drive.

3. For **Disk**, select the letter associated with the USB flash drive for Windows (such as E:) or the device name for Linux (such as /dev/sdb).

To create PXE files:

1. For **Device type**, select **PXE**.
2. For **PXE TFTP server address**, specify the IP address of the TFTP server to use for PXE boot.
3. For **Directory to write PXE files to**, select the fully qualified path or click **Browse** to select the path where you want to write the PXE files in the given field.

Step 11. Click **Next**. If you selected only UXSPI functions on the Media Purpose page, the Unattended Mode Configuration page is displayed. Complete the following applicable fields:

Do not use unattended mode

Select this radio button to disable unattended mode.

Use unattended mode

Select this radio button to enable unattended updates. If you select this option, you must complete the following additional fields:

Upload log files to:

Use this list to choose where to place the log files when unattended updates are complete. Your choices are:

- TFTP Server
- FTP Server
- NFS Share
- Samba Server
- USB Drive
- SFTP Server

Notes:

1. To upload log files to a TFTP, FTP, Samba or SFTP server, or to an NFS share, the directory where the files are to be uploaded must already exist (it will not be created as part of the upload process), and it must allow anonymous access.
2. To upload the unattended log package to the specified location, you must ensure that you can perform the following actions, if you are using the Rhel6.4 x86-64 operating system environment:
 - For Samba shares: `mount -t cifs // $address/ $directory $mount_point -o user=anonymous, password=anonymous`
 - For NFS shares: `mount -t nfs $address: $directory $mount_point`
 - For FTP and TFTP uploads, ensure that the local file can be uploaded to the address and directory specified in the **FTP** or **TFTP** command.
3. Considering the security, users should input the credential of the FTP/Samba/SFTP server in the unattended mode.

Server Address

The address of the server where the log files will be loaded.

Save to directory

The directory where the logs are saved.

Step 12. On the Confirm Choices page, review the configuration information you provided for creating the bootable media.

Step 13. Optional: Click **Save** to save this configuration information to a file, which you can import into this tool to recreate this bootable media at a later time.

Step 14. On the Update Selection page, select the packages to be updated.

Step 15. Click **Next**.

The Creation Progress page is displayed. Bootable Media Creator acquires UpdateXpress System Pack updates if appropriate, acquires Dynamic System Analysis if specified, and then creates the bootable media. A progress bar indicates that the acquisition and creation are in progress and shows the percentage of progress.

To create a new USBKey, you can select an existing USBKey, and click **Create Again**. The same USBKey will be created.

Step 16. When the bootable media is finished, copy and save the commands generated, and click **Next**.

Step 17. Click **Finish**.

Creating bootable media for Storage systems

You can create a bootable ISO image for Storage systems.

Complete the following procedure to create bootable media.

Note: You can also run the command `bomc.exe --function=jbod --iso bootable.iso -l workingdir` to create the bootable media for Storage systems.

Step 1. On a command line, enter the command name with no option to start the Bootable Media Creator wizard.

The command name varies and is based on the operating system from which you are running the command. The following table lists the name of the command for each supported operating system. For more information about the supported operating systems, see “Supported operating systems” on page 5.

Operating system	Command name
Microsoft Windows	<code>Invgy_utl_lxce_bomcxxx_xx.x.x_windows_i386.exe</code>
Red Hat Enterprise Linux 7.X AMD64/EM64T and above	<code>Invgy_utl_lxce_bomcxxx_xx.x.x_rhel_x86-64.bin</code>
SUSE Linux Enterprise Server 12.X AMD64/EM64T and above	<code>Invgy_utl_lxce_bomcxxx_xx.x.x_sles_x86-64.bin</code>

Step 2. On the Welcome page, type a description in the **Descriptive name** field. The descriptive text is displayed on the screen when you use the bootable media.

Step 3. Click **Next**.

Step 4. On the Targeted System page, select one or more machine types to be supported by the bootable media, and then click **Next**.

Notes:

- If you select the machine types in the Lenovo Platforms table or the IBM Platforms table, you cannot select the machine types in the Storage Platforms table.
- If a function is not supported by a system, selection of the unsupported function is disabled for that system.

Step 5. On the Acquire Location page, complete these fields, and then click **Next**:

Look in a local directory

Select this option to find boot environment from the local system. Type the fully qualified path and file name in the given field, or click **Browse** to select the file.

Note: The jbod update utility must be put into the local directory manually. Boot environment can be downloaded from the Web, if it is not found in the local directory.

- Step 6. Click **Next** to go to the Media Format page.
- Step 7. On the Media Format page, select **Write to image file**, and specify the fully qualified path and file name for the ISO image in the given field.
- Step 8. Click **Next**. On the Confirm Choices page, review the configuration information you provided for creating the bootable media.
- Step 9. Optional: Click **Save** to save this configuration information to a file, which you can import into this tool to recreate this bootable media at a later time.
- Step 10. Click **Next**.

The Creation Progress page is displayed. Bootable Media Creator downloads the related files for Storage systems, and then creates the bootable media. A progress bar indicates that the acquisition and creation are in progress and shows the percentage of progress.

- Step 11. When the bootable media is finished, click **Next**.
- Step 12. Click **Finish**.

Updating existing bootable media

You can update bootable images on writable media using the image configuration file created by Lenovo XClarity Essentials Bootable Media Creator.

Complete the following procedure to update existing bootable media.

- Step 1. On a command line, enter the command name with no options to start the Bootable Media Creator wizard. The command name varies and is based on the operating system from which you are running the command. The following table lists the name of the command for each supported operating system. For more information about the supported operating systems, see “Supported operating systems” on page 5.

Operating system	Command name
Microsoft Windows	Invgy_utl_lxce_bomcxxx_xx.x.x_windows_i386.exe
Red Hat Enterprise Linux 7.X AMD64/EM64T and above	Invgy_utl_lxce_bomcxxx_xx.x.x_rhel_x86-64.bin
SUSE Linux Enterprise Server 12.X AMD64/EM64T and above	Invgy_utl_lxce_bomcxxx_xx.x.x_sles_x86-64.bin

- Step 2. On the Welcome page, type a description in the **Descriptive name** field. The descriptive text is displayed on the screen when you use the bootable media.
- Step 3. Click **Load in a previously saved configuration** to load settings that are defined in a specific configuration file.
- Step 4. Click **Next**.
- Step 5. Type the fully qualified path and file name for the configuration file, and then click **Next**.
- Step 6. On the Targeted System page, select one or more machine types to be supported by the bootable media, click **Next**, and do one of the following based on your needs:
 - To update the system support list for all functions, click **Update List**.

- To roll back to the original system support lists bundled with each function, click **Rollback**.
- To add or delete machine types for Lenovo systems, click + or -.

Notes:

- If you select the machine types in the Lenovo Platforms table or the IBM Platforms table, you cannot select the machine types in the Storage Platforms table.
- If you select the machine types in the Lenovo Platforms table and the IBM Platforms table at the same time, you can only select “Full” in next step.
- If a function is not supported by a system, selection of the unsupported function is disabled in this system.

Step 7. On the Media Purpose page, complete these fields and then click **Next**:

Updates

Select this option bundle LXCE UpdateXpress and firmware updates for the targeted systems on the bootable media.

- If you create a bootable media on the system whose machine type is the same as the target system or on the system in the supported systems list, the machine type is automatically highlighted and selected.
- The firmware is updated in LXCE UpdateXpress.
- This function updates only firmware. Device drivers must be updated separately.
- If both Lenovo and IBM systems are selected, update function is not supported.

