

Dell Lasso
Version 4.7.1 User's Guide



Notes, cautions, and warnings

 **NOTE:** A NOTE indicates important information that helps you make better use of your computer.

 **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

 **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

Copyright © 2015 Dell Inc. All rights reserved. This product is protected by U.S. and international copyright and intellectual property laws. Dell™ and the Dell logo are trademarks of Dell Inc. in the United States and/or other jurisdictions. All other marks and names mentioned herein may be trademarks of their respective companies.

2015 - 04

Rev. A00

Contents

1 Introduction.....	7
What is New In this Release.....	7
Key Features.....	7
Support Matrix.....	12
Supported Operating Systems.....	12
Supported Enclosures.....	15
Supported Management and Monitoring Software.....	15
Supported Switches.....	16
Supported Storage Devices.....	19
Work Flow.....	21
Contacting Dell.....	23
2 Installing And Uninstalling Lasso.....	24
Prerequisites.....	24
Installing Lasso.....	24
Installing Lasso Using GUI.....	24
Installing Lasso Using CLI.....	25
Modifying Lasso Installation.....	25
Repairing Lasso Installation.....	26
Uninstalling Lasso.....	26
Using GUI.....	26
Using CLI.....	27
3 Security.....	28
Passwords.....	28
Network Ports.....	28
4 Using Lasso.....	30
Prerequisites For Data Collection.....	30
Running Lasso.....	31
Starting New Configuration.....	31
Use Existing Configuration.....	33
Loading Configuration File.....	33
Import Device Configuration File.....	34
Upload Existing Collection.....	34
Lasso GUI – Fields And Descriptions.....	35
Welcome to Lasso.....	35
Your Company Information.....	36

Your Company Contacts.....	37
Your Hardware Environment.....	38
Your Hardware Environment: Storage Arrays.....	39
Your Hardware Environment: Fibre Channel Switches.....	41
Your Hardware Environment: Ethernet Switches.....	42
Your Hardware Environment: Tape Libraries.....	43
Your Hardware Environment: Hosts.....	44
Your Hardware Environment: Enclosures.....	46
Your Hardware Environment: Enclosure Modules.....	47
Your Hardware Environment: Management & Monitoring Software.....	48
Your Hardware Environment: Wireless Controllers.....	49
Device Collection.....	50
Upload.....	51
Confirmation.....	51
Log Files.....	51
Generated File Formats.....	52
Viewing Reports.....	52

5 Manual Collection..... 53

Manually Collecting Data For Storage Arrays.....	53
Manually Collecting Data For Celerra Device.....	53
Manually Collecting Data For CLARiiON Device.....	54
Manually Collecting Data For MDSeries Device.....	55
Manually Collecting Data For EqualLogic Device.....	56
Manually Collecting Data For PowerVault Or EqualLogic Or Compellent FluidFS NAS Device.....	56
Manually Collecting Data For Attached Hosts.....	57
Manually Collecting Data For Windows OS.....	57
Collecting Storage Device Information For UNIX OS.....	58
Collecting Storage Device Information For VMware (ESX/ESXi OS).....	59
Manually Collecting Data For Tape Library Device.....	59
Manually Collecting Data For PV136T, PV132T, TL2000, And TL4000 Tape Library Device.....	60
Determining Service Port IP For ML6000 Data Collection.....	60
Collecting Logs Manually For ML6000 Device.....	60
Collecting Logs Using Web Client.....	61
Manually Collecting Data For Ethernet and Nexus Switches.....	61
Manually Collecting Data For Cisco Ethernet Device.....	62
Manually Collecting Data For Cisco Nexus Device.....	62
Manually Collecting Data For Brocade or PowerConnect B-Series And M8428K Switches.....	64
Manually Collecting Data For PowerConnect Ethernet and Dell Networking Switches.....	65
Manually Collecting Data For Force 10 and Dell Networking Switches.....	66
Manually Collecting Data For Fibre Channel Switches.....	68

Manually Collecting Data For Brocade Device.....	68
Manually Collecting Data For Cisco Device.....	69
Manually Collecting Data For McData Device.....	69
Manually Collecting Data For McDataBlade Device.....	70
Manually Collecting Data For Enclosures – M1000e.....	70
Manually Collecting Data For Enclosure – VRTX.....	71
Manually Collecting Data For Enclosure – PowerEdge FX2.....	72
Manually Collecting Data For HITKIT Appliance Under VRTX.....	73
Manually Collecting Data For SAN HQ DEVICE.....	73
Manually Collecting Data For SCVMM 2008 and 2012.....	74
Manually Collecting Data For PowerConnect Controller.....	74
Manually Collecting Integrated Server Information Within VRTX.....	75
6 Collecting Data Using CLI.....	76
Collecting For Single Device Using CLI.....	78
7 Troubleshooting.....	84
Troubleshooting EMC Package Installation.....	84
Troubleshooting Unsuccessful Lasso Catalog Download.....	84
Troubleshoot Unsuccessful Lasso Catalog Download Using Proxy.....	85
Troubleshooting Unsuccessful EMC Package Download.....	85
Troubleshooting Unsuccessful EMC Package Installation.....	86
Troubleshooting Unix Host Collection.....	86
Allowing Root Access To Unix Server.....	86
Allowing Root Access Using Multi User Interface (MUI) On VMware.....	86
Troubleshooting MD Series.....	87
Troubleshooting Compellent Collections for SCOC Versions Prior to 6.6.x.....	88
Troubleshooting Compellent Collections for SCOS Versions Later Than 6.6.x.....	88
Troubleshooting EqualLogic.....	89
Troubleshooting Storage Processor.....	89
Edit Privilege User On CX Array.....	90
Edit Privilege User On AX Array.....	90
Troubleshooting Switches.....	90
Troubleshooting Ethernet Switch.....	91
Troubleshooting Tape Library.....	91
Troubleshooting Unix.....	91
Troubleshooting Windows.....	91
Troubleshooting Enclosures.....	92
Troubleshooting HITKIT Collection.....	92
Troubleshooting SAN HQ Device.....	92
Troubleshooting PowerVault FluidFS NAS Collection.....	92
Troubleshooting EqualLogic FluidFS NAS Collection.....	92

Troubleshooting Celerra Collection.....	92
Troubleshooting VMware Collection.....	92
Troubleshooting PowerConnect Controller.....	93
Troubleshooting Lasso Run As System Account.....	93
8 Error Codes.....	94
9 Use Case Scenario.....	105
10 Frequently Asked Questions.....	107
FAQ – About Lasso.....	107
FAQ – Passwords and Security.....	109
FAQ – Dealing With Errors.....	110
11 License.....	112
Dell: Export Compliance Disclaimer	112
Dell Software Disclaimer	112
Dell Software Copyright	113
GNU GENERAL PUBLIC	113
Preamble.....	113
GNU GENERAL PUBLIC LICENSE TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION.....	114
END OF TERMS AND CONDITIONS.....	117

Introduction

Lasso is a Windows-based client and server utility that automates the collection of hardware, software, and storage logs and configuration from servers, Storage Arrays, Fibre Channel switches, Ethernet and FCoE Switches, Attached Hosts, Enclosures, Management and Monitoring Software, and Wireless Controllers.

After Lasso collects the data, it parses the data into Extensible Markup Language (XML) and HyperText Markup Language (HTML) formats. The data is then packaged along with the collected data and encrypted. The collected data is saved in a **.zip** and also in an encrypted **zip.gpg** file format on the local system. Optionally, you can enable Lasso to automatically upload the collected data to Dell Technical Support. For secure site customers Lasso can filter the collected data before uploading to Dell Technical Support. Lasso monitors and waits for the completion of each process and notifies the user of any failures during collection.

Dell may utilize the collected data for proactive maintenance services and Technical Support cases across various Dell products.

What is New In this Release

Support for collecting, parsing, and viewing Storage Area Network (SAN) configuration reports generated from:

- Dell PowerEdge FX2/FX2s modular enclosures
- Dell Compellent storage arrays
- VMware ESXi 6.0

Key Features

The key features are:

- Collect, parse, and view SAN configuration report for FluidFS 3.0. The report includes the following device features:
 - System health and DNS HostName
 - System overall space
 - Type, resource, and remark attributes in CIFS share section
 - Authentication provider information
 - Arper client assignments
 - NTP information

- Remote hosts
- NAL state information
- NAL NIC information
- Collect and parse integrated server information within VRTX chassis. The report includes the following device features:
 - Configuration information
 - Status and log information
- Collect, parse, and view SAN configuration report for:
 - Oracle VM Server version 3.2
 - PS6210 storage array
 - PowerConnect Switches with iSCSI information
- Automatically detect the device type, validate, and collect the Ethernet and FCoE switches information.
- Support for:
 - EqualLogic FS7500, FS7600, and FS7610.
 - Oracle Linux 6.4 Operating system
 - SAN HQ
 - CML FS8600
- Collecting host data without specifying attached storage array.
- Parse and view SAN configuration report for non-iSCSI NIC for hosts.
- Collect and parse Device ID, Vendor ID, Subdevice ID, and Subvendor ID for NIC and HBA cards for Linux and VMware hosts.
- Enhancement for output messaging format by displaying the specific error codes and error messages if the device is not reachable, protocols are not enabled, and validation is not successful.
- Import devices and credentials information from Microsoft Excel.
- Downloading EMC add-ons from remote FTP website either by using a proxy server or by using the **Add-ons** option from **Welcome to Lasso** screen. The EMC CLARiiON and Celerra packages are deleted from Lasso installation.
- Auto-refresh the validation and collection of logs on the GUI.
- Device validation in the CLI using `-validate` option.
- Displaying data collection progress in CLI using `-SP` option.
- Collect, parse, and view SAN configuration report for System Center Virtual Machine Manager (SCVMM) 2008 and 2012 servers. The report includes the following device features:
 - Server properties
 - VMM group information
 - Clusters information
 - Hosts information
 - * General host information
 - * Physical disks information
 - * Host adapters information
 - * Virtual machines

- VM Information
 - VM Adapters Information
- * Virtual network adapters
- Collect, parse, and view SAN configuration report for QLogic, 57800, 57810 and 57840 CNA's as part of the windows host collection. The Report includes the following device features:
 - General adapter information
 - Ports and functions information
 - DCBX information
 - * Priority group mapping
 - iSCSI targets information
- Collect, parse, and view SAN configuration report for Dell Networking 2824, 2848, 3524, 3524P, 3548, and 7024F switches.
- Support for <Company Name> in CLI collection.
- Enhancement for output messaging format.
- Collect, parse, and view the SAN configuration report for the following devices:
 - FluidFS NAS storage model FS8600
 - SFP attribute on EqualLogic Array
 - RHEL
 - Linux Hitkit
 - NIC binding order on all windows Operating System
 - Force 10 MXL 10/40/GbE switch
- Collect and parse vSphere 5.1 SAN configurations report.
- Collect and parse data from devices in SAN environment for Windows 8 Management Station and Windows 2012 Server.
- Collect, parse, and view the SAN configuration report for Cisco 5050 and 5548 FCoE models. The report includes the following device features:
 - Switch Properties
 - Modules
 - VLAN Table
 - Port channel
 - Spanning Tree
 - Policy Map
 - LLDP, LACP, and VPC
 - Zones, VSAN, and Interface for Fibre Channel
- Parse and view SAN configuration report to analyze issues for following FCoE switches:
 - PowerConnect B8000 model switches
 - Brocade 8000 models
- View SAS HBA card information in the SAN configurations report for MD-series storage connected to Windows 2012 host.
 - Collect and parse diagnostic information and logs from Windows 2012 server with or without Hyper-V enabled.
- View PowerConnect switches front port stacking information for 7000, M6348, and 8000 series in SAN configurations report.

- Collect, parse, and view the SAN configurations report for PowerConnect firmware version 4.2 and 5.0. The report includes the following device features:
 - Slot Information
 - Spanning Tree Active
 - LLDP TLV
 - LLDP Remote
- View SAN configuration report for DV Switches Information and DV Switch Port Information in the VMware Hosts section.
- View SAN Configuration report for PowerVault MD3600F, MD3620F, and MD3660F models.
- Run Lasso under Local System Context user.
- View SAN Configuration report for Brocade 300 and 5300.
- Collect, parse, and view the SAN configuration report for Data Center Bridging (DCB) information on the following switches:
 - Dell Networking
 - * PFC Information
 - * ClassOfService Traffic Class Group and dot1p-mapping
 - * Traffic Class Group
 - Brocade Ethernet
 - * Global LLDP Information
 - * CEE Maps Information
 - * Interface QoS Information
 - * Interface DCB Information
 - * Interface Media Information
 - Dell Force10
 - * PFC Summary
 - * ETS Summary
 - * Interfaces Configuration report
 - Cisco Nexus
 - * PFC Information
 - * Policy Map
 - * LLDP Information
 - * LACP Information
- Run multiple instances of Lasso CLI simultaneously.
- Stop default upload of the report in the CLI using `-nu` option.
- Collect, parse, and view Force 10 switch model S4810 with firmware version Kaveri version 8.3.12.0.
- Lasso support for the latest EMC Reports/Grabs (ESX — 1.3.1, Unix — AIX 4.5.0, HP Unix 4.5.0, Linux 4.5.0, Windows Version 41).
- View Windows HIT Kit information in SAN configuration report.
- View PS Array Group information for Windows Hit Kit in SAN configuration report.
- View firmware versions for both Chassis Management Controller cards on M1000e appliance in SAN Configuration report.
- Collect and parse Qlogic FC HBA information for Windows and Linux hosts attached to Compellent.

