



# **Collecting Service Data on Lenovo System x servers**

Planning / Implementation

This document provides the instructions for the various methods of collecting service data on Lenovo servers. Users might be asked to collect service data by Lenovo service personnel or from a qualified business partner when opening a service ticket. This is sometimes referred to as collecting First Failure Data Capture (FFDC).

This guide provides instructions for users who are new to Lenovo ThinkSystem or System x servers. It will guide you to choose the right tool and then guide you to complete the task of collecting service data, which you can send to the qualified service personnel as the next step in the troubleshooting journey.

Looking for the latest ThinkSystem servers? See Collecting Service Data on Lenovo ThinkSystem Servers

# Choosing the right tool

It is recommended that you understand all methods for collecting service data that Lenovo provides so that you can quickly collect the data before calling for technical support. This way, you can avoid or minimize workload disruption while capturing the critical information that is needed, at a decisive moment, for precise and efficient troubleshooting.

However if you are in a hurry, the following table allows you to quickly jump to the section that best suits your current situation. Choose a row at the first column based on what you have access to, then choose one of the server brand columns to link to the right tool and steps.

Table 1. Choose the right to	ol to collect service data
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What access do you have?	Lenovo ThinkSystem including ThinkSystem branded Flex and NeXtScale servers	Lenovo System x including Lenovo branded Flex and NeXtScale servers	IBM System x including IBM branded Flex, BladeCenter and NeXtScale servers
1) I have access to the BMC web management interface.	Use XClarity Controller (XCC)	Use Integrated Management Module (IMM)	Use Integrated Management Module (IMM)
2) I have access to the server OS* to run command line applications with root or Administrator privileges.	Use XClarity Essentials OneCLI	Use XClarity Essentials OneCLI	<b>Use</b> Dynamic System Analysis (DSA) Portable
3) I have access to the server locally with KVM (keyboard & video) and I am able to reboot the server.	Use XClarity Provisioning Manager (LXPM)	Use Dynamic System Analysis (DSA) Preboot	Use Dynamic System Analysis (DSA) Preboot
4) I am managing the servers with XClarity Administrator and would like to use it to collect service data on one or more servers.	Use XClarity Administrator (LXCA)	Use XClarity Administrator (LXCA)	Not supported
5) I need to collect service data on Flex System CMM or components other than the compute node.	Use Chassis Management Module (CMM)	<b>Use</b> Chassis Management Module (CMM)	Use Chassis Management Module (CMM)

\* The OS here refers to a supported version of Windows and Linux on the server. Although VMware ESXi is also supported on the server, the support tool cannot be run directly in the hypervisor; in this case, the user can use the BMC, XClarity Administrator or local access to collect service data.

#### Where to get the tools

The following links show where to download the tool (if relevant) and where to find the documentation on how to use the tool.

- XClarity Controller (XCC)
  - Download: This tool is embedded in the firmware of Lenovo ThinkSystem servers.
  - Documentation: http://sysmgt.lenovofiles.com/help/topic/com.lenovo.systems.management.xcc.doc/product\_page.html
- XClarity Provisioning Manager (LXPM)
  - Download: This tool is embedded in the firmware of Lenovo ThinkSystem servers.
  - Documentation: http://sysmgt.lenovofiles.com/help/topic/LXPM/LXPM\_introduction.html
- XClarity Essentials OneCLI (LXCE OneCLI)
  - Download: https://datacentersupport.lenovo.com/us/en/solutions/Invo-tcli
  - Documentation: https://sysmgt.lenovofiles.com/help/topic/toolsctr\_cli\_lenovo/onecli\_r\_sysxflexbc.html
- XClarity Administrator (LXCA)
  - Download: https://support.lenovo.com/us/en/solutions/Invo-Ixcaupd
  - Documentation: https://sysmgt.lenovofiles.com/help/topic/com.lenovo.lxca.doc/aug\_product\_page.html
- Integrated Management Module (IMM)
  - Download: This tool is embedded in the firmware of Lenovo and IBM System x servers.
  - Documentation: https://systemx.lenovofiles.com/help/topic/com.lenovo.sysx.imm2.doc/product\_page.html
- Chassis Management Module (CMM)
  - Download: This tool is embedded in the firmware of Lenovo and IBM System x servers.
  - Documentation:

https://flexsystem.lenovofiles.com/help/topic/com.lenovo.acc.cmm.doc/cmm\_product\_page.html