Full

Select this option to integrate all functions in one image, including firmware updates, VPD updates, inventory and FFDC collection, advanced system configuration, diagnostics, RAID configuration, and so on.

To generate the RAID configuration, select **Look in a local directory for the RAID configuration file (*.ini)**, then the RAID configuration file will be generated in the specified path.

Step 8. On the Acquire Location page, complete these fields, and then click **Next**:

Check the Lenovo Web site

Select this radio button to acquire the latest updates from the Lenovo Web site before creating the bootable media.

UpdateXpress System Pack (UXSPs)

This is preferred method to obtain updates.

Select this radio button to acquire complete UpdateXpress System Packs. Each UpdateXpress System Pack contains an integration-tested bundle of online, firmware updates for each ThinkSystem, System x, and BladeCenter system.

Latest available individual updates

Select this option to acquire individual updates.

Look in a local directory

Select this option to acquire updates, tools, and boot environment from the local system. Type the fully qualified path and file name in the given field, or click the **Browse** to select the file.

Step 9. On the Network Access page, complete the following steps:

- a. Select a proxy option:

Proxy Server

Select this option if you require an HTTP proxy to connect to the Web, and then complete the following fields:

IP address or Hostname

The hostname, IP address, or domain name of the HTTP proxy server.

Port

The port number of the HTTP proxy server.

- b. If credentials must be specified to authenticate to the HTTP proxy server, select **Proxy Authentication**, and complete these fields:

User name

The user name for authenticating to the HTTP proxy server.

Password

The password for the specified user name.

- c. To test the connection to the specified HTTP proxy server, click **Test Connection**.
d. Click **Next**.

Step 10. On the Target Directory page, specify the directory where you want to store the downloaded files.

Step 11. Click **Next**. On the Media Format page, specify the format to use for the bootable media.

To create an ISO image:

1. For **Device type**, select **CD/DVD**.
2. Select **Write to image file** and then type the fully qualified path and file name for the ISO image in the given field.

To create a CD or DVD:

1. For **Device type**, select **CD/DVD**.
2. Select **Write directly to device** to write the bootable medium to the specified CD or DVD drive.
3. For **Disk**, select the letter associated with the CD or DVD drive for Windows (such as E:) or the device name for Linux (such as `/dev/hdb`).

To create a USB flash drive:

1. For **Device type**, select **USB**.
2. Select **Write directly to device** to write the bootable medium to the specified USB flash drive.
3. For **Disk**, select the letter associated with the USB flash drive for Windows (such as E:) or the device name for Linux (such as `/dev/sdb`).

To create PXE files:

1. For **Device type**, select **PXE**.
2. For **PXE TFTP server address**, specify the IP address of the TFTP server to use for PXE boot.
3. For **Directory to write PXE files to**, select the fully qualified path or click **Browse** to select the path where you want to write the PXE files in the given field.

Step 12. Click **Next**. If you selected Update functions on the Media Purpose page, the Unattended Mode Configuration page is displayed. Complete the following applicable fields:

Do not use unattended mode

Select this radio button to disable unattended mode.

Use unattended mode

Select this radio button to enable unattended updates. If you select this option you must complete the following additional fields:

Upload log files to:

Use this list to choose where to place the log files when unattended updates are complete. Your choices are:

- TFTP Server
- FTP Server
- NFS Share
- Samba Server
- USB Drive
- SFTP Server

Notes:

1. To upload log files to a TFTP, FTP, Samba, or SFTP server, or to an NFS share, the directory where the files are to be uploaded must already exist (it will not be created as part of the upload process), and it must allow anonymous access.
2. To upload the unattended log package to the specified location, you must ensure that you can perform the following actions, if you are using the RHEL6.4 x86-64 operating system environment:
 - For Samba shares: `mount -t cifs // $address/ $directory $mount_point -o user=anonymous, password=anonymous`
 - For NFS shares: `mount -t nfs $address:$directory $mount_point`
 - For FTP and TFTP uploads, ensure that the local file can be uploaded to the address and directory specified in the **FTP** or **TFTP** command.
3. Considering the security, users should input the credential of the FTP/Samba/SFTP server in the unattended mode.

Server Address

The address of the server where the log files will be loaded.

Save to directory

The directory where the logs are saved.

Step 13. On the Confirm Choices page, review the configuration information you provided for creating the bootable media.

Step 14. Optional: Click **Save** to save this configuration information to a file, which you can import into this tool to recreate this bootable media at a later time.

Step 15. On the Update Selection page, select the packages to be updated.

Step 16. Click **Next**.

The Creation Progress page is displayed. Bootable Media Creator acquires UpdateXpress System Pack updates if appropriate, acquires Dynamic System Analysis if specified, and then creates the bootable media. A progress bar indicates that the acquisition and creation are in progress and shows the percentage of progress.

To create a new USBKey, you can select an existing USBKey, and click **Create Again**. The same USBKey will be created.

Step 17. When the bootable media is finished, click **Next**.

Note: You can also copy and run the commands generated in Step 15.

Step 18. Click **Finish**.

Chapter 5. Using bootable media

The Menu program runs when the bootable media is started. The graphical version of the Menu program runs in the interactive mode or the unattended mode. Users can select the function to be used in interactive mode.

Before starting bootable media, when you select to use the ISO boot media or the PXE boot media, do one of the following based on the boot media you selected:

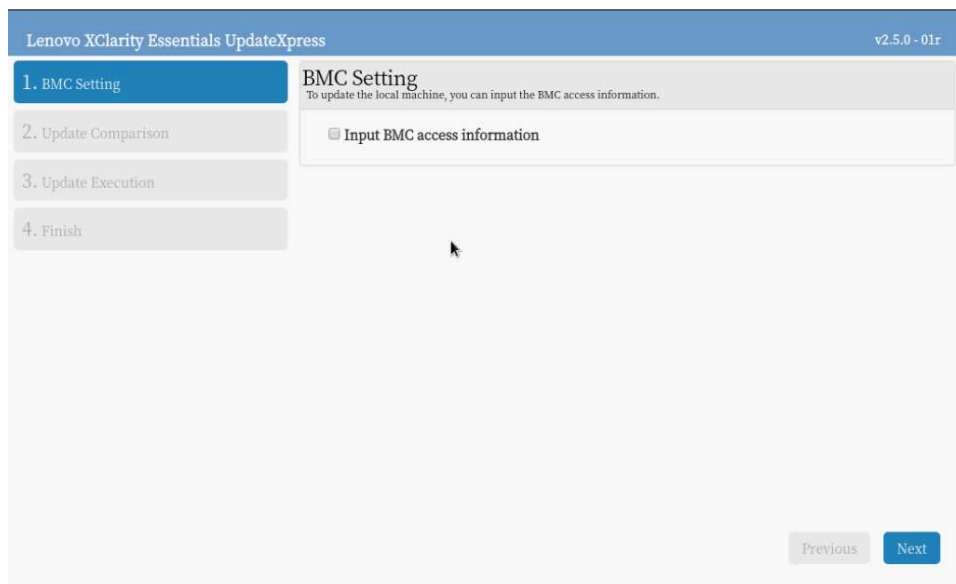
- To use the ISO boot media, burn the ISO image onto a CD or DVD, or mount the ISO image to a server by using the virtual media function in CMM, BMC, or other equivalent functions.
- To use the PXE boot media, complete the following steps:
 1. Copy the files in the PXE directory (including grub.cfg, img3a, img2a, LiveOS/squashfs.img, pxelinux.0, bsb1.lss, bsb.msg, and tc.zip) to the content directory on the TFTP server.
 2. Configure the PXE boot server to use pxelinux.0 as the boot file.
 3. Check if the PXE boot server and TFTP boot server are running.