- Optional user name and password credentials when PowerConnect ethernet switch is configured.
- Data collection and parsing support for HITKIT for VMware.
- Encrypted password support while running Lasso in the CLI mode.
- Collect diagnostic information from the Group Lead and member, when member IP address is provided.
- Option to automatically upload the report to Dell Technical Support site.
- Support for the PS 4110 and PS 6110 devices.
- Collect and parse Host Integration Tool Kit data in the EqualLogic SAN for Windows, Linux and, vSphere hosts.
- Option to provide the Delta Service Request number and Project Manager ID and include in the XML and HTML reports.
- Parser support for the following devices:
 - EqualLogic FS7500
 - Force 10 S50/S60/S4810 switches
 - Xen server
 - PowerVault NX3500
- Solution for error 904 (Collection of EQL Details Failed) for the EqualLogic Array.
- Parser support for MaxRequestHoldtime for all the Windows hosts in EqualLogic and MD Series SAN.
- Collect and parse Broadcom NIC information when running in Host Bus Adapter (HBA) mode under the control of Broadcom Advanced Server Program (BASP) software.
- Collect NAS Appliance information from the EQL group.
- Support for firmware version 5.2, 6.0, and 7.0 on Dell EqualLogic Arrays.
- Collect and parse the attributes ROM Level and Last Boot Time from EqualLogic Array.
- Support for Array ping test between the members within an EqualLogic Group.
- Collect and parse the Qlogic iSCSI adapter information from Windows, Linux, and VMware hosts attached to Compellent.
- Collect Emulex information from Windows, Linux, and VMware hosts attached to Compellent.
- Collect and parse SAS HBA information from Windows and Linux (32-bit only) hosts attached to PowerVault MD Series and Compellent.
- Validate user input for Ethernet Switch type in the related GUI pages.
- Include Collection Date - Collection Time - Build Version attributes in the HTML report.
- Enhance user interface in compliance with Dell's lucidity usability requirement.
- Validate the PC Ethernet Switch, when configured with only user name.
- Raw data collection and parsing for the PowerConnect ethernet switches in simple and normal mode.
- Correct parsing of service tag information for all the models of EqualLogic Arrays upon v5.1 Firmware upgrade.
- Solution for error 105 (failed to retrieve completed collection from remote system) for the Windows 2008 R2 host attached to EqualLogic Array.
- Option to re-validate the devices when imported from an existing configuration.
- Use of Forced multi-threaded mode of execution for enhanced Lasso performance.
- Solution to parse EqualLogic Array if the EqualLogic IP Address last octet is single digit issue.
- Secure Site option in the Your Company Information window of the Lasso GUI to remove Customer Identification Information (CII) from XML format of the collection.
- Raw data collection and parser support for the following devices:
 - Cisco switches 3750E/3750X and 4948

- PowerConnect ethernet switches 7024/7048
- vSphere 5.0 hosts attached to EqualLogic and MD Series arrays
- Pirates 1GB - PS4100/PS6100
- Raw data collection support for Force10 (S50N/S481) Switches.
- Correct parsing of PowerConnect ethernet switches upon v4.1 Firmware upgrade.
- Display information only related to EqualLogic iSCSI volumes in vSphere iSCSI VMFS section.
- Collect and parse Hit Kit data for Linux Hosts in EqualLogic SAN.
- Include `ehcmmcli -d` command output as part of Linux collection.
- Display the applicable attributes for non-configured Ethernet ports of EqualLogic Arrays.
- Raw data collection and limited parsing for PowerVault NX3500 and EqualLogic FS7500.
- Display the iSCSI network for different subnet masks.
- Collect the applicable attributes for vSphere Hosts for all possible path selection policies.
- Parse the attributes related to Port Channel for Power Connect and Cisco Switches.
- Report the updated version for vSphere host by Lasso.
- Parse all the iSCSI virtual machine network interface cards in the vSphere environment.
- Parse and display cluster name and Is Cluster member attributes for clustered windows host.
- Support for Power Connect 7024, 8024, 8024F, M8024F, M8024-k, M6220, M6348 with version 4.1 firmware.
- Solution for the Interface Name under iSCSINode for Linux Hosts in the XML format of collection issue.

Support Matrix

This chapter lists the supported devices and operating systems for Dell Lasso.

Supported Operating Systems

The following table lists the supported operating systems.

Table 1. Supported Operating Systems

Operating System	Collection Protocol	Port Used	Latest Supported Version
Microsoft			
Windows Vista	WMI	135	-
Windows Vista SP1	WMI	135	-
Windows 7	WMI	135	-
Windows 8	WMI	135	-
Windows Server 2003 SP2	WMI	135	-
Windows Server 2003 R2 SP2	WMI	135	-
Windows Server 2008 SP2	WMI	135	-

Operating System	Collection Protocol	Port Used	Latest Supported Version
Windows Server 2008 R2 SP2	WMI	135	-
Windows Server 2012	WMI	135	-
Windows Server 2012 R2	WMI	135	-
Linux			
RedHat Enterprise Linux 7.0	SSH2	22	-
SLES 11 SP3	SSH2	22	-
Cent 6.0	SSH2	22	-
Solaris 10 - Update 8	SSH2	22	-
HP - UX	SSH2	22	-
IBM AIX	SSH2	22	-
Oracle Linux	SSH2	22	-
Oracle VM Server	SSH2	22	-
Virtualization			
Microsoft Hyper-V Server 2008 R2	WMI	135	-
Microsoft Hyper-V Server 2012 R2	WMI	135	-
Microsoft Hyper-V Server 2012	WMI	135	-
XenServer 6.0	SSH2	22	-
XenServer 6.2	SSH2	22	-
XenServer 6.5	SSH2	22	-
VMware ESX 3.5	SSH2	22	-
VMware ESX 4.0	SSH2	22	-
VMware ESXi 4.0	SSH2	22	-
VMware ESXi 4.1	SSH2	22	-
VMware ESXi 5.0	SSH2	22	-
VMware ESXi 5.1	SSH2	22	-
VMware ESXi 5.5	SSH2	22	-
VMware ESXi 5.5 U1	SSH2	22	-
VMware ESXi 5.5 U2	SSH2	22	-
VMware ESXi 6.0	SSH2	22	-

 **NOTE:**

- WMI protocol uses multiple ports along with 135 to connect to the remote system.
- For Windows 2008 (R2), if the correct account (Administrator) is not specified during collection, the registry on that remote host should be edited. Use the Windows 2008 configuration registry script, or manually add the DWORD value in LocalAccountTokenFilterPolicy and set the data to 1 in **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\system\key**, then reboot. It is recommended to use the Administrator account to prevent the modification and reboot.

 **NOTE:**

- For adequate disk space to store a copy of all event logs and other system data, see <ftp://ftp.emc.com/pub/emcgrab/Windows> directory for more information.
- **admin\$** and **c\$** share must be enabled for remote commands to execute the program embedded in Lasso.
- In case of EqualLogic and MD series SAN **.Net** framework 2.0 or later is required on the remote Windows host for the successful Windows host collection.
- Windows Server Core is not supported.

The following table lists the type of adapters used.

Table 2. Adapters

Adapter	Models
QLogic	
NIC	5708
NIC	5709
NIC	5721
NIC	5722
NIC	55711
NIC	57710
NIC	57712
CNA	57800
CNA	57810S
CNA	57840
Brocade	
CNA	BR1010
CNA	BR1020
Dell	
SAS HBA	H710
SAS HBA	H810

Adapter	Models
SAS HBA	PERC 5E
SAS HBA	PERC 6E
SAS HBA	SAS 5E
SAS HBA	SAS 6E
Emulex	
FC HBA	LPE11000
FC HBA	LPE12000
Intel	
NIC	Pro1000
NIC	X520
QLogic	
iSCSI HBA	QLA4050C
iSCSI HBA	QLA4052C
iSCSI HBA	QLE4060C
iSCSI HBA	QLA4062C
FC HBA	QLE2460, QLE2462
FC HBA	QLE2560, QLE2562
FC HBA	QME2462

Supported Enclosures

The following table lists the supported enclosures.

Table 3. Supported Enclosures

Enclosures	Collection Protocol	Port Used	Latest Supported Version
M1000e	SSH2	22	5.0
VRTX	SSH2	22	2.0
FX2	SSH2	22	1.20

Supported Management and Monitoring Software

The following table lists the supported management and monitoring software.

Table 4. Supported Management and Monitoring Software

Management and Monitoring Software	Collection Protocol	Port Used	Latest Supported Version
Dell			
SANHQ	WMI	135	3.02

Management and Monitoring Software	Collection Protocol	Port Used	Latest Supported Version
VMware			
HIT KIT for VMware	SSH2	22	3.1
vCenter	HTTPS	443/9443	9.5
Microsoft			
SCVMM 2008 R2	WMI	135	2.0
SCVMM 2012 SP1	WMI	135	3.1

 **NOTE:** WMI protocol uses multiple ports along with 135 to connect to the remote system.

Supported Switches

The following table lists the supported switches.

Table 5. Supported Switches

Switches	Models	Collection Protocol	Port Used	Latest Supported Version
Dell Networking				
	N4032F	SSH2/Telnet	22/23	6.0 and above
	N2024, N2024P, N2048, and N2048P	SSH2/Telnet	22/23	6.0 and above
Dell Networking	N3024, N3024P, N3024F, N3048, and N3048P	SSH2/Telnet	22/23	6.0 and above
	Z9000	SSH2/Telnet	22/23	9.5 and above
	Z9500	SSH2/Telnet	22/23	9.5
	MXL 10/40GB2	SSH2/Telnet	22/23	9.4 and above
Dell PowerConnect				
	2848, 2824, and 2816	SSH2/Telnet	22/23	2.0
	3524, 3524P, and 3548	SSH2/Telnet	22/23	2.0
	5424, 5448	SSH2/Telnet	22/23	2.0
PowerConnect	5524, 5548	SSH2/Telnet	22/23	4.1
	6224, 6248	SSH2/Telnet	22/23	3.3
	7024, 7048, and 7024F	SSH2/Telnet	22/23	5.1
	8024, 8024F	SSH2/Telnet	22/23	5.1

Switches	Models	Collection Protocol	Port Used	Latest Supported Version
	8132, 8164F	SSH2/Telnet	22/23	6.0
Dell Blade Series				
	M6220	SSH2/Telnet	22/23	5.1
	M6348	SSH2/Telnet	22/23	5.1
PowerConnect	M8024	SSH2/Telnet	22/23	5.1
	M8024-K	SSH2/Telnet	22/23	5.1
	M8428-K	SSH2/Telnet	22/23	6.4
Dell Wireless Controllers Mobility Series				
	W-6000	SSH2/Telnet, and SNMPv2	22/23, 161	6.3
	W-620	SSH2/Telnet, and SNMPv2	22/23, 161	6.3
	W-650	SSH2/Telnet, and SNMPv2	22/23, 161	6.3
	W-651	SSH2/Telnet, and SNMPv2	22/23, 161	6.3
PowerConnect	W-3200	SSH2/Telnet, and SNMPv2	22/23, 161	6.3
	W-3400	SSH2/Telnet, and SNMPv2	22/23, 161	6.3
	W-7210, W-7220, and W-7240	SSH2/Telnet, and SNMPv2	22/23, 161	6.3
	W-3600	SSH2/Telnet, and SNMPv2	22/23, 161	6.3
Dell Force10				
	C150	SSH2/Telnet	22/23	8.4
	C300	SSH2/Telnet	22/23	8.4
	S25N, S25P	SSH2/Telnet	22/23	8.3
	S50	SSH2/Telnet	22/23	8.3
	S55	SSH2/Telnet	22/23	8.3
Force10	S60	SSH2/Telnet	22/23	8.3
	S4810, S4820T	SSH2/Telnet	22/23	9.5 and above
	S5000	SSH2/Telnet	22/23	9.5 and above
	S6000	SSH2/Telnet	22/23	9.5 and above
	Z9000	SSH2/Telnet	22/23	9.5 and above

Switches	Models	Collection Protocol	Port Used	Latest Supported Version
	Z9500	SSH2/Telnet	22/23	9.5 and above
Dell Force10 (Blade)				
Force10	MXL 10/40GB2	SSH2/Telnet	22/23	9.6
Dell Force10 (Core Switch)				
	E300	SSH2/Telnet	22/23	8.4
Force10	E1200i ExaScale	SSH2/Telnet	22/23	8.4
	E600i ExaScale	SSH2/Telnet	22/23	8.4
	E600 TeraScale	SSH2/Telnet	22/23	8.4
Brocade				
	B8000	SSH2/Telnet	22/23	7.0
	M5424	SSH2/Telnet	22/23	7.0
	300	SSH2/Telnet	22/23	7.0
	5100	SSH2/Telnet	22/23	7.0
	5424	SSH2/Telnet	22/23	7.0
	6505	SSH2/Telnet	22/23	7.0
	6520	SSH2/Telnet	22/23	7.0
SilkWorm	4424	SSH2/Telnet	22/23	5.3
	200E	SSH2/Telnet	22/23	6.2
McData Blade	4416	SSH2/Telnet	22/23	5.2
Cisco Catalyst				
	2960	SSH2/Telnet	22/23	-
Catalyst	3750G	SSH2/Telnet	22/23	-
	3750E	SSH2/Telnet	22/23	12.2
	4948	SSH2/Telnet	22/23	-
Cisco Nexus				
	5010	SSH2/Telnet	22/23	7.0
Nexus	5020	SSH2/Telnet	22/23	7.0
	5548	SSH2/Telnet	22/23	7.0
	7xxx series	SSH2/Telnet	22/23	7.0
Cisco MD S				
MDS	9124	SSH2/Telnet	22/23	3.2

Supported Storage Devices

The following table lists the supported storage devices.