- Dynamic System Analysis (DSA) Preboot
  - Download: This tool is embedded in the firmware of Lenovo and IBM System x servers.
  - Documentation:

https://systemx.lenovofiles.com/help/topic/com.lenovo.sysx.5462.doc/c\_dsa\_intro.html

- Dynamic System Analysis (DSA) Portable
  - Download: https://datacentersupport.lenovo.com/us/en/solutions/Invo-dsa
  - Documentation: http://toolscenter.lenovofiles.com/help/topic/dsa\_lenovo/dsa\_bk.pdf

# **XClarity Controller (XCC)**

Use the following steps to collect service data using XClarity Controller (XCC):

- 1. Log in to the XClarity Controller web management interface.
- 2. At the Home page, look for the Quick Actions panel as shown in the following figure.

XClarity Controller	U ! ThinkSystem SR590 System name:Sf	R590-1	✓ Export LUSERID ③ 1:26 AM E
↑ Home	Health Summary Active System Events (0)	System Information	n and Settings
Events		ThinkSystem SR590	Power On (System running in UEFI)
Inventory	CPU Memory	Local Storage Serial No.	1234567890
11. Utilization	2 / 2 installed 4 / 16 installed 2	2 / 18 installed System Name Front USB Ownership	SR590-1 V Shared mode: owned by HOST
C Remote Console		BMC License BMC IP Address	Lenovo XClarity Controller Enterprise Upgrade → 10.243.2.35 →
▲ Firmware Update	PCI         Power Supply           5 installed         2 / 2 installed	Fan 4 / 4 active BMC Hostname BMC Version	XCC-7X98-1234567890 →
Server Configuration		UEFI Version	V2.10 (Build ID: TEE135S)
✤ BMC Configuration	System Board Others	Location	→
	Cuick Actions   Power Action   Decodion LED: Off   Centre Console Preview Centre	Power Utilization     Service     130W     103     Download Service Data     Input     Latest Failure Screen     CPU     Memory     Temperature data is no	System Utilization C O

Figure 1. XClarity Controller home page

- 3. Click Service > Download Service Data.
- 4. Click **OK** when prompted.
- 5. The process may take a few minutes to complete, then you will be prompted by the browser to save the file to your workstation.

Additional information:

- The naming convention for the service data file is: *MachineType*+tzz, for example 7X1925Z000\_S4AAC123\_xcc\_190325-104024.tzz
- The XCC service data file \*.tzz cannot be extracted using a generic decompression tool, such as unzip or 7zip. Send the service data file to an authorized technical service personnel for further analysis.

# **XClarity Essentials OneCLI**

Use the following steps to collect service data using XClarity Essentials OneCLI (LXCE OneCLI):

Instructions for Windows:

- 1. Download the latest version of OneCLI at the following location: https://datacentersupport.lenovo.com/us/en/solutions/Invo-tcli
- 2. Decompress the downloaded zip file into a new directory.
- 3. Open a command prompt as Administrator and change to the directory where the expanded version of OneCLI is found.
- 4. Run this command to collect service data: OneCli.exe inventory getinfor --ffdc
- 5. The process will take approximately 15 to 45 minutes to complete.

Instructions for Linux:

- 1. Download the latest version of OneCLI at the following location: https://datacentersupport.lenovo.com/us/en/solutions/Invo-tcli
- 2. Decompress the downloaded .tgz file into a new directory.
- 3. Open a shell as root privilege and change to the directory where the expanded version of OneCLI is found.
- 4. Run this command to collect service data: ./OneCli inventory getinfor --ffdc
- 5. The process will take approximately 15 to 45 minutes to complete.

Additional information:

- A new directory will be created under the current execution directory to store the result of each run at logs/OneCli-*pid-date-time*, for example, logs/OneCli-5460-20190326-141910
- The resulting directory contains the service data file (.tgz/.tzz) that was retrieved from the BMC, the same as by downloading service data from the web interface.
- The directory also contains a detailed server inventory file that could be useful to technical support. If you'd like to have the detailed inventory in HTML instead of the XML, you can run this command: **OneCli.exe inventory getinfor --ffdc --htmlreport**
- You can compress the result directory as a file to send to technical support.