Note: If the media to be started is not the first or second media in the boot order list, press **F12** to select the media.

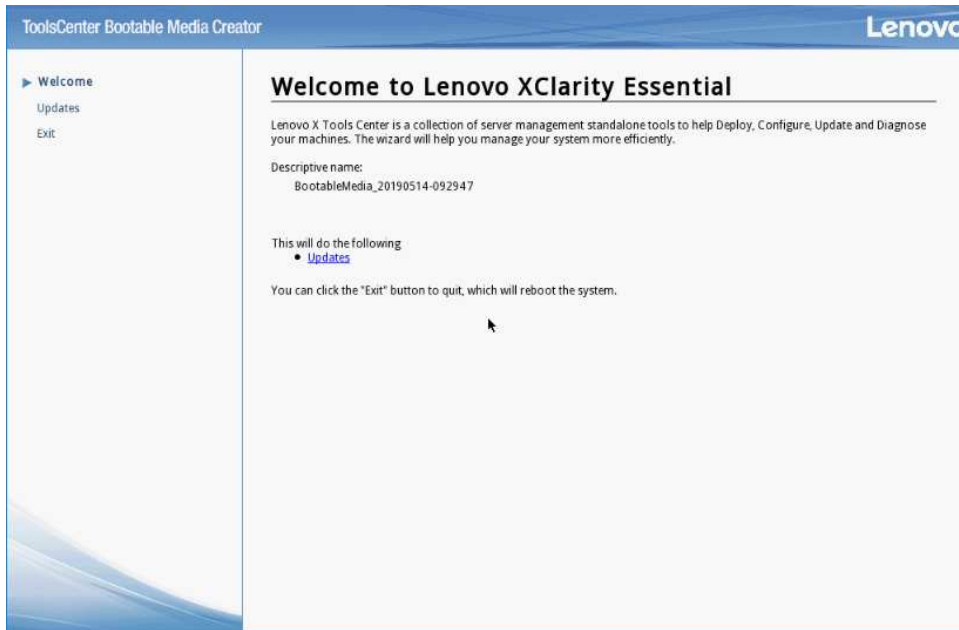
Starting bootable media from GUI

The bootable media created with Update function is started from GUI.

To start the bootable media from GUI for Lenovo Server, follow the instructions on the Lenovo XClarity Essentials UpdateXpress wizard.



To start the bootable media from GUI for IBM Server, click **Updates** on the ToolsCenter Bootable Media Creator wizard.

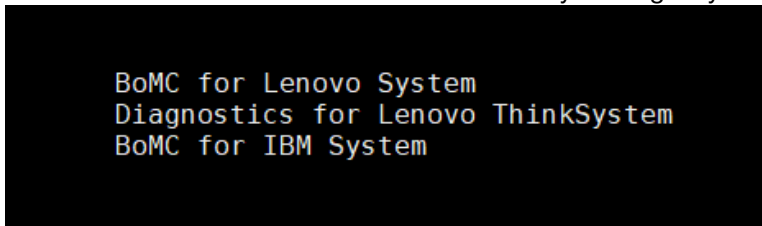


Starting bootable media from text user interface

The bootable media created with Full function is started from text user interface.

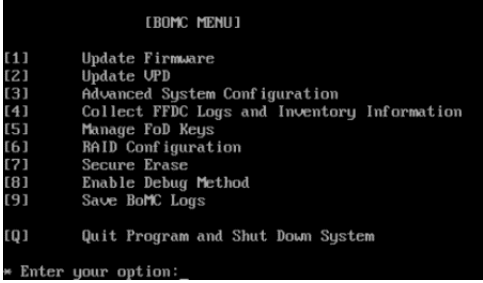
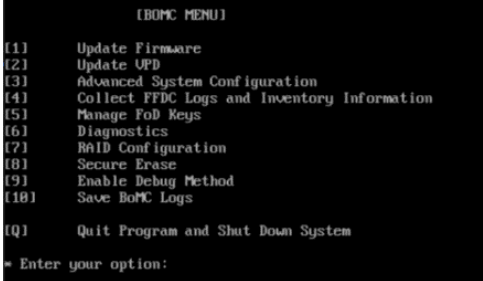
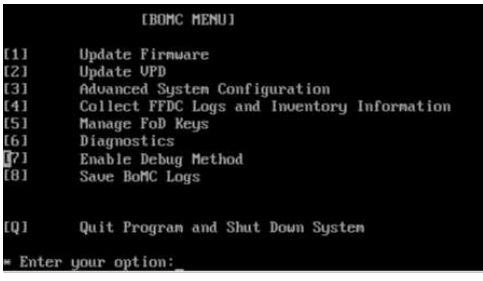
Procedures

Step 1. Select the suitable menu from the menu list for your target system.



Following is the main menus of the ThinkSystem server and the System x server:

Table 7. Main menus of ThinkSystem and System x (for Lenovo or IBM)

Server type	Main menu
ThinkSystem	 <pre> [BOMC MENU] [1] Update Firmware [2] Update UPD [3] Advanced System Configuration [4] Collect FFDC Logs and Inventory Information [5] Manage FoD Keys [6] RAID Configuration [7] Secure Erase [8] Enable Debug Method [9] Save BoMC Logs [Q] Quit Program and Shut Down System * Enter your option: </pre>
System x (for Lenovo)	 <pre> [BOMC MENU] [1] Update Firmware [2] Update UPD [3] Advanced System Configuration [4] Collect FFDC Logs and Inventory Information [5] Manage FoD Keys [6] Diagnostics [7] RAID Configuration [8] Secure Erase [9] Enable Debug Method [10] Save BoMC Logs [Q] Quit Program and Shut Down System * Enter your option: </pre>
System x (for IBM)	 <pre> [BOMC MENU] [1] Update Firmware [2] Update UPD [3] Advanced System Configuration [4] Collect FFDC Logs and Inventory Information [5] Manage FoD Keys [6] Diagnostics [7] Enable Debug Method [8] Save BoMC Logs [Q] Quit Program and Shut Down System * Enter your option: </pre>
<p>Note: For AMD one socket processor-based servers, only [1] Update Firmware, [6] RAID Configuration, [7] Secure Erase, and [9] Save BoMC Logs in BOMC MENU are available.</p>	

Step 2. Select the function to be used.

Chapter 6. Troubleshooting and support

Use this section to troubleshoot and resolve problems with Lenovo XClarity Essentials Bootable Media Creator.

For solutions to problems that other customers have encountered, see the System x Forum Web site at: https://forums.lenovo.com/t5/System-x-X6-M5-M4/bd-p/sx01_eg

Limitations and problems

The following known limitations and problems are applicable to Lenovo XClarity Essentials Bootable Media Creator.

BoMC does not support to use GPT (GUID Partition Table) USB drives to create bootable USB drives.
Before creating a bootable USB drive, change the partition table from GPT to MBR.

BoMC does not support to update LXPM.

To solve this issue, update LXPM on BMC Web site or the LXPM application.

BoMC does not support to display “installed version” of all options on ThinkSystem SR635 and ThinkSystem SR655.