Table 6. Supported Storage Devices

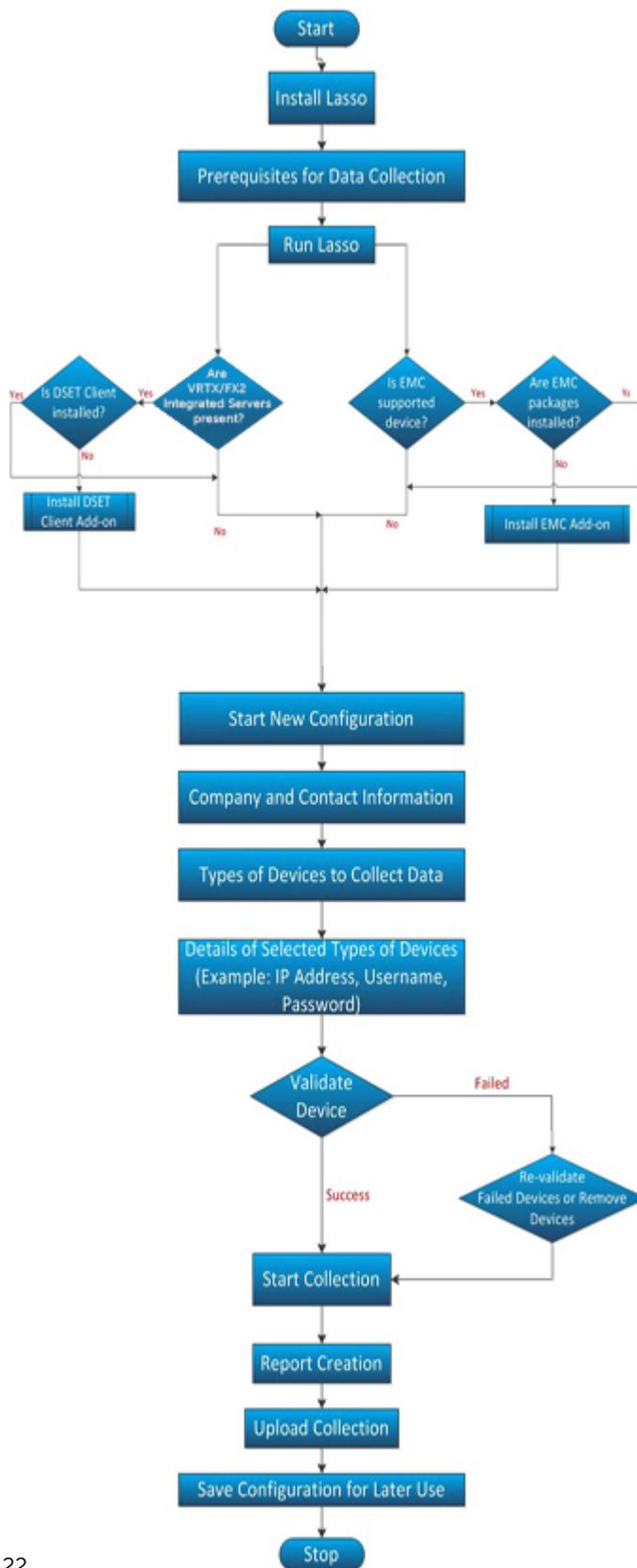
Storage Arrays	Models	Collection Protocol	Port Used	Latest Supported Version
Dell				
	PS4000	SNMPv2, SSH2/ Telnet, and FTP	161, 22/23, and 21	8.0
	PS4100	SNMPv2, SSH2/ Telnet, and FTP	161, 22/23, and 21	8.0
	PS4110	SNMPv2, SSH2/ Telnet, and FTP	161, 22/23, and 21	8.0
	PSM4110	SNMPv2, SSH2/ Telnet, and FTP	161, 22/23, and 21	8.0
	PS4210	SNMPv2, SSH2/ Telnet, and FTP	161, 22/23, and 21	8.0
EqualLogic	PS6000	SNMPv2, SSH2/ Telnet, and FTP	161, 22/23, and 21	8.0
	PS6100	SNMPv2, SSH2/ Telnet, and FTP	161, 22/23, and 21	8.0
	PS6110	SNMPv2, SSH2/ Telnet, and FTP	161, 22/23, and 21	8.0
	PS6210	SNMPv2, SSH2/ Telnet, and FTP	161, 22/23, and 21	8.0
	PS65X0	SNMPv2, SSH2/ Telnet, and FTP	161, 22/23, and 21	8.0
	MD3600f	SMCLI Utility	-	07.80.41.60
	MD3000i	SMCLI Utility	-	07.80.41.60
	MD3200i	SMCLI Utility	-	07.80.41.60
	MD3220i	SMCLI Utility	-	07.80.41.60
	MD3600i	SMCLI Utility	-	07.80.41.60
PowerVault	MD3400 / MD3420	SMCLI Utility	-	8.10.05.60
	MD3800 / MD3820I	SMCLI Utility	-	8.10.05.60
	MD3860I / MD3860F	SMCLI Utility	-	8.10.05.60
	MD3800F / MD3820F	SMCLI Utility	-	8.10.05.60

Storage Arrays	Models	Collection Protocol	Port Used	Latest Supported Version
Compellent	SCv2000 Controller	REST/SOAP	443	6.6.x
	SC4000 Controller	REST/SOAP	443	6.5.x
	SC8000 Controller	REST/SOAP	443	6.5.x
	Dell Compellent Series 30	REST/SOAP	443	6.5.x
	Dell Compellent Series 40	REST/SOAP	443	6.5.x
Dell - NAS				
Compellent NAS	FS8600	SSH2, FTP	22, 44421	1.0 to 3.0
	FS7500	SSH2, FTP	22, 44421	1.0 to 3.0
EqualLogic NAS	FS7600	SSH2, FTP	22, 44421	1.0 to 3.0
	FS7610	SSH2, FTP	22, 44421	1.0 to 3.0
PowerVault NAS	NX3500	SSH2, FTP	22, 44421	1.0 to 3.0
	NX3600	SSH2, FTP	22, 44421	1.0 to 3.0
	NX3610	SSH2, FTP	22, 44421	1.0 to 3.0
EMC				
CLARiiON	CX3-10	NaviSphere CLI Utility	-	-
	CX3-20	NaviSphere CLI Utility	-	-
	CX3-40	NaviSphere CLI Utility	-	-
	CX3-80	NaviSphere CLI Utility	-	-
	CX4-120	NaviSphere CLI Utility	-	-
	CX4-240	NaviSphere CLI Utility	-	-
	CX4-480	NaviSphere CLI Utility	-	-
	CX4-960	NaviSphere CLI Utility	-	-
Celerra Storage devices (NAS)	NX4	SSH2	22	-
	NS 120	SSH2	22	-
	NS 240	SSH2	22	-

Storage Arrays	Models	Collection Protocol	Port Used	Latest Supported Version
	NS 480	SSH2	22	-

Work Flow

The following figure provides the steps to run Lasso, create and upload the report to Dell Technical Support site, and save the configuration for later use.



See Also:

- [Welcome To Lasso](#)
- [Your Company Information](#)
- [Your Company Contacts](#)
- [Your Hardware Environment](#)
- [Storage Arrays](#)
- [Fibre Channel Switches](#)
- [Ethernet Switches](#)
- [Tape Libraries](#)
- [Attached Hosts](#)
- [Enclosures](#)
- [Management and Monitoring Software](#)
- [Wireless Controllers](#)
- [Device Collection](#)
- [Upload Collection](#)
- [Confirmation](#)

Contacting Dell

 **NOTE:** If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Go to **dell.com/support**.
2. Select your support category.
3. Verify your country or region in the **Choose a Country/Region** drop-down list at the bottom of the page.
4. Select the appropriate service or support link based on your need.

Installing And Uninstalling Lasso

This section provides information to install, modify, repair, and uninstall Lasso. Lasso can be installed using GUI or CLI mode.

Prerequisites

Before installing Lasso, make sure that the following prerequisites are met:

- The user account has Administrator privileges.
- The system has any of the following Windows (32 bit or 64 bit) operating system:
 - Windows Vista
 - Windows 7
 - Windows 8
 - Windows Server 2003
 - Windows Server 2003 R2
 - Windows Server 2008
 - Windows Server 2008 R2
 - Windows Server 2012
 - Windows Server 2012 R2

 **NOTE:** Windows Server Core is not supported.

Installing Lasso

You can install Lasso:

- [Using GUI](#)
- [Using CLI](#)

Installing Lasso Using GUI

To install Lasso:

1. Double click the **.msi** file.
The **Welcome to the Dell Lasso Installation Wizard** is displayed.
2. Click **Next**.
If you already have an earlier version of Lasso, then the message "A previous version of Lasso was detected on your system. Continuing the installation will upgrade Lasso <current version> to Lasso <latest version>."

Upgrading to the latest version of Lasso provides several benefits.

Would you like to proceed with the upgrade?" window is displayed.

Click **Upgrade** to upgrade to the latest version. Else, click **Cancel** to exit installation.

The *Dell Software License Agreement* is displayed.

3. Click **I accept the license agreement** and click **Next**.

The *Readme* information is displayed.

4. Click **Next**.

The **Destination Folder** window is displayed.

5. Click **Next** to accept the default directory path or click **Browse** to specify another location, and click **Next**.

The **Security Level** window is displayed.

6. Select one of the following options and click **Next**:

- **Save Environment, Username, and Password** — Saves all SAN configuration details, user name, and password. It is recommended to use this option to run Lasso multiple times and avoid re-entering configuration and security details.
- **Save Environment and Username only** — Saves all SAN configuration details and the user name. The password is not saved.
- **Save Environment only** — Saves all SAN configuration details. The user name and password is not saved. Select this option to skip saving any security related details.
- **Do not save any information** — Does not save any configuration details of the environment, user name, and password. Select this option to save configuration and security details, or if the location from where you run Lasso does not allow saving any details.

The **Prerequisites** window is displayed. The window provides the list of prerequisites that must be met to enable Lasso to collect the data after installation is complete.

7. Click **Next**.

The **Ready to Install the Application** window is displayed.

8. Click **Next** to continue with the installation.

The **Lasso has been successfully installed** window is displayed.

9. Click **Finish** to close the installation wizard.

Installing Lasso Using CLI

To install or upgrade, at the command prompt, set the directory to **LassoMSIPath** and run the command:
`msiexec /qn /i <LassoMSIName>/log install.txt`

The installation messages are logged in the **install.txt** file.

 **NOTE:** If `msiexec` is not recognized as an internal or external command, include **%SystemDrive%:\Windows\System32** (x86 bit operating system) or **%SystemDrive%\Windows\SysWOW64** (x64 bit operating system) to the path variable.

Modifying Lasso Installation

After installing Lasso, you can modify the components that are installed.

To modify the components:

1. Double-click on the **.msi** file.
The **Application Maintenance** window is displayed.
2. Select **Modify** and click **Next**.
The **Ready to Modify the Application** window is displayed.
3. Click **Next**.
The **Updating System** window is displayed.
4. Click **Finish** to exit Lasso.

Repairing Lasso Installation

You can also reinstall the corrupt files, registry keys, and shortcuts to the Lasso application.

To repair Lasso:

1. Double-click the **.msi** file.
The **Application Maintenance** window is displayed.
2. Select **Repair** and click **Next**.
The **Ready to Repair the Application** window is displayed.
3. Click **Next**.
The **Updating System** window is displayed.
4. Click **Finish** to exit Lasso.

Uninstalling Lasso

Lasso can be uninstalled using the GUI or the CLI option.

See also:

- [Using GUI](#)
- [Using CLI](#)

Using GUI

To uninstall Lasso using the GUI, use one of the following options:

- [Start Menu](#)
- [Windows Add Or Remove Programs Wizard](#)

From Start Menu

To uninstall Lasso from the **Start** Menu:

1. Click **Start** → **Programs (or All Programs)** → **Dell** → **Lasso** → **Uninstall**.
The **Are you sure you want to uninstall this product** prompt is displayed.
2. Click **Yes** to uninstall Lasso.

From Windows Add Or Remove Programs Wizard

To uninstall Lasso from the Windows Add or Remove Programs wizard on Windows operating systems:

1. Click **Start** → **Control Panel** → **Add or Remove Programs**.
 **NOTE:** This option differs based on the operating system.
2. Select **Dell Lasso** and click **Remove**.
3. On the **Are you sure you want to uninstall Dell Lasso?** prompt, click **Yes** to uninstall **Dell Lasso**.