# **XClarity Provisioning Manager (LXPM)**

Use the following steps to collect service data using XClarity Provisioning Manager (LXPM). You will need a USB memory key to save the service data to.

- 1. Boot or reboot the server, wait until the POST splash screen is displayed.
- 2. Press F1 to enter System Setup as shown in the following figure.

Lenovo		
SR590-1 ThinkSystem SR59	00	ThinkSystem
System Events 🛛 0	<b>A</b> 0	UEFI:RUN SETUP
Serial Number 12345 Machine Type 7X98 BMC IP 10.24 UEFI Version 2.10 BMC Version 2.50 (	87890 3. 2. 35 TEE135S (03/07/2019) CDI333V (03/07/2019)	F1 triggered remotely, preparing to boot into System Setup 64 GB memory detected Independent mode, usable capacity 64 GB 2 processor(s) detected, 36 cores enabled Intel(R) Xeon(R) Gold 6140 CPU @ 2.30GHz
Licensed Materials - Property of Lenovo. © Lenovo is a trademark of Lenovo in the Ur	Copyright Lenovo and other(s) 2019. Ited States, other countries, or both.	F1:System Setup

Figure 2. Lenovo ThinkSystem server POST splash screen

3. If you see text mode UEFI setup, as shown in the following figure, choose the option to Launch Graphical System Setup which launches XClarity Provisioning Manager.



Figure 3. ThinkSystem server UEFI Setup Utility

4. In XClarity Provisioning Manager, click **Diagnostics** as in the following figure.



Figure 4. XClarity Provisioning Manager system summary page

5. Click Collect Service Data and then click the Next arrow as shown in the following figure.



Figure 5. XClarity Provisioning Manager diagnostics page

6. Wait until the task is completed then click on the right arrow as shown in the following figure.



Figure 6. XClarity Provisioning Manager collecting service data

7. Choose a USB drive in the list; then click **Save** as shown in the following figure.

XClarity Provisioning Manager	ThinkSystem SR590 -[7X98RCZ000]-		ŝ	0	Ð
System Summary	Diagnostics: Collect Service Data-Save Data				
RAID Setup					
<b>OS Installation</b>	Choose the device where the service data will be saved.	_			
🗊 Firmware Update	Save				
UEFI Setup					
Cloning	<				
Diagnostics	•				

Figure 7. XClarity Provisioning Manager save service data

#### Integrated Management Module (IMM)

Use the following steps to collect service data using Integrated Management Module (IMM).

- 1. Log in to the IMM web management interface.
- 2. Click the Service and Support menu, then Download Service Data as shown in the following figure.

Lenovo. Integrated Ma	nagement Module II		
System Status Events 🗸	Service and Support -	Server Management 👻 IMM Management 👻	Search Q
Longua NoVtScala r	Problems	Problems addressed by Support, if you have enabled service and support to report problems.	
Add System Descriptive Name	Settings	Configure your system to monitor and report service events	
The System Status and Health page pr	Download Service Data	Obtain a compressed file of relevant service data	м
System Status Power: On System state: Booting OS or in under System Information Power Action Active Events	etected OS	Latest OS Failure Screen	
Severity A Source	Date	Message	
Hardware Health Component Type S Local Storage U Processors Memory System	Status Jnavailable Normal Normal Normal		

Figure 8. IMM home page

3. Click the button **Download Now** as shown in the following figure.



Figure 9. IMM download service data

4. This may take a few minutes to complete, then you will be prompted by the browser to save the file to your local workstation.

Additional information:

- The naming convention for the service data file is: *MachineType+Model\_SerialNumber\_imm2\_date\_time.*tgz, for example 5465AC1\_06BMZEV\_imm2\_20190321\_042452.tgz
- The IMM service data file \*.tgz cannot be extracted using a generic decompression tool, such as unzip or 7zip. Please send the service data file to an authorized technical service personnel for further analysis.

#### **Dynamic System Analysis (DSA) Preboot**

Use the following steps to collect service data using Dynamic System Analysis (DSA) Preboot.