In the “Installed Version” column, “Adapter Discovered” is displayed for options detected on the server, and “Undetected Device” is displayed for options undetected on the server. To update the firmware, select the option, click **Next**, and follow the wizard to complete the update process.

All BoMC paths must use standard English-language alphanumeric characters

All BoMC paths must use standard English-language alphanumeric characters and must not include spaces, special characters, or non-English language characters.

Only TFTP server running on Linux OS is supported when creating a PXE directory with BoMC.

If you are creating a PXE directory with BoMC, only a TFTP server running on a supported version of Linux OS can be used.

BoMC does not support /dev/sda for the --unattended option

BoMC does not support the use of `/dev/sda` for the `--unattended` option for the usb protocol.

The description about FOD key might be incomplete when the description is too long.

If you use BoMC V11.5.1 or later versions to create full bootable media, and select **Manage FoD Keys** to display active FOD, the description about FOD key might be truncated when it's over 50 characters.

VPD information is incomplete

When you select **Update VPD** to change VPD information, only three types of VPD information are listed on the screen. You can use OneCLI tools or go to your BMC Web to obtain the VPD information not displayed on the screen.

Considering the security, when creating media, the SFTP/FTP/SMB credential for the unattended mode will neither be saved in the configuration file nor be loaded in the GUI mode.

When users save the configurations on BoMC GUI during creating the media, the SFTP/FTP/SMB credential specified in the unattended mode for firmware update will not be saved in the configuration file. In the next time, to create a media with a configuration file in the GUI mode by clicking the button on the GUI, users should explicitly specify the SFTP/FTP/SMB credential first.

Workarounds

The following workarounds are applicable to Lenovo XClarity Essentials Bootable Media Creator.

The IBM system might get stuck with the BoMC screen displaying “Collecting service data” after the firmware update is completed.

Use the earlier version of BoMC (v11.6.0) to update the firmware.

By default, the secure erase feature is not supported by the on-board SATA disks on ThinkSystem SR635 and ThinkSystem SR655.

By default, the on-board SATA disks status is “frozen”, so it cannot be directly erased on ThinkSystem SR635 and ThinkSystem SR655. To perform the secure erase on the on-board SATA disks, user shall change the settings of TPM physical presence jumper (J10) first, then set the on-board SATA disks status to “unfrozen”. For more information of jumper, refer to: http://ralfss28.labs.lenovo.com:8787/help/index.jsp?topic=%2F7Y00%2Fsystem_board_jumpers.html&cp=4_9_5_6.

The keyboard does not work when confirming to exit bootable media

After booting a system with bootable media created using Bootable Media Creator, when you select to exit the program, you are prompted to confirm the exit action. The keyboard cannot be used to confirm the exit action.

Use the mouse to confirm the exit action.

cygwin1.dll conflict

Bootable Media Creator ships the `cygwin1.dll` (version 1.5.24, renamed to `cygwinz.dll`), which is required by the `mkisofs.exe` and `cdrecord.exe` utilities. The `cygwin` DLL does not support multiple versions running at the same time. You must exit all other applications that depend on `cygwin1.dll` before running Bootable Media Creator on a Microsoft Windows system.

USB flash drives that are used by Linux are not recognized by Windows

To enable Microsoft Windows to recognize the USB flash drive for Bootable Media Creator on a Windows system, format the USB flash drive on a Linux system to `FAT32` file format using the `mkdosfs` utility. For example: `mkdosfs -I -F 32 /dev/sdb`.

Failure when burning created ISO files to CD/DVD, or created CD/DVD fails to boot

If you are unable to burn created ISO files to CD or DVD media, or if the CD or DVD you have created fails to boot, try using an alternative media writing software or use a different brand and type of media.

IBM BladeCenter HS22 fails to boot from the SanDisk 4 GB bootable USB key

When using the SanDisk 4 GB bootable USB key created by Bootable Media Creator to boot a BladeCenter HS22 (machine type 7870), the system might boot directly into the OS environment installed on the hard disk drive but not boot into the USB key.

Update the uEFI firmware or use a Lexar USB key or a bootable CD.

Lenovo XClarity Essentials Bootable Media Creator log file

Each log record includes: the version, command line arguments, program runtime data, and detailed trouble shooting information. New log information is appended to the `bomc103.log` file.

The Bootable Media Creator log file, `bomc103.log`, is located in the following directories:

- Windows: `%SystemDrive%\Lenovo_Support\`
- Linux: `/var/log/Lenovo_Support/`

Appendix A. Accessibility features for Lenovo XClarity Essentials Bootable Media Creator

Accessibility features help users who have a disability, such as restricted mobility or limited vision, to use information technology products successfully.

Accessibility features

The following list includes the major accessibility features in Lenovo XClarity Essentials Bootable Media Creator:

- Can be operated using only the keyboard
- Communicates all information independent of color
- Supports the attachment of alternate output devices
- Provides online documentation in an accessible format
- (Microsoft® Windows® systems only) Supports interfaces commonly used by screen readers and screen magnifiers

The Bootable Media Creator topic collection in the bootable media for Lenovo x86 Servers information center, and its related publications, are accessibility-enabled.

Keyboard navigation

This product uses standard Microsoft Windows navigation keys.

Lenovo and accessibility

See the [Lenovo Accessibility](http://www.lenovo.com/lenovo/us/en/accessibility.html) Web site at <http://www.lenovo.com/lenovo/us/en/accessibility.html> for more information about the commitment that Lenovo has to accessibility.

Appendix B. Lenovo XClarity Essentials Bootable Media Creator commands

Lenovo XClarity Essentials Bootable Media Creator uses a single command with varying options to create bootable media.

How to read syntax diagrams

Review the following conventions to understand how to read the syntax diagrams that are used in the command descriptions.

The syntax diagram consists of options and option arguments.

- *Options* consist of a hyphen and single letter or two hyphens and multiple letters. For example: `-h` or `--help`. Options can be followed by one or more *option arguments*.
- *Option arguments* are placed after the option. For example: `[- - cd=volume]` In this example *volume* is the option argument.

Consider these conventions when reading syntax diagrams:

- Options that are enclosed in brackets (`[]`) are optional. Do not include these brackets in the command.
- Options that are enclosed in braces (`{ }`) are required. Do not include these braces in the command.
- Options that are not enclosed in either brackets or braces are required.
- The names of options are case sensitive and must be typed exactly as shown. Options preceded by two dashes (`--`) must be specified in their entirety.
- The names of option arguments that require substitution by actual values are italicized.
- The pipe (`|`) character signifies that you choose one option or the other. For example, `[a | b]` indicates that you can choose either a or b, but not both. Similarly, `{a | b}` indicates that you must choose either a or b.
- An ellipsis (`...`) signifies that you can repeat the option argument on the command line.

Configuration file

Each time you create bootable media, configuration information is saved in a file named `bomc.config`, which is stored in a working directory and on bootable media.

- When you boot a system using bootable media, the tools that are bundled on the bootable media check the configuration file to read the user-specified command line (CL) options, such as: `--timeout`, and `--latest`.
- You can create bootable media using the configuration file by copying the configuration file to the working directory, modifying the settings, and then running the `bomc.exe --configfile=working_directory\bomc.config` command.
- For security purposes, the proxy user ID and password are not saved in the configuration file.

The configuration file uses the Java property file format `name=value`. The default values specified in this file are listed in the following table.