From the Application Maintenance Window

To uninstall Lasso from the **Application Maintenance** window:

1. Double-click the installed **.msi** file.
The **Application Maintenance** window is displayed.
2. Select the **Remove** option and click **Next**.
The **Lasso Uninstall** window is displayed.
3. Click **Next**.
The **Updating System** window is displayed.
4. Click **Finish** on the **Lasso has been successfully uninstalled** window.

Using CLI

To uninstall, run the command prompt as an administrator:

Using product code:

```
<LassoInstallDirectory>\UninstallLasso.cmd No {5C1F9065-A5EC-43FA-8F86-C5B7F343E1B1} /log uninstall.txt
```

-  **NOTE:** Make sure to run the file outside the lasso installation directory.

Security

Lasso is designed to automate data collections from remote systems and depends on network access to these systems.

You can run Lasso from a local system that is on the same subnet as the target remote systems.

For the successful remote data collection, make sure that there are no firewalls, group policies, security enhanced Linux policies, or other security issues.

Passwords

To execute scripts for data collection from remote systems, administrator rights are required to login to remote systems.

On local systems, during installation select the **Save Environment, Username, and Password** options to store the password in an encrypted vault.

You can either create a new user ID dedicated for Lasso collection or change the password for the current collection. The user id can be disabled or deleted after running Lasso.

Network Ports

Lasso requires network ports to execute the scripts for data collection.

The following table describes the scripts and the corresponding network ports:

Scripts	Network Port
UNIX/VMware collections	SSH (Port 22)
Switch collections	SSH (Port 22) and Telnet (Port 23)
Tape collections	SSH (Port 22) and Telnet (Port 23)
StorageProcessor collections	Navisphere CLI (emc112310 lists ports 6389 and 80/443 or 2162/2163)

 **CAUTION: If the connection is denied, the storage processor collection cannot be performed.**

Scripts	Network Port
Compellent	Web Service (Port 443)
EqualLogic collection	SNMP default port 161 (SNMP messages) and port 162 (SNMP traps)
Windows Collection	WMI (Port 135)
EqualLogic FluidFS NAS collection	SSH (Port 22), FTP (Port 44421)
PowerVault FluidFS NAS Collection	SSH (Port 22), FTP (Port 44421)
Compellent FluidFS NAS Collection	SSH (Port 22), FTP (Port 44421)

 **NOTE:** When retrieving the completed collection from the Storage Processor (SP) on Windows 2003, Windows 2008, and Windows Vista, the firewalls display the prompt to allow this connection.

 **NOTE:** From EqualLogic array, SNMP should be enabled with public access for inventory collection.

For more information on Windows Port usage, see Microsoft support site.

Using Lasso

Lasso compiles information for all the devices in the SAN. It also includes company and site contact information. You can save this information as a configuration file (.xml format) for later use. Lasso collects data for the selected devices and generates a report that can be uploaded to Dell Technical Support site.

This section provides information to use Lasso to collect data from the various storage devices in your SAN.

Prerequisites For Data Collection

Before using Lasso to collect data, make sure that the following prerequisites are met:

- IP connectivity is available for the required devices.
- For data collection in XML and HTML format, Lasso requires .Net Framework 2.0 or later.
- For MD series, .Net framework 2.0 or later should be installed on the remote Windows host.
- For a Compellent SAN, the SAN Surfer CLI (FC) should be installed on the remote Windows, Linux, and VMware hosts to successfully collect Qlogic FC HBA information.
- For ESX/ESXi, the normal or sudo user should have PasswordAuthentication or Keyboard interactive authentication enabled.
- For ESX/ESXi, the root user should have permitrootlogin enabled and the PasswordAuthentication or Keyboard interactive authentication should be enabled.
- For PowerVault MD Series devices, Lasso should be run as an Administrator.
- For PowerVault MD Series devices, MD Storage Manager software should be installed in the system running Lasso.
- For Compellent SAN, the HBAnyware CLI should be installed on the remote Windows, Linux, and VMware host to successfully collect Emulex FC HBA collection.

 **NOTE:** Lasso should be installed on a Windows system that has IP connectivity to all the devices in the SAN environment.

- For data collection from Compellent devices, before running the Lasso, perform the following:

 **NOTE:** The following steps are applicable only for SCOS versions prior to 6.6.x.

- a. Browse to **C:\Program Files (x86)\Dell\Lasso**.
 - b. Open the file **Compellent.properties** and update the System.IPAddress entry with the IP address of the server on which Lasso is installed. For example, System.IPAddress = 10.95.32.25.
 - c. Save and close the file.
- For SAN HQ, Dell EqualLogic SAN headquarters server version should be installed on the windows host on which the SAN HQ collection needs to be performed.
 - For PowerConnect Controller, make sure the following ports are enabled and they are accessible on the controller:
 - SSH: Port 22.

- Telnet: Port 23.
- SNMP: Port 161. To enable SNMP, in a browser, enter the <Controller IP Address> to connect to the controller. In the **Mobility Controller** page, go to **Configuration** → **SNMP** and add the SNMP community string.

 **NOTE:** The community string is case- sensitive.

- For System Center Virtual Machine Manager (SCVMM), powershell must be enabled in target Windows VMM host.
- For Broadcom 57810 CNA collection, Broadcom Advanced Server Program (BASP) Broadcom Advanced Control Suite (BACS) management application must be installed on the remote windows host.

 **NOTE:** For Brocade collection, Brocade Command Line Utility (BCU) must be installed on the remote windows host.

- For PowerEdge VRTX and PowerEdge FX2 to collect the integrated server information, Lasso should be run as an administrator.
- For the integrated servers, to run the collection, the DSET plug-in is downloaded from the Lasso home screen.
- For FluidFS 7500, 7600, and 7610 make sure that FTP is enabled and you need to provide the CLI credential information for FluidFS NAS version 3.0 collection or validation.
- For importing data from the excel sheet, use the `Sample_DeviceConfig_Data.xlsx` file from **C:\Program Files (x86)\Dell\Lasso**.
- Lasso MS should have connectivity to remote Dell FTP site (ftp.dell.com) directly or using proxy.
- On SD card, when ESXi is installed, to run the collection successfully, 60 MB to 100 MB free space is required in the `/tmp` folder of the host.

Running Lasso

You can run Lasso in the following modes:

- GUI
 - [Start a new configuration](#)
 - [Use an existing configuration](#)
 - [Load the configuration file](#)
 - [Import Device Configuration File](#)
 - [Upload an existing collection](#)
- CLI
 - [Single Device Collection](#)

Starting New Configuration

Use this option to create a new configuration and generate a report.

To collect data using GUI:

1. Click **Start** → **Programs (or All Programs)** → **Dell** → **Lasso** and click **Lasso**.
The **Welcome to Lasso** window is displayed.
2. Select **Start with a new configuration** and click **Continue**.
The **Your Company Information** window is displayed.
3. Select **Enable Report Filtering** to exclude Customer Identification Information (CII) in the report. Click **Yes** in the confirmation message displayed to exclude the information. Else, click **No**.

Click **Learn More** link to display the window with the information about the data that is filtered. The data that is filtered are:

- Network configuration information such as IP address, Gateway, Subnet Mask, and Domain.
- Host identification information such as host names.
- iSCSI configuration information such as Volume Names and IQN names.

Click **Close** to close the window.

Enter the required information in the **Company Information** and **Dell Technical Support Information** section and click **Continue**.

The **Your Company Contacts** window is displayed.

4. Enter the required information and click **Continue**.

The **Your Hardware Environment** window is displayed.

5. Select the devices (one or multiple devices depending on your requirement and SAN) for which Lasso must collect data and click **Continue**.

The device-specific **Your Hardware Environment** windows are displayed.

6. For each device, enter the required information. Click **Continue** until you complete providing information for each selected device.

The **Device Collection** window is displayed.

7. Make sure that the displayed devices are the selected devices for which data must be collected and click **Start Collection**.

The status bar displays the collection status.

8. Click the Clock icon next to each device to view the progress.

9. Click **Continue** once collection is complete.

The collected data is packaged and the **Your Upload Options** window is displayed.

10. You can select the following and click **Continue**.

- To access the collected data file, click **Open Location**. By default, it is saved in the user profile directory. For example, `c:\Users\<username>\Dell\Lasso\results\`. For information on the collected files, see [Generated File Formats](#).
- To immediately upload the collection package to Dell, select **Yes**. Else, select **No**.
- To save the configuration details with a password for later use, select **Yes**. Else, select **No**.

Following actions are performed based on the selection:

- If you have selected **Yes** to upload the report, the collection uploads to Dell Technical Support site.
- If you have selected **No**, the **Save Lasso Configuration** dialog box is displayed. Click **Browse** and save the file in the required location with the password.

The **Confirmation** window is displayed.

11. To see the SAN configuration, select **View Your SAN Configuration** and click **Finish**.

Lasso tool is closed and the report is opened in the internet browser.

Related Links:

- [Welcome To Lasso](#)
- [Your Company Information](#)
- [Your Company Contacts](#)

- [Your Hardware Environment](#)
- [Storage Arrays](#)
- [Fibre Channel Switches](#)
- [Ethernet Switches](#)
- [Tape Libraries](#)
- [Attached Hosts](#)
- [Enclosures](#)
- [Management and Monitoring Software](#)
- [Wireless Controllers](#)
- [Device Collection](#)
- [Upload Collection](#)
- [Confirmation](#)

 **NOTE:** Lasso does not support Tape Libraries in this release.

Use Existing Configuration

Before using this option, make sure that a configuration is saved in the Lasso installation directory.

 **NOTE:** Loading configuration files from Lasso 3.8 and earlier may result in loss of some device authentication information.

To use an existing configuration:

1. Click **Start** → **Programs (or All Programs)** → **Dell** → **Lasso** and click **Lasso**.
The **Welcome to Lasso** window is displayed.
2. Select **Use an existing configuration**.
A drop-down box with the available configurations is displayed.
3. Click **Continue**
A message requesting for password is displayed. Enter the password.

The **Your Company Information** window is displayed.
4. Edit the existing information or add new information. Perform the steps from 4 to step 11 mentioned in the [Starting New Configuration](#) section.

Loading Configuration File

Use this option if the configuration file is located in a directory other than the Lasso user profile directory.

 **NOTE:** Loading configuration files from Lasso 3.8 and earlier may result in loss of some device authentication information.

To load an existing configuration:

1. Click **Start** → **Programs (or All Programs)** → **Dell** → **Lasso** and click **Lasso**.
The **Welcome to Lasso** window is displayed.
2. Select **Load a configuration file** and click **Browse**. Specify the file and click **Continue**.
A dialog box displays indicating that background validation is in progress.

The **Your Company Information** window is displayed.

3. Edit the information or add new information. Perform the steps from 4 to step 11 mentioned in the **Starting New Configuration** section.

Import Device Configuration File

To import a device configuration file:

1. Click **View Sample Data**.
Sample_DeviceConfig_Data1.xlsx excel sheet is displayed
2. Enter the following details:
 - **IP/Hostname** – Enter the IP address or hostname of the device.
 - **Domain** – Enter the domain information (optional).
 - **Username** – Enter the user name.
 - **Password** – Enter the password.
 - **Enable/Root Password** – Enter the password (optional).
 - **Community String** – Enter the community string (optional).
 - **Device Type** – Enter the device type.
 - **Device Model** – Enter the device model (optional).
 - **Storage Type** – Enter the storage array type (optional).
3. Save the excel sheet.
4. Click **Browse**, browse through for the excel sheet, select the excel sheet, and then click **Open**.
5. Click **Continue**.
File imported successfully message is displayed.
6. Click **OK** when the confirmation message is displayed.
Your Company Information page is displayed.

Upload Existing Collection

To upload an existing configuration:

1. Click **Start** → **Programs (or All Programs)** → **Dell** → **Lasso** and click **Lasso**.
The **Welcome to Lasso** window is displayed.
2. Select **Upload an existing collection**.
3. Select from the following geographical location:
 - **Europe, Middle East, or Asia**
 - **All Other Countries**
4. Select the **Upload full collection** option to upload the collection to Dell Technical Support site. Click **Browse** to select the report to be uploaded.
For more information on the report formats, see [Generated File Formats](#).
5. Select **Authenticated Proxy** option to upload the report using proxy.
Enter the following details:
 - **IP/Hostname** – Enter the IP address or hostname of the proxy server (optional).
 - **Port** – Enter the port number. Default port is 80.
 - **Username** – Enter the user name (optional).
 - **Password** – Enter the password (optional).



NOTE: IP/Hostname information is mandatory, if the port used is other than the default.

6. Click **Continue**.
A message is displayed indicating that uploading to Dell is in-progress.
7. Click **Finish** when the confirmation message is displayed to close the tool.

Lasso GUI — Fields And Descriptions

This section provides information about the fields that are available in the Lasso Graphical User Interface (GUI) windows:

- [Welcome To Lasso](#)
- [Your Company Information](#)
- [Your Company Contacts](#)
- [Your Hardware Environment](#)
- [Storage Arrays](#)
- [Fibre Channel Switches](#)
- [Ethernet Switches](#)
- [Tape Libraries](#)
- [Attached Hosts](#)
- [Enclosures](#)
- [Management and Monitoring Software](#)
- [Wireless Controllers](#)
- [Device Collection](#)
- [Upload Collection](#)
- [Confirmation](#)

 **NOTE:** Lasso does not support Tape Libraries in this release.

Welcome to Lasso

Use Lasso to collect configuration and diagnostics data for the storage devices in the SAN and upload the report to Dell Technical Support site.