1. Boot or reboot the server and when you see the POST splash screen, press **F2** for **Diagnostics** as shown in the following figure.



Figure 10. Lenovo System x server POST splash screen

- 2. You will be shown the Memory Test screen. Choose Quit > Quit to DSA.
- 3. DSA will launch with a text screen prompt. Type gui and press Enter as shown in the following figure.



Figure 11. DSA Preboot text screen prompt

4. At the graphical DSA welcome page, click on **Full Inventory Collection and Diagnosis** as shown in the following figure.





5. Select a target location to save the service data file; then click **Run Now** as shown in the following figure.

Lenovo ToolsCenter Dynamic System Analysis	Run CLI   Setting   Help   About   Exit Lenovo
Welcome Collection and Diagnosis   Activation Key Management	
Welcome       Collection and Diagnosis       Activation Key Management         Welcome to Dynamic System Analysis       Welcome to Dynamic System Analysis         Lenovo Preboot Dynamic System Analysis (DSA) is a system information collection and analysis tool that is use to aid in the diagnosis Dynamic System Analysis       Confirm to Run Full Collection and Diagnosis         Collect invent       Image: System Analysis       Collect System Inventory         Image: Select the content for data collection(At least one must be selected)       Image: Select System Inventory         Image: Select the following actions after the data collection is perform	System Information Machine Name: Lenovo
Collect a and diag Collect a and diag Manage Activat Activat Perform activation key management on pointy2:	v Cancel

- Figure 13. DSA Preboot run full collection and diagnostics
- 6. The task will take a few minutes to complete. If you have not chosen a target location at the previous step, you can click on **Save to** as shown in the following figure.

Lenovo Tools	Center Dynamic	System Analysis	Ru	n CLI   Setting   Help   Ab	oout   Exit <b>Lenovo</b> .	
Welcome	Collection and Diagr	nosis Activation K	ey Management			
Collection and D	Diagnosis	The full inv	entory collection was finished at 20:17:16 2 n save the data locally or send it to Lenovo su t is not connected. <u>Test Internet Connecti</u>	2/3/2019 pport.	Machine Type/Model: 5465/AC1	
Overview Diagnostic Test:	s	Full Information Collection	Customized Information Collection	Save to Send to Lenovo	Serial Number: 06BMZEV	
Finished: 16 All: 16	с	ollection and Diagno	sis Overview			
Inventory Types	;	Description			Status	
Full Inventory File	1	1. Diagnostic tests		$\mathbf{\lambda}$	Completed	
		16 test items have been p	erformed. <u>See details</u>			
	:	2. Inventory collection			Completed	
	-	115 inventory items have	been collected <u>5465AC1_06BMZEV_20190322-</u>	201760		
				*		

Figure 14. DSA Preboot collect service data completed

# **Dynamic System Analysis (DSA) Portable**

Use the following steps to collect service data using Dynamic System Analysis (DSA) Portable.

Instructions for Windows:

- 1. Download the latest version of DSA at the following location: https://datacentersupport.lenovo.com/us/en/solutions/Invo-dsa
- 2. Open a command prompt as Administrator and change to the directory where the DSA executable file is found.
- 3. Run this command (actual file name might vary slightly as the version changes): Invgy\_utl\_dsa\_dsala7j-10.4\_portable\_windows\_x86-64.exe ---ffdc
- 4. The command will take approximately 15 to 45 minutes to complete.

Instructions for Linux:

- 1. Download the latest version of DSA at the following location: https://datacentersupport.lenovo.com/us/en/solutions/Invo-dsa
- 2. Open a shell as root privilege and change to the directory where the DSA binary file is found.
- 3. Make the binary file executable: (actual file name might vary slightly as the version changes): chmod +x lnvgy\_utl\_dsa\_dsala7j-10.4\_portable\_rhel7\_x86-64.bin
- Run this command: ./Invgy\_utl\_dsa\_dsala7j-10.4\_portable\_rhel7\_x86-64.bin —ffdc
- 5. The command will take approximately 15 to 45 minutes to complete.