Table 8. Configuration settings

Configuration setting	Equivalent Command Line Interface (CLI) option	Default value
IBM_SYSTEM_ACQUIRE	--no-acquire	YES <ul style="list-style-type: none"> • YES: The --no-acquire option <i>is</i> specified. • NO: The --no-acquire option <i>is not</i> specified.
IBM_SYSTEM_AUTORUN	--autorun={update}	NULL
IBM_SYSTEM_CD	--cd=volume	NULL
IBM_SYSTEM_FORCE_OVERWRITE	--force	NO <ul style="list-style-type: none"> • YES: The --force option <i>is</i> specified. • NO: The --force option <i>is not</i> specified.
IBM_SYSTEM_FUNCTION	--function=update, full	update
IBM_SYSTEM_ISO_FILE	--iso=file_name	NULL
IBM_SYSTEM_KERNEL_ARGS	--kernel-args="key=value[key=value...]"	NULL
IBM_SYSTEM_LATEST	--latest	NO
IBM_SYSTEM_MACHINETYPE	-m [all {machine_type[,machine_type] none} --machine-type=[all {machine_type[,machine_type] none}]	NULL
IBM_SYSTEM_MEDIALABEL	--description=description	Bootable media - <i>date</i>
IBM_SYSTEM_NO_FIRMWARE_UPDATE	--no-firmware	NULL
IBM_SYSTEM_NO_TIMESTAMP	There is no corresponding CLI option. This value can only be set in the bomc.conf ig file.	NO By default, the unattended mode log package is named as: UXSPI_mt_serialnumber_timestamp.tar.gz Note: Users shall set the value of this option to YES, and remove the timestamp from the uploaded file name: UXSPI_mt_serialnumber.tar.gz.
IBM_SYSTEM_PAUSE_ON_ERROR	There is no corresponding CLI option. This value can only be set in the bomc.conf ig file.	60 Specifies the pause time (unit: second) of uploading the unattended package when there is respond time of error.
IBM_SYSTEM_PROXY_ADDRESS	--proxy-address=address	NULL
IBM_SYSTEM_PROXY_PASSWORD	--proxy-password=password	NULL Note: This password is not saved in the configuration file.
IBM_SYSTEM_PROXY_PORT	--proxy-port=port	NULL
IBM_SYSTEM_PROXY_USER	--proxy-user=user_ID	NULL
IBM_SYSTEM_PXE_FILE	--pxe=directory	NULL
IBM_SYSTEM_PXE_TFTP_ADDRESS	--tftp-pxe-address=ip_address	9.123.196.61

Table 8. Configuration settings (continued)

Configuration setting	Equivalent Command Line Interface (CLI) option	Default value
IBM_SYSTEM_TIMEOUT	--timeout=1-65535	60
IBM_SYSTEM_TOOL_FILE	-t file_name --toolzip=file_name	lnvgy_utl_boot_tools-141_anyos_x86-64.zip
IBM_SYSTEM_UNATTENDED	unattended=protocol://address/directory	NULL
IBM_SYSTEM_UPDATE_HBACNA	--new	NO <ul style="list-style-type: none"> • YES: The --new option is specified. • NO: The --new option is not specified.
IBM_SYSTEM_USB_KEY	--usbkey=volume	NULL
IBM_SYSTEM_VLANID	vlan-id=0-4095	NULL
IBM_SYSTEM_VLANIP	vlanip=ip_address	NULL
IBM_SYSTEM_WORKINGDIR	-l directory --local=directory	The current directory where the tool is running.

Example

This is an example of a configuration file:

```
IBM_SYSTEM_MACHINETYPE=8853
IBM_SYSTEM_WORKINGDIR=D:\workingdir
IBM_SYSTEM_TOOL_FILE=ibm_utl_boot_tools-100_anyos_x86-64.zip
IBM_SYSTEM_ACQUIRE=YES
IBM_SYSTEM_FUNCTION=update
IBM_SYSTEM_ISO_FILE=NULL
IBM_SYSTEM_PXE_FILE=NULL
IBM_SYSTEM_USB_KEY=NULL
IBM_SYSTEM_CD=bootable.iso
IBM_SYSTEM_PROXY_PASSWORD=NULL
IBM_SYSTEM_PROXY_USER=NULL
IBM_SYSTEM_PROXY_PORT=NULL
IBM_SYSTEM_PROXY_ADDRESS=NULL
IBM_SYSTEM_AUTORUN=NULL
IBM_SYSTEM_TIMEOUT=60
IBM_SYSTEM_FORCE=NO
IBM_SYSTEM_LATEST=NO
IBM_SYSTEM_KERNEL_ARGS=NULL
IBM_SYSTEM_MEDIALABEL="Bootable Media - [time]"
```

How to create bootable media using the CLI - Invggy_utl_lxce_bomc_v.r.m_distribution

Use the **Invggy_utl_lxce_bomc_v.r.m_distribution** command to create bootable media for CD, DVD, ISO, PXE files, or a USB flash drive, where *v.r.m* is the version of Lenovo XClarity Essentials Bootable Media Creator and *distribution* is the operating system on which BoMC runs. The bootable media includes all updates from the LXCE UpdateXpress directory.

Syntax

```
Invggy_utl_lxce_bomc_v.r.m_distribution --help
```

```

lnvgy_utl_lxce_bomc_v.r.m_distribution --version

lnvgy_utl_lxce_bomc_v.r.m_distribution --license

lnvgy_utl_lxce_bomc_v.r.m_distribution --check-update

lnvgy_utl_lxce_bomc_v.r.m_distribution --configfile=file_name

lnvgy_utl_lxce_bomc_v.r.m_distribution --update-supportlist [--show-supportlist]

lnvgy_utl_lxce_bomc_v.r.m_distribution --rollback-supportlist [--show-supportlist]

lnvgy_utl_lxce_bomc_v.r.m_distribution [--description=description][--function=update][--cd=volume |
--iso=file_name | --pxe=directory | --usbkey=volume] [--autorun=tool] [--machine-type=type] [--tftp-
pxe-address=address] [--local=directory] [--toolzip=file_name] [--latest] [--no-acquire] [--force]
[--kernel-arg="options"] [--proxy-address=address --proxy-port=port] [--proxy-user=user --proxy-
password=password] [--timeout=seconds] [--arch=x86 | x64] [--no-firmware] [--tftp-pxe-address=ip_
address] [unattended=protocol://address/directory]

lnvgy_utl_lxce_bomc_v.r.m_distribution --function=jbod --iso=file_name [--local=directory] [--proxy-
address=address --proxy-port=port][--proxy-user=user --proxy-password=password][--no-acquire]
[--description=description]

```

Description

- You must have administrator or root-equivalent operating system privileges to use BoMC.
- An Internet connection is required to download tools and updates from the IBM Web site.
- If you use an HTTP proxy to connect to the Web, the HTTP server must support Secure Sockets Layer (SSL).

You can run only one instance of BoMC on a system at a time, regardless of whether it is started from the graphical or command-line interface. It includes instances of BoMC that might be bundled in other tools, such as LXCE UpdateXpress.

If you run this command with no options, the graphical interface is displayed.

While BoMC is busy waiting for operations that take more than a few seconds to finish (such as acquiring updates or inventory collection), a series of dots (.) is displayed, about one dot for every two seconds.

If you do not specify a bootable media option (--cd, --iso, --pxe, or --usbkey), then the updates for the specified machine type are downloaded to the specified working directory.