Select one of the following options and click **Continue**.

Field	Description
Start with a new configuration	Select this option to start with a new configuration. Before saving the configuration, if you navigate back to select this option, then the configuration is lost.
Use an existing configuration	Select this option to use the configuration file saved in the Lasso installation directory. From the drop-down menu, select the required configuration file.
Load a configuration file	Select this option to use the configuration file saved in a location other than the Lasso user profile directory. Click Browse to load the configuration file.

Field	Description
Import device configuration file	 NOTE: If the configuration file has array attached Windows-based hosts, a background validation process is automatically run for a few seconds using the host credentials that is locally cached.
Upload an existing collection	<p>Select this option to import the devices and credential information from Microsoft Excel.</p> <p>Select this option to upload the collected information from the SAN to Dell Technical Support.</p> <p>Select your geographic location from the following options:</p> <ul style="list-style-type: none"> • Europe, Middle East, or Asia • All Other Countries <p>Select Upload full collection option to upload the collection to Dell Technical Support site. Click Browse to select the report to be uploaded.</p> <p>Select Authenticated Proxy option to upload the collection using proxy. Specify the following proxy details:</p> <ul style="list-style-type: none"> • IP/ hostname • Port number • Username • Password <p> NOTE: IP/Hostname is mandatory, if the port used is other than default.</p>

Your Company Information

In this page, provide your company information, Dell Technical Support information, and click **Continue**.

 **NOTE:** Fields with an asterisk are mandatory.

Select the **Enable Report Filtering** option to exclude Customer Identification Information (CII) from the report.

 **NOTE:** If this option is selected, only **Company Name** is mandatory.

It is recommended to not select the Enable Report Filtering option, if the Lasso collection is performed for technical support or proactive maintenance support.

Click the **Learn More** link to display the list of sensitive data that is filtered.

Company Information

Field	Description
Company Name	Enter your company information.
Installation Address	Enter SAN location address.
City	Enter the name of the city where the company is located.
Postal Code	Enter the postal code of the city where the company is located.
Region	From the drop-down menu, select one of the following regions: <ul style="list-style-type: none">• North America• EMEA• APJ• Latin America
Country	From the drop-down menu, select the country where the company is located.
Sub Region/State	Enter the sub-region or state where the company is located.

Dell Technical Support Information

Field	Description
Dell Technical Support Case Number	Enter service request number. This is optional
Dell Support Contact	Enter Dell support contact email ID. This is optional.

Click **Previous** to display the **Welcome to Lasso** page.

Your Company Contacts

In this page, provide the company contact details, edit the contact details, and click **Continue**.

 **NOTE:** Fields with an asterisk are mandatory.

Your Company Contacts

To edit the information of the company contact, click **Edit** available next to the contact. Update the required fields and click **Update Contact** to save the updates. Else, click **Cancel**.

To remove a contact, click **Delete** available next to the contact. Click **Yes** in the "Do you wish to delete the Customer Contact information for <contact name>?" to remove. Else, click **No**.

Edit Contact Information

Field	Description
Name	Enter the company contact name.
Title	Enter the designation of the contact.
Email Address	Enter the E-mail address of the contact.
Primary Phone Number	Enter the primary phone number of the contact. Select the type of phone number entered from the drop down list.
Secondary Phone Number	Enter the secondary phone number of the contact. Select the type of phone number entered from the drop down list.

Click **Save New Contact** to save the entered information. Else, click **Cancel**. The saved contact is displayed in the **Your Company Contacts** section.

Click **Previous** to display the **Your Company Information** page.

Your Hardware Environment

In this page, select the type of devices in your SAN environment for Lasso to collect the data and click **Continue**.

Field	Description
Storage Arrays	Select this option to collect data for the storage arrays.
Fibre Channel Switches	Select this option to collect data for the fibre channel switches.
Ethernet & FCoE Switches	Select this option to collect data for the ethernet and FCoE switches.
Tape Libraries	Select this option to collect data for the tape libraries.
Attached Hosts	Select this option to collect data for the attached hosts.
Enclosures	Select this option to collect data for the enclosure(s).
Management & Monitoring Software	Select this option to collect data for the management and monitoring software.
Wireless Controllers	Select this option to collect data for the wireless controllers.

 **NOTE:** Lasso does not support Tape Libraries in this release.

To collect more details, the required device page is displayed for each selected device.

If previous configuration of Lasso is used and you want to add a specific device, then select the required device option. If you remove an already selected device, then "The option you have selected will result in all <type of devices> being removed from the configuration. Do you wish to continue?" message is displayed. Click **Yes** to remove the device. Else, click **No**.

Click **Previous** to display the **Your Company Contacts** page.

Your Hardware Environment: Storage Arrays

In this page, select the type of storage array(s) in your SAN environment, enter the details, and click **Continue**.

Storage Arrays in your environment

Clicking the  image next to the Storage Array provides the validation status. If validation is successful,  image is displayed. Else,  image is displayed.

To edit the selected storage array, click **Edit** available next to the Storage Array. Update the required fields and click **Update Storage Array** to save the updates. Else, click **Cancel**.

To delete a Storage Array, click **Delete** available next to the array.

To verify the storage array(s) from the existing user configuration, select the required storage array(s) and click **Revalidate Selected Storage Arrays**.

Add/Modify Storage Array information

To add or modify the storage array, select the type of storage from the drop down list and enter information in the required fields. Click **Save New Storage Array** to save. Else, click **Cancel**. The saved array(s) is displayed in the **Storage Arrays in your environment** section and the validation starts for the saved array.

Field	Description
Type of Storage Array (Optional)	Select from the following type of Storage Array(s): <ul style="list-style-type: none"> • Celerra • Compellent • Compellent FluidFS NAS • CLARiiON • EqualLogic • EQL FluidFS NAS • MD Series • PV FluidFS NAS
Celerra	Enter the details for the following fields: <ul style="list-style-type: none"> • CS IP/Hostname • Username • Password
Compellent	Enter the details for the following fields:

Field	Description
Compellent FluidFS NAS	<ul style="list-style-type: none"> • IP/Hostname • Username • Password <p>Enter the details for the following fields:</p> <ul style="list-style-type: none"> • Management IP • Username • Password
CLARiiON	<p>Enter the details for the following fields:</p> <ul style="list-style-type: none"> • SPA IP/Hostname • SPB IP/Hostname • Username • Password • Discover Array Attached Hosts- This option is selected by default. If the Attached Hosts device is selected in the Your Hardware Environment page. When this option is selected and if the user credentials match with the discovered Windows host, then the login credentials of the host is not required. Lasso automatically validates the credentials.
EqualLogic	<p>Enter the details for the following fields:</p> <ul style="list-style-type: none"> • Group/Mgmt IP • Community String • Username • Password • Gather Diagnostic Data – Select this option to gather diagnostic data. If this option is selected, then login credentials are required.
EQL FluidFS NAS	<p>Enter the details for the following fields:</p> <ul style="list-style-type: none"> • Management IP • Username • Password
MD Series	<p>Enter the details for the following fields:</p> <ul style="list-style-type: none"> • RAID Ctrl Mgmt 0 IP • RAID Ctrl Mgmt 1 IP
PV FluidFS NAS	<p>Enter the details for the following fields:</p> <ul style="list-style-type: none"> • Management IP • Username • Password

Field	Description
Save as the default Username & Password for additional arrays	Select this option to save the user name and password authentication information as default for the included arrays.  NOTE: This option is disabled when MD Series type is selected.
Use this as the default storage array type	Select this option for the selected storage array to be the default type.

Click **Previous** to display the **Your Hardware Environment** page.

To display **Celerra** and **CLARiiON** in Select from the following type of Storage Array(s) do the following:

Downloading and Displaying Celerra and CLARiiON Storage Arrays

To download and display Celerra and CLARiiON storage arrays, do the following:

1. Click **Start** → **Programs (or All Programs)** → **Dell** → **Lasso** and click **Lasso**.
The **Welcome to Lasso** window is displayed.
2. Click **Add-ons**.
Wait for the catalog to download from the Dell ftp site.
If there is any issue in downloading, check for the proxy settings, and then retry download.
3. Select **EMC Plugin** and click **Download**.

Once the download is success, click  to close.

Your Hardware Environment: Fibre Channel Switches

In this page, select the type of fiber channel switch(es) in your SAN environment, enter the details, and click **Continue**.

Switches in your environment

Clicking the  image next to the switch provides the validation status. If validation is successful,  image is displayed. Else,  image is displayed.

To edit the selected Fibre Channel Switch, click **Edit** available next to the switch. Update the required fields and click **Update Switch** to save the updates. Else, click **Cancel**.

To delete a Fibre Channel Switch, click **Delete** available next to the switch(es).

To verify the Fibre Channel Switch(es) from the existing user configuration, select the required switch(es) and click **Revalidate Selected Fibre Channel Switches**.

Add/Modify Switch Information

To add or modify the switch information, select the type of switch from the drop down list and enter the data in the required fields. Click **Save New Switch** to save, display the information in the **Switches in your environment** section, and start validation of the switch. Else, click **Cancel**.

Field	Description
Type of Switch	Select from the following type of switch(es): <ul style="list-style-type: none"> • Brocade • Cisco • McData • McDataBlade
IP/Hostname	Enter the IP address or host name of the selected type of switch.
Username	Enter the user name .
Password	Enter the password .
Use this as the default switch type	Select this option to make the selected type of switch as the default.
Save as the default Username & Password for additional switches	Select this option to save the user name and password authentication information as default for all the switches of the same type.

Click **Previous** to display the **Your Hardware Environment** page.

Your Hardware Environment: Ethernet Switches

In this page, select the type of Ethernet Switches in your SAN environment, enter the details, and click **Continue**.

Switches in your environment

Clicking the  image next to the Ethernet Switch provides the validation status. If validation is successful,  image is displayed. Else,  image is displayed.

To edit the selected Ethernet Switch, click **Edit** available next to the Ethernet Switch. Update the required fields and click **Update Switch** to save the updates. Else, click **Cancel**.

To delete a Ethernet Switch, click **Delete** available next to the Ethernet Switch.

To verify Ethernet Switch(es) from the existing user configuration, select the required switch(es), and click **Revalidate Selected Ethernet Switches**.

Add/Modify Ethernet Switch information

To add or modify Ethernet Switch information, select the type of Ethernet Switch from the drop down list and enter the data in the required fields. Click **Save New Ethernet Switch** to save, display the information in the **Switches in your environment** section, and start validation of the Ethernet Switch. Else, click **Cancel**.

Field	Description
Type of Ethernet Switch	Select from the following type of Ethernet Switch(es):

Field	Description
	<ul style="list-style-type: none"> • Auto-Detect — Select this option to automatically detect the device type, validate, and collect the Ethernet and FCoE switches information. • Cisco Ethernet • Cisco Nexus • PowerConnect — Select this for all types of PowerConnect Ethernet, B8000, and M8428K switches. • Brocade Ethernet — Select this for the Brocade B-Series switches. • Force10 • Dell Networking
IP/hostname	Enter the IP address or the host name of the switch.
Username	Enter the user name.
Password	Enter the password.
Enable Password	Enter the password.
Use this as the default Ethernet switch type	Select this option to make the selected type of Ethernet switch as the default.
Save as the default Username & Password for additional Ethernet switches	Select this option to save the user name and password authentication as default for additional ethernet switches.

 **NOTE:** **Username**, **Password**, and **Enable Password** credentials are optional for **Cisco Ethernet** type of Ethernet Switches.

Click **Previous** to display the **Your Hardware Environment** page.

Your Hardware Environment: Tape Libraries

 **NOTE:** Lasso does not support Tape Libraries in this release.

In this page, select the type of Tape Library in your SAN environment, enter the details, and click **Continue**.

Tape Libraries in your environment

Clicking the  image next to the Tape Library provides the validation status. If validation is successful,  image is displayed. Else,  image is displayed.

To edit the selected Tape Library, click **Edit** available next to the Tape Library. Update the required fields and click **Update Tape Library** to save the updates. Else, click **Cancel**.

To delete a Tape Library, click **Delete** available next to the tape library.

To verify the tape devices from the existing user configuration, select the tape device and select **Revalidate Selected Tape Libraries** option.

Add/Modify Tape Library Information

To add or modify Tape Library information, select the type of Tape Library from the drop down list and enter the data in the required fields. Click **Save New Tape Library** to save, display the information in the **Tape Libraries in your environment** section, and start validation of the Tape Library. Else, click **Cancel**.

Field	Description
Type of Tape Library	Select from the following type of Tape Library(s): <ul style="list-style-type: none"> • ML6000 • PV132T • PV136T • TL2000 • TL4000
IP/hostname	Enter the IP address or the host name for the selected type of Tape Library.
Username	Enter the user name.
Password	Enter the password.
Save as the default Username & Password for additional Tape Libraries	Select this option to save the user name and password authentication information as default for additional Tape Libraries.

 **NOTE:** Only IP address or host name is required for **TL2000** and **TL 4000**.

 **NOTE:** Only IP address or host name and password required for **ML6000**.

Click **Previous** to display the **Your Hardware Environment** page.