Additional information

- A new directory will be created to store the result:
  - Windows: C:\Lenovo\_Support
  - Linux: /var/log/Lenovo\_Support
- The resulting directory contains the service data file (.tgz/.tzz) that was retreived from the BMC, same as by downloading service data from the web interface.
- The directory contains a detailed server inventory file that could be useful to technical support.
- You can compress the result directory as a file to send to technical support.

# **XClarity Administrator**

Use the following steps to collect service data using XClarity Administrator.

- 1. Log into the XClarity Administrator management interface..
- 2. Click the menu **Administration > Service and Support**
- 3. In the Service and Support page, navigate to Endpoint Actions as shown in the following figure.

Lenovo. XClarity Adr	ministrator			📞 Repo	rt Problem 🛛 🗹 Status 🔹 💆 Jobs 👻
🚱 Dashboard Hardware 👻 Pro	visioning - Monitoring - Adr	ninistration <del>-</del>			동, 제, 일상, 일상, 전, 제, 제, 일상, 일상, 전, 2세, 1997년 - 1997년 - 1997년 1997년 - 1997년 -
din.	Endpoint Actions				/
	Perform Call Home Test Perform	n Manual Call Home	5120	隊   🎅	All actions  Filte Collect Service Data
	Endpoint	Status	Product Name	UUID	Lenovo Upload Selected
Service and Support	□	Normal	Chassis	F44E92339683385	Create Contact Profile
Service data collection	Demo - 000220LHB4	Normal	Rack-Tower Server	CFEC7691C59F36	Relete Contact Profile
<ul> <li>Management Server Files</li> <li>Endpoint Service Data</li> </ul>					Customize Columns
Endpoint Actions					Perform Call Home Test
📽 Endpoint Actions 🛛 🔫	<u> </u>				Perform Manual Call Home
Automatic service data forwarding					Enable Call Home on all supported endpoints
					Disable Call Home on all supported endpoints

Figure 15. XClarity Administrator endpoint actions

- 4. Select one or more endpoints on which you'd like to collect service logs, then click the menu All Actions > Collect Service Data, confirm the action when prompted.
- 5. The task will be launched in the background and should take a few minutes to complete.
- 6. To download the service data file to your workstation, navigate to Endpoint Service Data.
- 7. Select one or more files then click on the toolbar button or the equivalent menu in **All Actions > Download Selected Service Files**, as shown in the following figure.