Options

v.r.m_distribution

Specifies the version and operating system on which this command is being run. For more information about the supported operating systems, see “Supported operating systems” on page 5.

Operating system	Command name
Microsoft Windows	lnvgy_utl_lxce_bomcxxx_xx.x.x_windows_i386.exe
Red Hat Enterprise Linux 7.X AMD64/EM64T and above	lnvgy_utl_lxce_bomcxxx_xx.x.x_rhel_x86-64.bin
SUSE Linux Enterprise Server 12.X AMD64/EM64T and above	lnvgy_utl_lxce_bomcxxx_xx.x.x_sles_x86-64.bin

where *v.r.m* is the version, release and modification of BoMC (for example, 10.3.0).

--arch=x86 | x64

Specifies the architecture type to be supported by the created ServerGuide image. The default value is x64. Valid values are x86 and x64.

--autorun

This option is only used when users select “update” during creating media. After the system boots from the media, the update starts automatically.

--cd=volume

Creates a bootable CD or DVD identified by the specified volume.

(Windows only) *Volume* specifies the volume letter where the CD or DVD is located. Include the colon character (for example, --cd=d:)

(Linux only) *Volume* specifies the CD or DVD device name (for example, --cd=/dev/cdrom).

Attention: If the CD or DVD is read-writable, existing data will be deleted, regardless of whether the --force option is specified. No warning is displayed if data currently exists on the CD or DVD.

Note: You cannot combine this option with the --iso, --pxe, and --usbkey options.

--check-update

Checks the Web for the latest version of BoMC, and downloads the earlier version, if available, to the directory in which this command is running.

- BoMC is ready to run after being downloaded. It does not need to be installed.
- If --check-update is used in combination with other options; the other options are ignored.

--configfile=file_name

Retrieves option arguments from the specified configuration file

Example: --configfile=c:\path\config.txt

- You cannot combine this option with any other options.
- The specified configuration options are saved in a configuration file named `bomc.config` in the working directory and bootable media each time you create a bootable media.

--description=description

Specifies descriptive text that is displayed on the screen when you boot the target system using the created bootable media.

Note: If you do not specify descriptive text, "Bootable media - *date*" is displayed by default, where *date* is the date that the bootable media was created.

--force

Overwrites existing data on the bootable media (ISO image, USB flash drive, or PXE files) without displaying a warning message. If this option is not specified, existing bootable media is not overwritten.

Note: Existing data on a read/writable CD or DVD is automatically overwritten, regardless of whether this option is specified.

--function=update, full

Specifies the function to be put into the bootable media. The “update” parameter is only used in firmware update. The “full” parameter is used in all functions supported by BoMC, including firmware update, VPD update, inventory and FFDC collection, advanced system configuration, FoD Keys management, and diagnostics.

-h | -? | --help

Detailed information about the command is displayed, including the syntax, a description of the command, a description of the options, error codes, and examples.

--iso=file_name

Creates a bootable ISO 9660 file with the specified file name (for example, `--iso=bios.iso`).

- The specified file name must end in "iso" (for example, `bios.iso`).
- By default, the ISO file is created in the working directory, specified by the **--local** option. To create the file in a different directory, specify the path and file name (for example, `c:\bios.iso` or `..\bios.iso`).
- You cannot combine this option with the **--cd**, **--pxe**, and **--usbkey** options.

--kernel-args="key=value[key=value...]"

Appends the specified kernel arguments to the boot loader configuration file, which is `grub.cfg`. For example, for SOL support specify: `--kernel-args="console=ttyS1,19200 console=tty1"`.

- This option is not valid when `serverguide` is selected as the function option.
- The kernel options are in addition to other options that are already specified in the bootable media itself.
- Enclose the key-value pairs in quotation marks.
- Separate the key-value pairs using a space.
- When you specify a serial console argument (`ttyS0` or `ttyS1`) and the `tty1` console argument using the **--kernel-args** option, you must specify the serial console first.

Notes: Using the `ipstatic` and `ipstatic6` optionsThe **`ipstatic`** optional kernel parameter is used to assign IPv4 addresses to NICs. If you use the `ipstatic` option, be aware of the following limitations:

- If you do not specify an **`ipstatic`** or **`ipstatic6`** kernel argument, IP addresses will be assigned to all NICs using DHCP.
- If you specify `ipstatic=auto`, IP addresses will be assigned to all NICs sequentially, beginning with `192.168.0.100`, and adding addresses incrementally until reaching `192.168.0.255`.
- You can specify the IP address of a single NIC explicitly: `ipstatic=eth0;192.168.0.125:255.255.255.0:192.168.0.1`. It will set one NIC to the specified address. To ensure the success of NIC firmware updates, the NICs must be configured with an IP address. Therefore, if you use this option and are performing firmware updates, only the NIC specified in the argument (for example, `eth0`) will succeed. Firmware updates for all of the other NICs in the system will fail.
- You can specify a starting IP address and allow the `auto` parameter to assign IP addresses sequentially beginning with that address, as shown.
`ipstatic=eth0;192.168.0.125:255.255.255.0:192.168.0.1;auto`
- If you specify a static IPv4 address when creating a PXE image, the boot will fail as it will force an address reassignment, which will cause the connection between the target server and the PXE server to be lost.

The **`ipstatic6`** optional kernel parameter is used to assign IPv6 addresses to NICs. If you use the **`ipstatic6`** option be aware of the following limitations:

- If you do *not* specify an **`ipstatic`** or **`ipstatic6`** kernel argument, IP addresses will be assigned to all NICs using DHCP.
- If you specify `ipstatic6=auto`, IP addresses will be assigned to all NICs sequentially, beginning with adapter `eth0` and `2001::1234:abcd/64` and adding addresses incrementally. That is, `eth1` will receive address `2001::1234:abce/64`, `eth2` will receive address `2001::1234:abcf/64`, and so on.
- You can specify the IPv6 address of a single NIC explicitly: `ipstatic6=eth0;2001::1234:abcd/64`. It will set one NIC to the specified address. To ensure the success of NIC firmware updates, the NICs must be configured with an IP address. Therefore, if you use this option and are performing firmware

updates, only the NIC specified in the argument (in this example, eth0) will succeed. Firmware updates for all of the other NICs in the system will fail.

- You can specify a starting IPv6 address and allow the `auto` parameter to assign IP addresses sequentially beginning with that address, as shown.
`ipstatic6=eth0;2001::1234:abcd/64;auto`
- If you specify an IPv6 address with no postfix, the postfix will be set to 0 by default.
- If you specify an IPv6 static address when creating a PXE image, the boot might fail, as there is no remote boot specification for IPv6 equivalent to PXE.

--latest

Acquires the latest individual updates from the Lenovo Web site and places the files in the working directory specified by the **--local** option. If not specified, this command acquires complete UpdateXpress System Packs.

- Lenovo XClarity Essentials Bootable Media Creator acquires the latest tools and boot environment automatically each time this command is run if they do not already exist in the working directory specified by the `--local` option.
- ISO files that are located in the specified working directory are not copied to the bootable media being created.

--license

License information is displayed and then exits.

-l directory | --local=directory

Specifies the fully qualified working directory (for example, `--local=c:\workingdir`).

It is the directory contains the files for creating the bootable media. It is also the default directory creating the bootable ISO image and the PXE files if not otherwise specified with the `--iso` or `--pxe` options.