Your Hardware Environment: Hosts

In this page, select the type of host operating system in your SAN environment, enter the details, and click **Continue**.

Hosts in your environment

Clicking the  image next to the host provides the validation status. If validation is successful,  image is displayed. Else,  image is displayed.

To edit the selected host operating system, click **Edit** available next to the host. Update the required fields and click **Update Host** to save the updates. Else, click **Cancel**.

To delete a host operating system, click **Delete** available next to the host.

To verify the hosts attached to storage arrays from the existing user configuration, select the hosts and click **Revalidate Selected Hosts**.

 **NOTE:** To display **Celerra** and **CLARiiON** in the **Type of Storage Array**, you need to download the **EMC Plugin** using the **Add-ons** option on the **Welcome to Lasso** screen.

Add/Modify Host information

To add or modify host information, select the type of host operating system from the drop down list and enter the data in the required fields. Click **Save New Host** to save, display the information in the **Hosts in your environment** section, and start validation of the host. Else, click **Cancel**.

Field	Description
Type of Host OS	Select from the following Type of Host OS: <ul style="list-style-type: none">• AIX• HP-UX• Linux• Solaris• VMware• Windows• Oracle VM Server
IP/hostname	Enter the IP address or the host name for the selected type of host operating system.
Username	Enter the user name.
Password	Enter the password.
Root Password	Enter the root password.
Type of Storage Array	Select from the following type of Storage Array(s): <ul style="list-style-type: none">• Celerra• CLARiiON• EqualLogic• MD Series• Compellent• No Storage Array <p> NOTE: To display Celerra and CLARiiON in the Type of Storage Array, you need to download the EMC Plugin using the Add-ons option on the Welcome to Lasso screen.</p> <p>When a storage array is selected, then the array information related to the selected host OS is collected.</p> <p>If you do not want to select any Type of Storage Array, select No Storage Array.</p>
Use this as the default host type	Select this option to save the selected host type as the default.

Field	Description
All of the hosts on my SAN can be accessed with this Username & Password	Select this option if the user name and password is the same for all the hosts in your SAN environment.
Domain	This field is displayed when the selected type of host OS is Windows . Enter the domain information.
Sudo User with admin rights	The option is displayed when the host type VMware or Linux and the storage array type EqualLogic, MD Series, or Compellent is selected. Select this option to collect the data using Sudo user credentials. Enter the root password if the Sudo user is set for target password.
Collect advance logs	The option is displayed when the host type VMware and the storage array type EqualLogic, MD Series, or Compellent is selected. Select this option to collect additional log information.

 **NOTE:** Type of Storage Array is optional.

Click **Previous** to display the **Your Hardware Environment** page.

Your Hardware Environment: Enclosures

In this page, enter the details for the selected type of Enclosure in your SAN environment and click **Continue**.

Enclosures in your environment

Clicking the  image next to the enclosure provides the validation status. If validation is successful,  image is displayed. Else,  image is displayed.

To edit the selected enclosure, click **Edit** available next to the enclosure. Update the required fields and click **Update Enclosure** to save the updates. Else, click **Cancel**.

To delete, click **Delete** available next to the enclosure(s).

Add/Modify Enclosure information

To add or modify the enclosure information, enter the data in the required fields for the selected type of enclosure. Click **Save New Enclosure** to save, display the information in the **Enclosures in your environment** section, and start validation of the enclosure. Else, click **Cancel**.

Field	Description
Type of Enclosure	Select from the following type of Enclosure(s): <ul style="list-style-type: none"> • M1000e

Field	Description
	<ul style="list-style-type: none"> • VRTX • FX2
IP/Hostname	Enter the IP address or host name of the selected type of enclosure.
Username	Enter the user name.
Password	Enter the password.
Discover Integrated Servers	<p>Select this option to discover the integrated servers through VRTX.</p> <p> NOTE: To discover the integrated servers, you need to install DSET using the Add-ons option available on the Welcome to Lasso screen.</p>
Save as the default Username & Password for additional Enclosures	Select this option to save the user name and password authentication information for all the enclosures.

Click **Previous** to display the **Your Hardware Environment** page.

Downloading and Displaying Dell System E-Support Tool (DSET)

To download and display DSET, perform the following:

1. Click **Start** → **Programs (or All Programs)** → **Dell** → **Lasso** and click **Lasso**.
The **Welcome to Lasso** window is displayed.
2. Click **Add-ons**.
Wait for the catalog to download from the Dell File Transfer Protocol (FTP) site.
If there is any issue in downloading, check for the proxy settings, and then retry.
3. Select **DSET Cleint** and click **Download**.

After the download is successful, click  to exit the download window.

Your Hardware Environment: Enclosure Modules

Enclosure Modules page is displayed only when the servers are discovered through VRTX.

In this page, select the iDRAC IP Address and click **Edit** to edit the details for the selected type of iDRAC in your SAN environment and click **Continue**.

Enclosures Modules in your environment

Clicking the  image next to the enclosure provides the validation status. If validation is successful,  image is displayed. Else,  image is displayed.

To edit the selected iDRAC, click **Edit** available next to the iDRAC. Update the required fields and click **Update Server** to save the updates. Else, click **Cancel**.

To delete, click **Delete** available next to the iDRAC(s).

Modify Server Information

To edit the iDRAC information, enter the data in the required fields for the selected type of iDRAC. Click **Update Server** to save, display the information in the **Enclosures Modules in your environment** section, and start validation of the enclosure. Else, click **Cancel**.

Field	Description
IP/Hostname	Enter the IP address or host name of the selected type of enclosure.
Username	Enter the user name.
Password	Enter the password.
Use the default Server authentication	Select this option to save the user name and password authentication information for all the iDRACs.

Click **Previous** to display the **Your Hardware Environment** page.

Your Hardware Environment: Management & Monitoring Software

In this page, enter the details for the selected type of software in your SAN environment and click **Continue**.

Management & Monitoring Software in your environment

Clicking the  image next to the software provides the validation status. If validation is successful,  image is displayed. Else,  image is displayed.

To edit the selected software, click **Edit** available next to the software. Update the required fields and click **Update Software** to save the updates. Else, click **Cancel**.

To delete a software, click **Delete** available next to the software(s).

To verify the software(s) from the existing user configuration, select the required software(s) and click **Revalidate Selected Management & Monitoring Software**.

Add/Modify Management & Monitoring Software Information

To add or modify the software information, enter the data in the required fields for the selected type of software. Click **Save New Software** to save, display the information in the **Management & Monitoring Software in your environment** section, and start validation of the software. Else, click **Cancel**.

Field	Description
Type of Software	Select from the following type of Software(s): <ul style="list-style-type: none">HIT Kit for VMwareSAN HQ

Field	Description
	<ul style="list-style-type: none"> vCenter SCVMM
IP/hostname	Enter the IP address or host name of the selected type of software.
Username	<p>Enter the user name.</p> <p>For ESXi versions later than 5.5, the domain name is required for adding the vCenter to Lasso. The domain name is also required if ESXi 5.5 is configured for Single Sign On (SSO).</p> <p> NOTE: The username for adding a vCenter configured for SSO must include the domain name 'vsphere.local'. For example, vsphere.local\username.</p>
Password	Enter the password.
Use this as the default software type	Select this option to save the selected software type as the default.
Collect ASM/VE logs	Select this option to collect the ASM/VE logs for VMware.
Domain	<p>This field is displayed when the selected type of Software is SAN HQ and SCVMM.</p> <p>Enter the domain information.</p>
Save as the default Username & Password for additional Software	Select this option to save the user name and password authentication information as default for the software.

Click **Previous** to display the **Your Hardware Environment** page.

Your Hardware Environment: Wireless Controllers

In this page, select the type of Wireless Controllers in your SAN environment, enter the details, and click **Continue**.

Wireless Controllers in your environment

Clicking the  image next to the Wireless Controllers provides the validation status. If validation is successful,  image is displayed. Else,  image is displayed.

To edit the selected Wireless Controller, click **Edit** available next to the Wireless Controller. Update the required fields and click **Update Controller** to save the updates. Else, click **Cancel**.

To delete a Wireless Controller, click **Delete** available next to the Wireless Controller.

To verify Wireless Controller(s) from the existing user configuration, select the required Controller(s), and click **Revalidate Selected Wireless Controllers**.

Add/Modify Wireless Controller information

To add or modify Wireless Controller information, select the type of Wireless Controller from the drop down list and enter the data in the required fields. Click **Save New Controller** to save, display the information in the **Wireless Controllers in your environment** section, and start validation of the Wireless Controller. Else, click **Cancel**.

Field	Description
Type of Controller	PowerConnect Controller — This type is selected by default.
IP/hostname	Enter the IP address or the host name of the controller..
Community String	Enter the community string.
Username	Enter the user name.
Password	Enter the password.
Enable Password	Enter the password.
Save as the default Username & Password for additional Wireless Controllers	Select this option to save the user name and password authentication as default for additional Wireless Controllers.

 **NOTE:** The **Username**, **Password**, and **Enable Password** credentials are optional for type of Wireless Controllers.

Click **Previous** to display the **Your Hardware Environment** page.

Device Collection

This page displays all the selected types of devices. The validated device has  image next to the device name. The devices that failed validation has  image next to the device name. You can either re-validate these devices or remove from the list.

 **NOTE:** Validation of device is necessary for collection to be completed.

To validate the device before collection, click **Edit** next to the device. In the displayed device page, edit the details and re-validate the device. Click the  image next to the device to check the validation status.

To delete a device, click **Edit** next to the device. In the displayed device page, click **Delete** available next to the device.

After all the devices are verified and validated, click **Start Collection** to start the collection. Click the  image to check the status of the collection.

Click **Cancel Collection** to cancel the collection.

Click **Continue** to parse the data and generate XML and HTML output. The generated files are added to the original collection **.zip** file. The data that is uploaded to the Dell Technical Support site is encrypted.

Upload

Use this page to upload the collected files to Dell Technical Support site.

To upload the collected files, the options are:

Options	Description
Open Location	Click to open the location where the collected files are saved.
Upload Full Collection	Select this option to automatically upload the collection files to Dell Technical Support site.  NOTE: If this option is selected, the zip.gpg file is uploaded.
Authenticated Proxy	Select this option to upload the collection files to Dell Technical Support site using proxy.
IP/Hostname	Enter the IP address or hostname.
Port number	Enter the port information.
Username	Enter the user name.
Password	Enter the password.

Select **Yes** in the "Would you like to automatically upload the collection package to Dell?" to automatically upload the file to Dell Technical Support site. Else, select **No**.

In the "Lasso can save your usernames and passwords in an encrypted password vault for future re-use. If the password vault is not used, no usernames or passwords will be saved and will require re-entry to run the Lasso collection again. Would you like to save it?", select **Yes** to save. Else, select **No**. If saved, the vault is secured as a local file in the **%USERPROFILE%\Dell\Lasso** directory.

 **NOTE:** The extent of information saved depends on the security level selected during the installation of Lasso.

Click **Continue** to upload the file. The **Confirmation** page is displayed.

Confirmation

This page displays the status of the file upload.

If **No** is selected in the **Upload** page, instructions to upload the collection is displayed.

To view the HTML file created during parsing the data, select the **View your SAN Configuration** option. Click **Finish** to open the report.

Log Files

The following log files are generated when using Lasso:

- **Validate.log** — When devices are validated.
- **Collect.log** — When data is collected.

The validation log file <DeviceCategory>_<DeviceType>_<IP>_validate.log is available at %USERPROFILE%\Dell\Lasso\logs\ location.

The collection log file <DeviceCategory>_<DeviceType>_<IP>_validate.log is available at %USERPROFILE%\Dell\Lasso\logs\ location.

The device log file for Lasso is available at %USERPROFILE%\Dell\Lasso\logs\ location and the Lasso user interface log file is available at %USERPROFILE%\Dell\Lasso\lasso.log location.

Generated File Formats

Lasso generates raw data files, TXT, XML, and HTML files:

- **Raw Data Files** — Lasso generates two types of raw data files:
 - Raw data file with a **.zip** extension.
 - Encrypted raw data file with a **.gpg** extension.
- **TXT files** — Lasso generates **.txt** file that contains the logs.
- **XML and HTML files** — Lasso parses the data collected into XML and HTML files.

The XML files are:

- An XML output file with an **.xml** extension.
- An encrypted XML output file with a **.gpg** extension.

The HTML files are:

- A HTML output file called **SANconfiguration.html**.

To access the XML and HTML files, go to **USERPROFILE%\Dell\Lasso\results** directory.

Viewing Reports

To view the report, perform any of the following:

- After Lasso collects the information, on the **Confirmation** page select **View Your SAN Configuration** option and click **Finish**. Lasso tool is closed and the report is opened in the internet browser.
- Open the files that are saved at the default location **c:\Users\<username>\Dell\Lasso\results** or in the specified location. For information about the file formats, see [Generated File Formats](#).