Lenovo. Clarity Adm	ninistrator		🔪 Repo	rt Problem 🛛 🚳	Status * 🔕 Jobs *	CCHHUOR -
🕰 Dashboard Hardware 🗸 Provi	isioning 👻 Monitoring 👻 Admin	istration <del>-</del>				
	Endpoint Service Data Use this tab to download diagnostic fil	es collected from the endpoints.				^
Service and Support	🚯 📑 🧗 🔁   All acti	ons *			Filt	er
Service data collection	File	Event ID	System	Component	Date and Time	•
Management Server Files	combined_9532AC1_23CPCYF_i	0E01000C	SN#Y034BG176046: ite-bv-1538: Ba	ite-bv-1538	Mar 21, 2019, 05:	18:14
Fodpoint Service Data	combined_9532AC1_23CPCWM	0E010007	SN#Y034BG176046: ite-bv-1534: Ba	ite-bv-1534	Mar 21, 2019, 05:	19:39
Endpoint Actions	combined_9532L48_23CPCYH_i	0E010004	SN#Y034BG176046: ite-bv-1511: Ba	ite-bv-1511	Mar 21, 2019, 05:	19:47
Endpoint Actions	combined_9532AC1_23CPXAN_i	0E01000B	SN#Y034BG176046: ite-bv-1546: Ba	ite-bv-1546	Mar 21, 2019, 05:	20:45
Automatic service data forwarding	combined_9532LAB_23CPCXZ_i	0E010006	SN#Y034BG176046: ite-bv-1518: Ba	ite-bv-1518	Mar 21, 2019, 05:	31:49
	combined_9532AC1_23CPCWD	0E010008	SN#Y034BG176046: ite-bv-1501: Ba	ite-bv-1501	Mar 21, 2019, 10:	D8:39
	combined_9532LAB_23CPCVX_i	0E010008	SN#Y011BG32302H: ite-bv-1507: Bi	ite-bv-1507	Mar 21, 2019, 10:	27:01
Service Forwarders	combined_786310X_1003BCB_i	800702172C02FFFF	SN#Y034BG17604F: ite-bt-1173: Ba	ite-bt-1173	Mar 21, 2019, 11:	37:23
Service Ticket Status	combined_8737AC1_06LNMX3_i	800702172C02FFFF	SN#Y034BG17604F: ite-bt-227: Bay	ite-bt-227	Mar 21, 2019, 11:	37:27
E Lenovo Upload Facility	combined_786310X_0664AAB_i	800702172C02FFFF	SN#Y034BG17604F: ite-bt-213: Bay	ite-bt-213	Mar 21, 2019, 11:	38:05
Service Settings	combined_7906AC1_06PCA28_i	806F08132584FFFF	SN#Y034BG17604F: ite-kt-020: Bay	ite-kt-020	Mar 21, 2019, 11:	38:38
G Server Logging Settings	combined_7906AC1_06PCA28_I	3501048D	SN#Y034BG17604F: ite-kt-020: Bay	ite-kt-020	Mar 21, 2019, 11:	38:38
Service Recovery Password	combined_786310X_1003BCB_i	35010482	SN#Y034BG17604F: ite-bt-1173: Ba	ite-bt-1173	Mar 21, 2019, 11:	39:40
Warranty Status	combined_7906AC1_06PCA34_i	3501048B	SN#Y034BG17604F: ite-kt-023: Bay	ite-kt-023	Mar 21, 2019, 11:	39:42
🖑 Warranty	combined 7906AC1 06PCA84 i	3501048C	SN#Y034BG17604F: ite-kt-025: Bay	ite-kt-025	Mar 21, 2019, 11:	39:47
	combined 7906AC1 06PCA21 i	3501048E	SN#Y034BG17604F: ite-kt-022: Bay	ite-kt-022	Mar 21, 2019, 11:	39:50
	combined 7906AC1 06PCA05 i	35010484	SN#Y034BG17604F; ite-kt-011: Bay	ite-kt-011	Mar 21, 2019, 11:	39:51
	R\$160 TS 20190321-101143.taz	Manual Collect	AMID05099C86A4E	AMID05099C86A4E	Mar 21, 2019, 22:	12:32
	RD550_MJ0224ZA_TS_2019032	Manual Collect	008CFAC8749E	008CFAC8749E	Mar 21, 2019, 22:	12:57

Figure 16. XClarity Administrator endpoint service data

### **Chassis Management Module (CMM)**

Use the following steps to collect service data using Chassis Management Module (CMM) with Flex System.

- 1. Log into the CMM web management interface.
- 2. Click on the Service and Support menu, then Download Service Data, as shown in the following figure.

IBM Chassis Management Modu	ıle						cchhuor Settings	Log Out   Help IBM.
System Status Multi-Chassis I	Monitor Events <del>-</del>	Service and	l Support 👻 Cha	ssis Manag	gement 👻 Mgt Module M	anagement - Search.	••	Fri, 22 Mar 2019, 23:4
		Problems		Proble	ems addressed by IBM Suppor	t, if you have enabled service	e and support to report problems.	
		Settings		Config	gure your system to monitor a	ind report service events		
		Advanced		BIST,	connectivity status, redundan	t status and service reset		
Chassis Graphical View Chassis Table	View Active Event	Download	Service Data	Obtai	n a compressed file of relevan	t service data		
Search device by name: Type in the c	levice name	Search	Export 💌					
Device Name	Device Type		Health Status	Bay	Вау Туре	Machine Type/Model	Serial Number	
SN#Y011BG32302H	Management Mo	dule	Attention	1	Management Module		Y011BG32302H	
Node 01 (ite-bt-217)	Compute Node		Oritical	1	Node	786310X	Y013BG2BH06D	
Node 02 (ite-bt-1276)	Compute Node		Attention	2	Node	8737AC1	Y010BG38D007	

Figure 17. CMM home page

3. Click the button Download Mgmt Module Data Now, as shown in the following figure.



Figure 18. CMM download service data

4. This process will take a few minutes to complete then you will be prompted by the browser to save the file to your workstation.

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