- If you specify the `--no-acquire` option, this directory must contain all of the files for creating the bootable media, including the UpdateXpress System Packs, tools, and boot environment. The files must be in specific locations within this directory.
- HTTP and FTP URL style addresses are not supported.

-m [all | {machine_type[,machine_type]} | none] | --machine-type=[all | {machine_type[,machine_type]} | none]

Targets one or more specified machine types, separated by a comma (for example, `--machine-type=4362, 4363`). Only Full function supports *all*. If you specify *all*, this command creates bootable media that supports all Lenovo ThinkSystem, System x, and BladeCenter machine types.

- From BoMC V9.51, if you specify the `-m all` option to acquire all firmware packages for all supported systems, the machine type list to the ECC server will include all of the systems in the support list for BoMC, not "all".
- The machine type must be a 4-digit number. The wild cards are not allowed.
- Spaces are not allowed in a comma-separated list.
- You can find a list of valid machine types from the BoMC graphical user interface.

--no-acquire

Acquires UpdateXpress System Pack or individual updates from existing files in the working directory. If this option is not specified, UpdateXpress System Pack or individual updates are acquired from the IBM Web site.

--no-eject

Prevents ejection of the CD/DVD in the media tray after the Bootable Media Creator exits. If this option is not specified, the media will be ejected.

--proxy-address=address

Specifies the host name, IP address, or DNS address for the HTTP proxy server (for example, `--proxy-address=10.0.0.10`).

- Specify this option if you require an HTTP proxy to connect to the Web.
- If you specify this option, you must also specify the **--proxy-port** option.

--proxy-password=password

Specifies the proxy user password for authenticating to the HTTP proxy server.

- Specify this option if you require an HTTP proxy to connect to the Web and credentials must be provided to authenticate to the HTTP server.
- If you specify this option, you must also specify the **--proxy-user** option.
- The proxy password is not persistent and is not stored in the configuration file.

--proxy-port=port

Specifies the proxy port number for the HTTP proxy server.

- Specify this option if you require an HTTP proxy to connect to the Web.
- If you specify this option, you must also specify the **--proxy-address** option.

--proxy-user=user_ID

Specifies the proxy user ID for authenticating to the HTTP proxy server.

- Specify this option if you require an HTTP proxy to connect to the Web and credentials must be provided to authenticate to the HTTP proxy server.
- If your proxy server does not require a password, this option can be omitted.
- The proxy user ID is stored in the configuration file, but the proxy password is not stored.

--pxe=directory

Creates bootable Preboot Execution Environment (PXE) files in the specified directory (for example, `--pxe=pxe_dir`).

- The specified directory is relative to the working directory specified by the **-I | --local** option.
- You cannot combine this option with the **--cd**, **--iso**, and **--usbkey** options.
- The PXE files include `grub.cfg`, `img3a`, `img2a`, `pxelinux.0`, `LiveOS/squashfs.img`, and `tc.zip`.

--legacy-boot

Creates bootable Preboot Execution Environment (PXE) files in legacy mode.

--rollback-supportlist

Reverts to the original bundled system support list for each function.

--show-supportlist

Shows the system support list currently in use for each function (diagnostic, update, and deployment).

--timeout=1-65535

Specifies the amount of time, in seconds, that you have to press a key before the specified tool starts automatically after you boot using the bootable media. You can specify 1 - 65535 seconds. The default value is 60 seconds.

Note: This option is not valid if the `serverguide` option was selected with the `--function` option.

--tftp-pxe-address=ip_address

Specifies the IP address of the TFTP server to use for PXE booting.

-tfile_name | --toolzip=file_name

Uses the specified bootable-environment file that exists in the working directory instead of acquiring it from the IBM Web site.

Note: This option is not valid if the `serverguide` option was selected with the `--function` option.

--unattended=protocol://address/directory

Specifies that the created media is to run in unattended mode, and indicates the upload location for the log file package. When using this option, the `--autorun` parameter is disabled.

protocol

specifies the protocol to use when uploading the log file package. Valid values are:

tftp
ftp
nfs
smb
usb
sftp

Notes:

1. In order to specify a port number when using an IPv6 address with FTP and TFTP, you must enclose the IPv6 address in brackets, as shown:
`--unattended=tftp://[2001::1234:abcd]:21/logdir`
2. Use of IPv6 addressing with NFS is not supported.

address

The address of the server.

directory

The name of the directory.

--password=password

Set the password for the unattended mode. This option will be encrypted. Under the security mode, the unattended mode only supports the `sftp/ftp/smb` parameter.

--update-supportlist

Get the latest systems supported by BoMC.

Note: You can use the **--update-supportlist** (CLI) or the **Update List** button (GUI) to update the support list from the Web site.

--usbkey=volume

Creates a bootable USB flash drive identified by the specified volume.

(Windows only) *Volume* specifies the USB flash drive. Include the driver letter and the colon character (for example, `--usbkey=d:`).

(Linux only) *Volume* specifies the device name of the USB flash-drive (for example, `--usbkey=/dev/sdb4`). Existing data will be deleted from the USB flash drive.

- You cannot combine this option with the `--cd`, `--iso`, and `--pxe` options.
- You cannot use this option if `serverguide` was chosen with the `--function` option.
- Only **4** is supported as a primary partition number for the Linux operating systems. Volume specified in the option `--usbkey` is like `/dev/sdx4`, in which `sdx` is the hard drive of USB key.

-V | --version

Display the version of Bootable Media Creator.

--vlan-id

Allows you to set the vlan-id.

--vlan-ip

Allows you to set the vlan-ip address.

-g [--generate-raid-config-sample]

Generate the RAID configuration sample in the working directory.

Notes: The --vlan-id and --vlan-ip options should be used together. If only one is specified, error code 245 will be returned. If both are specified, BoMC adds the following configuration options to the `bomc_config` file:

- LENOVO_SYSTEM_VLANID=vlan-id value
- LENOVO_SYSTEM_VLANIP=vlan-ip address

Exit status

The following table contains the return codes of the above commands.

Table 9. Return codes of commands

Return codes	Descriptions
0	The operation is completed successfully.
120	FTP error: Failed to download files.
140	Media creation error: Failed to copy.
141	Media creation error: Failed to create ISO image.
143	Media creation error: Failed to format USB drive.
144	Media creation error: Failed to create PXE image.
145	Media creation error: Failed to change directory.
146	Media creation error: Incorrect size or checksum.
147	Media creation error: An error is found in file.
148	Media creation error: Failed to create USB drive.
204	Acquisition error: Failed to download files.
211	Media creation error: File does not exist.
212	Media creation error: Failed to create directory.
213	Media creation error: Failed to decompress files.
216	Media creation error: An error is found in Json configure file.
222	Media creation error: Failed to burn DVD disk.
225	No suitable updates are found. SLES10 updates are needed in the created bootable media. Acquire SLES10 updates before creating bootable media.
226	The mode change is failed on one or more files.
227	The specified ISO file does not have the .iso extension.
230	The specified volume name for the USB flash drive is not found.
231	The function cannot be performed.
232	The USB flash drive is not initialized.
235	The specified volume is not a valid CD or DVD volume.

Table 9. Return codes of commands (continued)

240	Media creation error: Failed to get () information from working directory.
241	Media creation error: Failed to create usb drive from local directory.
242	Media creation error: Failed to encrypt password.
245	VLAN id and ip should be specified together.
254	Media creation error: An internal or uncovered error is found. Users should provide log to BOMC team for investigating this issue.
255	An unknown error is occurred.