Manual Collection

If you are not able to collect data using Lasso GUI, then you can manually collect the data. To perform manual collection, login to the required device and run the device specific commands. You can manually collect data for the following devices:

- Storage Arrays
- Fibre Channel Switches
- Ethernet and FCoE Switches
- Tape Libraries
- Attached Hosts
- Enclosures
- Management and Monitoring Software
- Wireless Controllers

 **NOTE:** Lasso does not support Tape Libraries in this release.

Manually Collecting Data For Storage Arrays

You can collect the information for the following types of Storage Arrays:

- Celerra
- CLARiiON
- MD Series
- EqualLogic
- EQL FluidFS NAS
- PV FluidFS NAS
- Compellent FluidFS NAS

Manually Collecting Data For Celerra Device

Make sure that the following environment variables are set:

- `NAS_DB=/nas`
- `export NAS_DB`
- `PATH=$PATH:$NAS_DB/bin`
- `export PATH`

To collect Celerra device information manually:

1. Using SSH, login to Celerra device as a root user.
2. Run the following command:

```
/nas/tools/collect_support_materials
```

The server and event log collection file (**support_materials*.zip**) is generated in the **/nas/var/emcsupport/** directory.

3. Run the following command:

```
/nas/tools/.get_spcollect
```

The raid group, volume access, host LUNs, storage groups and SP ports collection file (**SPCOLLECT.zip**) is generated in the **/nas/var/log/** directory.

4. Run the following command:

```
/nas/sbin/log_config -d
```

The collection file (**log_config*.gz**) is generated in the **/nas/var/log/** directory. The file includes array related additional information and used for troubleshooting purposes.



NOTE: The `log_config -d` command is functional only if you log in as root user to the Celerra device.

Manually Collecting Data For CLARiiON Device

Before manually collecting, make sure that the following prerequisites are met:

- Navisphere CLI will not be installed by default on your system, you need to download it from remote ftp site and install it. In case of successful installation from **Add-ons** option, Navisphere CLI grabs and report executable will be available in **%ALLUSERSPROFILE%\Dell\Lasso\Packages\EMCAddOn\NavisphereCLI** folder.
- Path of the Navisphere CLI is set to **%ALLUSERSPROFILE%\Dell\Lasso\Packages\EMCAddOn\NavisphereCLI** before executing the commands.

To collect the information for CLARiiON manually:

1. Determine the agent revision version using one of the following commands:

- `navicli -h SPAIPAddress/SPBIPAddress getagent`
- `naviseccli -user <username> -password <password> -scope 0 -h SPAIPAddress/SPBIPAddress getagent`

The version 6.x, where x is the release version of Navisphere CLI, is displayed.

2. Get SPcollect by using the following command.

- For releases 19 and later:
`naviseccli -user <username> -password <password> -scope 0 -h SPAIPAddress/SPBIPAddress spcollect`
- For releases 6 to 18:
`navicli -h SPAIPAddress/SPBIPAddress spcollect -messner`
- For releases earlier than 6, Lasso does not support validation or collection .

3. Check the progress of SPcollect using the following command:

- For releases 19 and later:
`naviseccli -user <username> -password <password> -scope 0 -h SPAIPAddress/SPBIPAddress managefiles -list`

- For releases 6 to 18:

```
navicli -h SPAIPAddress/SPBIPAddress managefiles -list
```

This command lists ***data.zip** files, where ***** is the current system date on the array. The command `spcollect` initially creates ***_runlog.txt** file, that gets listed when this command is executed. Continue to check the progress of the SPCollect (using this command) until ***_runlog.txt** is deleted and corresponding ***data.zip** file is created.

Copy the created ***data.zip** file to the current working directory using one of the following commands:

- For releases 19 and later:

```
naviseccli -user <username> -password <password> -scope 0 -h SPAIPAddress/SPBIPAddress managefiles -retrieve -file <*data.zip>
```

- For releases 6 to 18:

```
navicli -h SPAIPAddress/SPBIPAddress managefiles -retrieve -file <*data.zip>
```

4. Capture resume data using the following command:

- For releases 19 and later:

```
naviseccli -user <username> -password <password> -scope 0 -h SPAIPAddress/SPBIPAddress getresume > ./SPIIPAddress.resume.txt
```

- For releases 6 to 18:

```
navicli -h SPAIPAddress/SPBIPAddress getresume > ./SPIIPAddress.resume.txt
```

This command copies the ***resume.txt** file to current working directory.

You may need to connect using Navisphere Manager and use the web GUI to collect the SPCollect. To do this, connect to the SP using the IP Address in the web browser. Right-click on the SP and select SPCollect. Use the **File Transfer Manager** to transfer the SPCollect to the system.



NOTE: When the collection of a Storage Array times out, go to the **SAC.properties** file in the installation directory and increase the polls to be allowed. Example: `total.polls.allowed = 70` which is 50 by default.

Manually Collecting Data For MD Series Device

To collect information for MD Series device manually:

1. Make sure that ModularDiskStorageManager (MDSM) software is installed on the system. By default, it is installed in `%SystemDrive%\Program Files\Dell\MD Storage Manager\client\` location, but may differ depending on the system.
2. Make sure that the path of MDSM software is set before executing the commands.
3. Run the following command:

```
SMcli -c "show storagearray profile;" <IPAddress of MD Array> -o <USERPROFILE Dir>\Results\Hostname.txt
```

The **Hostname.txt** file is generated at `<USERPROFILE Dir>\Results\` location.

 **NOTE:** When the validation or collection operation of a Storage Array times out, go to the **DasArray.properties** file in the InstallDir and change or increase the timeout value.

Example:

- `mdseries.timeout.value.collection = 200000` which is 120000 by default
- `mdseries.timeout.value.collection = 60000` which is 60000 by default

4. Run the following command: `SMcli.exe -c "save storageArray SupportData file= \"<USERPROFILE Dir>\Results\Hostname.zip\"; "<IP Address of MD Array>"` to save the **Hostname.zip** file at the **<USERPROFILE Dir>\Results** location.

Manually Collecting Data For EqualLogic Device

To collect information for EqualLogic device manually:

1. Open a SSH session on the array.
2. Capture the output for each of the following commands to a **.txt** file.
 - `show` - Provides high level information for the members, groups, volumes, pools, replication , and so on for the array. This information is required to run the following commands:
 - `member show` - Lists the number of members in the array group, their version, status, and so on.
 - `member select <MEMBERNAME> show` - Lists network information for the respective member.
 - `member select <MEMBERNAME> show controllers` - Lists controller information for the respective member.
 - `member select <MEMBERNAME> show disks` - Lists disk information for the respective member.
 - `grpparams show` - Lists all group related information.
 - `volume select <VOLUMENAME> show` - Lists information for the corresponding volume, whose name is specified as part of the command.
 - `volume select <VOLUMENAME> show connections` - Displays the connections and allows you to know the connection of the volume to the related initiator, its connection uptime and other details.
 - `"diag -b -n"` - Collects the diagnostics information.

Manually Collecting Data For PowerVault Or EqualLogic Or Compellent FluidFS NAS Device

To collect information for PowerVault or EqualLogic FluidFS NAS device manually:

1. For PowerVault FluidFS NAS device, log in to PV FluidFS NAS and for EqualLogic FluidFS NAS device, log in to EQL FluidFS NAS using root privilege through SSH.
2. Run the command:
 - `diag start GeneralSystemDiagnostic` for versions earlier than 2.0.
 - `system internal diagnostics run-general-diagnostic` for version 3.0. To check the status of diagnostics command, run the command: `system internal diagnostics list --CSV`.

The output file is generated in the FTP site at `ftp://<IPAddress>:44421` location.

3. In Windows Explorer window, type `ftp://<username>@<IPAddress>:44421`. For example, `ftp://admin@10.10.25.21:44421`.
4. Enter the password when prompted.

The contents of the ftp site is displayed. You can access the collection file (***.tar.gz**) in the **diagnostics/archive/results__diagnostic.GeneralSystemDiagnostic_XXXX (timestamp)** directory for

versions earlier than 2.0 and from `ftp://172.25.172.10:44421/diagnostics/archive/GeneralSystemDiagnostic/` for version 3.0.

Example of a collection file for versions earlier than 2.0: `diagnostic.GeneralSystemDiagnostic.25_07_2011-06_42_09.tar.gz`

Example of a collection file for version 3.0: `Summary.4084191070.21_03_2014-08_51_13.tar.gz`

 **NOTE:** On SAN consisting of many devices, you may need to increase the time out value. By default, time out value for this device is 15 minutes. You can modify the value `nas.timeout.value` (in milliseconds) in the **NAS.properties** file available in the Lasso install directory.

Manually Collecting Data For Attached Hosts

You can collect the information manually for the following Attached Hosts:

- Windows
- Unix
- VMware

Manually Collecting Data For Windows OS

You can manually collect the information for the following:

- EMC SAN
- EqualLogic SAN
- MDSeries
- CLARiiON
- Celerra
- Compellent

 **NOTE:** You can configure time out for Windows attached hosts using **winhc.properties** file. The default property value is 15 minutes. Set the property for the following types of devices as:

- Compellent, MD Series, and EqualLogic — `whc.eql.timeout.value = 1800000`
- CLARiiON and Celerra — `whc.emc.timeout.value = 900000`

Collecting Storage Device Information From Windows OS For EMC SAN

1. Copy the appropriate **EMCReport.exe** file from the `%ALLUSERSPROFILE%\Dell\Lasso\Packages\EMCAddon\Grabs_Reports` to the target Windows system. .

This file can be seen only if you install **EMC Plugin** using **Add-ons** option.

 **NOTE:** For 32-bit and 64-bit operating systems use **Emcrpts_x86_v36.exe**.

2. Log in as an administrator to the target Windows system.
3. Run the **.exe** file.

The output **.zip** file is generated in `%SystemRoot%\EMCReports\Collection\zip\` directory.

Collecting Storage Device Information From Windows OS For EqualLogic SAN

1. Log in as administrator to the target Windows system.

 **NOTE:** For 32-bit and 64-bit operating systems use **DellCollector.exe**. Before running **Dellcollector.exe**, make sure that the Windows Management Instrumentation (WMI) service is running.

2. Copy the **DellCollector** folder and **ICSharpCode.SharpZipLib.dll** from the **<LassoInstallDir>\bin** folder to the target Windows system. Place the **ICSharpCode.SharpZipLib.dll** in the **DellCollector** folder.
3. Run the **DellCollector.exe** file.

The output **.zip** file is generated in **<SystemRoot>\DellCollector\Collection\zip** directory.

Collecting Storage Device Information For UNIX OS

Using any secure ftp client (example: scp):

1. Copy the appropriate **dellcollector** from the **LassoInstallDir>\Bin** directory to the target Unix system. By default, the Lasso installation directory is **<SystemDrive>\Dell\Lasso\Bin**.
2. Log in to the target Unix system by using the root privilege through SSH.

 **NOTE:** Use dual mode authentication if SSH is not enabled for root.

3. Untar the script: **tar xvf dellcollector_Linux*.tar**.
4. Change directory to **cd dellcollector/**
5. Run the **EMCGrab: /dellcollector.sh --autoexec**.
6. Accept the license agreement.

The output is generated in the **/tmp/emcgrab/outputs/** directory and you can copy it to the local system by using the secure ftp client.

 **NOTE:** When the collection operation of the host times out, go to the **UnixHC.properties** file in the installation directory and change or increase the time-out value. Example: **hc.timeout.value = 3600000** which is **1800000** by default.

Collecting Storage Device Information From Unix OS For EMC SAN

Using any secure ftp client (example: scp):

1. Copy the appropriate **EMCGrab** file from the **%ALLUSERSPROFILE%\Dell\Lasso\Packages\EMCAddon\Grabs_Reports** directory to the target Unix system.
The **EMCGrab** file can be seen only if you install **EMC Plugin** from **Add-ons** option.
2. Log in to the target Unix system by using the root privilege through SSH.

 **NOTE:** Use dual mode authentication if SSH is not enabled for root.

3. Untar the script: **tar xvf emcgrab*.tar**.
4. Run **EMCGrab: /emcgrab.sh --autoexec**.
5. Accept the license agreement.

The output is generated in the **/tmp/emcgrab/outputs/** directory and you can copy it to the local system using the secure ftp client.

 **NOTE:** When the collection operation of the host times out, go to the **UnixHC.properties** file in the installation directory and change or increase the time-out value. Example: **hc.timeout.value = 3600000** which is **1800000** by default.

Collecting Storage Device Information From Unix OS For EqualLogic SAN

Using any secure ftp client (example: scp):

1. Copy the appropriate **dellcollector** from the **LassoInstallDir>\Bin** directory to the target Unix system. By default, the Lasso installation directory is <SystemDrive>\Dell\Lasso\Bin\.
2. Log in to the target Unix system by using the root privilege through SSH.

 **NOTE:** Use dual mode authentication if SSH is not enabled for root.

3. Untar the script: **tar xvf dellcollector_Linux*.tar**.
4. Change directory to **cd dellcollector/**
5. Run the **EMCGrab: /dellcollector.sh --autoexec**.
6. Accept the license agreement.

The output is generated in the **/tmp/emcgrab/outputs/** directory and you can copy it to the local system by using the secure ftp client.

 **NOTE:** When the collection operation of the host times out, go to the **UnixHC.properties** file in the installation directory and change or increase the time-out value. Example: `hc.timeout.value = 3600000` which is 1800000 by default.

Collecting Storage Device Information For VMware (ESX/ESXi OS)

1. Log in to the VMware server using root privilege through SSH
2. Run the following command:

```
vm-support -n
```

The output file is saved in the **/root/** directory.