Examples

1. Check for a new version of BoMC

This example illustrates how to check for and download a new version of BoMC on a Linux environment.

```
Windows | Invgy_utl_lxce_bomcxxx_xx.x.x_windows_i386.exe --check-update
```

```
Linux | ./Invgy_utl_lxce_bomcxxx_xx.x.x_sles_x86-64.bin --check-update
```

2. Create a bootable CD using an HTTP proxy

This example illustrates how to create a bootable CD for a system with machine type 7x21. The updates and files are acquired from an HTTP proxy server with IP address hkce01.hk.ibm.com and using port 80.

Note: The HTTP proxy server must support SSL.

```
Windows | Invgy_utl_lxce_bomcxxx_xx.x.x_windows_i386.exe --function=update -m 7x21 --cd=E: -l workingdir --proxy-address=xxx.xx.xxx.com --proxy-port=80
```

```
Linux | ./Invgy_utl_lxce_bomcxxx_xx.x.x_sles_i386.bin --function=update -m 7x21 --cd=/dev/hda -l workingdir --proxy-address=xxx.xx.xxx.com --proxy-port=80
```

3. Create a bootable ISO image

This example illustrates how to create a bootable ISO image named tc.iso for a system with machine type 7x21 that includes the LXCE UpdateXpress. LXCE UpdateXpress runs automatically when the bootable media boots. The tc.iso file is created in the workingdir directory.

```
Windows | Invgy_utl_lxce_bomcxxx_xx.x.x_windows_i386.exe --function=update -m 7x21 --iso=tc.iso -l c:\workingdir --autorun=update
```

```
Linux | ./Invgy_utl_lxce_bomcxxx_xx.x.x_sles_i386.bin --function=update -m 7x21 --iso=tc.iso -l workingdir --autorun=update
```

4. Create bootable USB flash drive

This example illustrates how to create a bootable USB flash drive for a system with machine type 7x21 that includes the LXCE UpdateXpress. The updates and files are acquired from the IBM Web site. For the Windows example, the USB flash drive uses the F: drive. For the SLES10 example, the USB flash drive uses the /dev/sdb device.

```
Windows | Invgy_utl_lxce_bomcxxx_xx.x.x_windows_i386.exe --function=update -m 7x21 --usbkey=F: -l c:\working_dir
```

```
Linux | ./Invgy_utl_lxce_bomcxxx_xx.x.x_sles_x86-64.bin --function=update -m 7x21 --usbkeykey=/dev/sdb4 -l working_dir
```

5. Create bootable PXE files

This example illustrates how to create bootable PXE files in the c:\workingdir\pxedir directory for a system with machine type 7x21 that includes the LXCE UpdateXpress. The updates and files are from acquired the IBM Web site. LXCE UpdateXpress runs automatically when the bootable media boots.

Note: This example requires you to change the Trivial File Transfer Protocol (TFTP) IP address of grub.cfg. For more information, see Chapter 5 “Using bootable media” on page 21.

```
Windows Invgy_util_ixce_bomcxxx_xx.x.x_windows_i386.exe --function=update -m 7x21 --pxe=pxedir -l workingdir --tftp-pxe-address=192.168.1.6 --autorun=update
```

```
> Linux ./Invgy_util_ixce_bomcxxx_xx.x.x_sles_x86-64.bin --function=update -m 7x21 --pxe=pxedir -l workingdir --tftp-pxe-address=192.168.1.6 --autorun=update
```

6. Create bootable media using a configuration file

This example illustrates create bootable media using option arguments that are set in the c:\config.txt configuration file.

```
Windows Invgy_util_ixce_bomcxxx_xx.x.x_windows_i386.exe --configfile=c:\config.txt
```

```
> Linux ./Invgy_util_ixce_bomcxxx_xx.x.x_sles_x86-64.bin --configfile=/root/config.txt
```

7. Create bootable media with a single update

This example illustrates how to create a bootable ISO image named bios.iso using the existing BIOS firmware update located in the working_dir directory. The LXCE UpdateXpress tool and bootable environment are acquired from the IBM Web site by default.

```
Windows Invgy_util_ixce_bomcxxx_xx.x.x_windows_i386.exe --function=update --no-acquire --iso=bios.iso -l c:\working_dir
```

```
> Linux ./Invgy_util_ixce_bomcxxx_xx.x.x_sles_x86-64.bin --function=update --no-acquire --iso=bios.iso -l working_dir
```

8. Create bootable media using files on the local system

This example illustrates how to create a bootable ISO image named tc.iso for a system with machine type 7x21 that includes the LXCE UpdateXpress. The updates and files are acquired from the c:\workingdir directory on the local system. The tc.iso file is created in the c:\workingdir directory.

```
Windows Invgy_util_ixce_bomcxxx_xx.x.x_windows_i386.exe --function=update -m 7x21 --iso=tc.iso -l workingdir -no-acquire
```

```
> Linux ./Invgy_util_ixce_bomcxxx_xx.x.x_sles_x86-64.bin --function=update -m 7x21 --iso=tc.iso -l workingdir -no-acquire
```

9. Create a bootable media supporting to upload logs in the security mode

This example illustrates how to create a bootable ISO image “bootable.iso” booted in the unattended mode. The logs will be uploaded to the sftp server: 10.23.34.34.

```
Windows Invgy_util_ixce_bomcxxx_xx.x.x_windows_i386.exe --function=update -m 7x21 --iso=bootable.iso -l workingdir -no-acquire -unattended sftp://root@10.23.34.34/home -password 123456
```

```
> Linux Invgy_util_ixce_bomcxxx_xx.x.x_sles_x86-64.bin --function=update -m 7x21 --iso=bootable.iso -l workingdir -no-acquire -unattended sftp://root@10.23.34.34/home -password 123456
```

10. Create an all-in-one bootable ISO image

This example illustrates how to create a bootable ISO image bootable.iso for a system. BoMC will download LXCE UpdateXpress, DSA, and ASU for managing firmware, VPD, advanced system, FFDC logs, inventory, FoD Keys, and BoMC logs based on your server (machine type: 7x21 and 1909) downloaded.

```
Windows Invgy_util_ixce_bomcxxx_xx.x.x_windows_i386.exe --function=full -m 7x21,1909 --iso=bootable.iso -l workingdir
```

```
> Linux ./Invgy_util_ixce_bomcxxx_xx.x.x_sles_x86-64.bin --function=full -m 7x21,1909 --iso=bootable.iso -l workingdir
```

11. Create an all-in-one bootable ISO image on the local system

This example illustrates how to create a bootable ISO image `bootable.iso` for a system. This bootable image is in LXCE UpdateXpress, DSA, and ASU of your server (machine type: 7x21 and 1909). The tools and packages can be acquired from the `c:\workingdir` directory on the local system. The `bootable.iso` file is created in the `c:\workingdir` directory.

```
Windows Invgy_util_lxce_bomcxxx_xx.x.x_windows_i386.exe --function=full -m 7x21,1909 --iso=  
bootable.iso -l workingdir -no-acquire
```

```
Linux ./Invgy_util_lxce_bomcxxx_xx.x.x_sles_x86-64.bin --function=full -m 7x21,1909 --iso=  
bootable.iso -l workingdir
```

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Processor speed indicates the internal clock speed of the microprocessor; other factors also affect application performance.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for 1 024 bytes, MB stands for 1 048 576 bytes, and GB stands for 1 073 741 824 bytes.

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