3. Copy the output file to the local system using any secure ftp client.

 **NOTE:** When the collection operation of host times out, go to the **UnixHC.properties** file in the InstallDir and change or increase the time out value. Example: `hc.timeout.value = 3600000` which is 1800000 by default.

Manually Collecting Data For Tape Library Device

 **NOTE:** Lasso does not support Tape Libraries in this release.

You can collect information for the following tape library devices using Lasso:

- PV136T
- PV132T
- TL2000
- TL4000
- ML6000

Manually Collecting Data For PV136T, PV132T, TL2000, And TL4000 Tape Library Device

 **NOTE:** Lasso does not support Tape Libraries in this release.

1. Connect to the tape library using:

```
telnet -f Lasso\Results\hostname.txt <hostname or IP address>
```

 **NOTE:** On Windows 2000, use HyperTerminal and manually capture your telnet session.

2. Run the commands specific to the type of tape library:
 - For PV132T or PV136T – `supportDump` or `loggerDump`
 - For TL2000 or TL4000 – `dumpall`

Determining Service Port IP For ML6000 Data Collection

 **NOTE:** Lasso does not support Tape Libraries in this release.

To determine service port IP:

1. Navigate to GUI panel of ML6000 library.
2. Log in to the web client. Enter the credentials *admin* for **username** and *password* for **password**.
3. In the home page, click the **setup** tab available in the tool bar.
4. Select the **Network Management** option.
5. Select the IP version 4 and click **Next**.

If the tape library is already assigned to a IP, the IP address is displayed. If not, assign a static or DHCP IP to the tape library. The displayed IP address is called the Service Port IP.

Collecting Logs Manually For ML6000 Device

To manually collect logs:

1. Connect to the Service port IP address of ML6000 using SSH (putty), and providing the credentials *ilinkacc* for user name and *password* for password.
2. Run the command `cat/proc/net/arp` and get the I/O mode IP address (The IP other than default gateway).
3. Add Telnet to one of the I.O.Module IP addresses by running the command "`telnet`"
<I.O.Module IP>
4. Run the command `supportDump`.

Logs collected using the option **Capture Snapshot gathers log files from the library** are a super set of the logs obtained by running the command `supportDump`.

From this super set, to locate the `supportDump` information, save the super set to the local folder.

Extract the log files and the **snap.gz** file located in `\var\log\ <vendor_name>\ <IO_Module_name>`

\. Locate the file **snap**. This file contains the same information as the one when you run the command `supportDump`.

Collecting Logs Using Web Client

To collect logs using web client:

1. Connect to the IPAddress of ML6000 in the web browser.
2. Log in using admin user credentials and navigate to **Tools** → **Capture SnapShot** .
3. Select the **Download the file using the browser** option and click **Apply**.
After the snapshot is captured, a popup window is displayed to save the snapshot (.tar)

Manually Collecting Data For Ethernet and Nexus Switches

To collect information for switches:

1. Connect to the switch using Telnet:

```
telnet -f %USERPROFILE%\Dell\Lasso\results\hostname.txt hostname
```

 **NOTE:** On Windows 2000, use HyperTerminal and manually capture the telnet session.
2. After logging in, enter the command relevant to the type of switch.
 - **PowerConnect B-Series, Brocade B-Series, and M8428K:**
 - To run the commands, see [List Of Commands For PowerConnect B-Series, Brocade B-Series, and M8428K](#)
 - **PowerConnect Ethernet:**
 - To run the commands, see [List Of Commands For PowerConnect Ethernet](#)
 - **Cisco Ethernet:**
 - terminal length 0
 - To run the commands, see [List Of Commands For Cisco Ethernet](#)
 - **Cisco Nexus:**
 - terminal length 0
 - show startup-config
 - To run the sub-commands, see [List Of Commands For Cisco Nexus](#)
 - **Force 10 Switches**
 - terminal length 0
 - To run the commands, see [List Of Commands For Force 10 Switches](#).
 - **Dell Networking**
 - If the firmware version is 6.0 and above, to run the commands, see [List Of Commands For PowerConnect Ethernet](#)
 - If the firmware version is 9.4 and above, to run the commands, see [List Of Commands For Force 10 Switches](#)

Manually Collecting Data For Cisco Ethernet Device

To collect for Cisco Ethernet manually:

1. Log in to Cisco Ethernet switch through SSH/Telnet.
2. Run the following command to enter the required mode:
 - Exec – enable
 - Configuration – config
3. Run the following commands
 - `show running`
 - `show vlan`
 - `show flowcontrol`
 - `show system mtu`
 - `show vlan mtu`
 - `show switch stack-ports`
 - `show spanning-tree`
 - `show interfaces status`
 - `show mac address-table`
 - `show version`
 - `show env all`
 - `show etherchannel`
 - `show arp`
 - `show switch`
 - `show storm-control`
 - `show interfaces mtu`
 - `show switch stack-ring speed`
 - `show switch stack-ring activity`
 - `show etherchannel summary`
 - `show environment`
 - `show module`
 - `show inventory`
 - `show interfaces trunk`
4. For CEE information, run the command `show tech-support .`
5. Capture the console output



NOTE: On a SAN consisting of many Cisco Ethernet switches, you may need to increase the time out value. By default, the time out value for these switches is 3 minutes (in milliseconds). This value (*ciscoethernet.timeout*) can be modified in the file **ESC.properties** located in the Lasso install directory.

Manually Collecting Data For Cisco Nexus Device

Lasso provides support to Nexus 5020 and 5548 switches.

To collect manually:

1. Login to Cisco Nexus switch through SSH/Telnet
2. Run the command `config`.
3. Run the following commands
 - `show tech-support`
 - `show port-channel summary`
 - `show hostname`
 - `show version`
 - `show running-config`
 - `show environment`
 - `show module`
 - `show policy-map`
 - `show spanning-tree`
 - `show switchname`
 - `show system uptime`
 - `show system resources`
 - `show vpc`
 - `show vlan`
 - `show clock`
 - `show feature`
 - `show fex`
 - `show fex detail`
 - `show hardware internal cpu-mac mgmt stats`
 - `show interface`
 - `show interface brief`
 - `show interface fex-fabric`
 - `show interface transceiver`
 - `show interface flowcontrol`
 - `show interface priority-flow-control`
 - `show interface switchport`
 - `show interface trunk`
 - `show interface description`
 - `show interface status`
 - `show inventory`
 - `show lldp neighbors`
 - `show mac-list`
 - `show mac-address-table`
 - `show class-map`
 - `show license usage`
 - `show lacp neighbor`
 - `show lacp port-channel`
 - `show port-channel capacity`

- `show port-channel load-balance`
 - `show port-channel usage`
 - `show port-channel traffic`
 - `show queuing interface`
 - `show system internal ethpm info all`
 - `show spanning-tree mst`
 - `show lldp neighbors detail`
 - `show lldp tlv-select`
 - `show vsan`
 - `show zone`
 - `show flogi database`
4. For CEE information, run the command `show tech-support`
 5. Capture the console output



NOTE: On SAN having many Cisco Nexus switches, you may need to increase the time out value. By default, the time out value for these switches is five minutes (in milliseconds). This value (*ciscofcoe.timeout*) can be modified in the file **ESC.properties** located in the Lasso install directory.

Manually Collecting Data For Brocade or PowerConnect B-Series And M8428K Switches

To collect data for Brocade or PowerConnect B-Series and M8428K manually:

1. Log in to Brocade or Power Connect B-Series and M8428K FCoE switches through SSH/Telnet.
2. Run the command `supportShow` to display FC information.
3. To display CEE information, run the command `show tech-support`.

If the command fails, in the case of older switch firmware, then run the following commands:

- `show running-config`
- `show startup-config`
- `show system`
- `show version`
- `show vlan brief`
- `show media`
- `show lldp`
- `show lldp neighbors`
- `show interface`
- `show interface switchport`
- `show port-channel`
- `show mac-address-table`
- `show spanning-tree brief`
- `show spanning-tree`
- `show cee maps`
- `show vlan fcoe`
- `show ip interface brief`

- `show interface switchport`
 - `show lldp statistics`
 - `show port-channel summary`
 - `show mac-address-table count`
 - `show spanning-tree mst brief`
 - `show qos rcv-queue multicast all`
 - `show qos interface all`
 - `show fcoe-map`
 - `fos switchshow`
 - `fos cfgshow`
 - `fos zoneshow`
 - `chassisshow`
4. Capture the console output .
-  **NOTE:** On SAN having many PowerConnect B-Series switches, you need to increase the time out value. By default, time out value for these switches is 12 minutes (in milliseconds). This value (*powerconnectb-series.timeout*) can be modified in the file **ESC.properties** located in the Lasso install directory.

Manually Collecting Data For PowerConnect Ethernet and Dell Networking Switches

To collect information for PowerConnect Ethernet manually:

1. Log in to Power Connect Ethernet switch through SSH/Telnet.
2. Run the command `show tech-support` to display CEE information. If the command fails, in the case of older switch firmware, then run the following commands
 - `show running`
 - `show vlan`
 - `show spanning-tree`
 - `show interfaces configuration`
 - `show interfaces status`
 - `show interface port-channel`
 - `show system id`
 - `show stack-port`
 - `show storm-control`
 - `show storm-control all`
 - `show system`
 - `show system flowcontrol`
 - `show version`
 - `show switch`
 - `show arp`
 - `show bridge address-table`
 - `show mac address-table`
 - `show port-aggregator vlan summary`

- show port-aggregator port summary
 - show switch stack-ports
 - show switch stack-ports counter
 - show switch stack-ports diag
 - show nsf
 - show switch stack-standby
 - show checkpoint statistics
 - Show Slot
 - Show tacacs
 - Show spanning-tree active
 - Show spanning-tree blockedports
 - Show lldp dcbx interface all
 - Show lldp interface all
 - Show lldp tlv-select interface all
 - Show lldp remote-device all
 - show classofservice dot1p-mapping
 - show classofservice traffic-class-group
 - show interfaces traffic-class-group
 - show interfaces priority-flow-control
 - show interfaces tengigabitethernet <InterfaceName> priority-flow-control
 - show interfaces counters tengigabitethernet <InterfaceName>
 - show lldp tlv-select interface tengigabitethernet <InterfaceName>
 - show lldp interface tengigabitethernet <InterfaceName>
 - show lldp dcbx interface tengigabitethernet <Interface Name> detail
 - show interfaces transceiver properties
 - show isdp neighbors
3. Capture the console output

 **NOTE:** On SAN having many PowerConnect Ethernet switches, you may need to increase the time out value. By default, time out value for these switches is 3 minutes (in milliseconds). This value (*powerconnectethernet.timeout*) can be modified in the file **ESC.properties** located in the Lasso install directory.

Manually Collecting Data For Force 10 and Dell Networking Switches

To collect information for Force 10 switches manually:

1. Log in to Force 10 switch through SSH/Telnet.
2. Run the following commands:
 - show running
 - show running-config logging
 - show running-config ftp
 - show running-config rip
 - show logging history
 - show configuration lock

- show debug
- show calender
- show vlan
- show spanning-tree 0 brief
- show spanning-tree msti
- show spanning-tree pvst
- show spanning-tree rstp brief
- show interfaces
- show interfaces status
- show interface port-channel
- show lldp neighbors
- show chassis
- show rpm
- show system
- show system-brief
- show bootvar
- show system stack-ports
- show storm-control unknown-unicast
- show storm-control broadcast
- show storm-control multicast
- show interfaces | grep "GigabitEthernet |Flowcontrol"
- show version
- show environment thermal-sensor
- show arp
- show mac-address-table
- show environment
- show inventory
- show vlan brief
- show dcb
- show iscsi
- show interfaces dcbx
- show interfaces ets summary
- show interfaces pfc summary
- show interfaces configured
- show inventory media
- show alarms
- show alarms threshold
- show processes cpu
- show memory
- show mac learning-limit
- show ip route all
- show ip route summary
- show ip ospf
- show ip traffic
- show ip rip database

- `show cam-profile`
- `show cam-l2acl`
- `show cam-usage`
- `show cam-ipv4flow`
- `show ntp status`
- `show ntp association`
- `show interface port-channel brief`
- `show interfaces port-channel brief`

Manually Collecting Data For Fibre Channel Switches

To collect information, connect to the Fibre Channel switch using SSH or Telnet.

If you are using SSH, then:

1. Start putty and enter the hostname or IP address.
2. Enter Port as 22.
3. Select the protocol option as SSH and click **Open**.
4. In the displayed prompt, enter the login credentials to the switch.

If you are using Telnet to connect, then go to `telnet -f %USERPROFILE%\Dell\Lasso \results\hostname.txt hostname`. Enter the commands relevant to the type of switch.

The commands to collect the data for the types of switches are:

- **Brocade:**
 - `supportShow`
- **McData:**
 - `show all`
 - If this command fails, see [List of commands](#)
- **McDataBlade:**
 - `show all`
 - If this command fails, see [List of commands](#)
- **Cisco:**
 - `terminal length 0`
 - `show running-config`
 - `show flogi database`
 - `show startup-config`

Manually Collecting Data For Brocade Device

To collect manually:

1. Log in to Brocade Fibre channel switch through SSH
2. Run the command `supportShow`.
3. Capture the console output

 **NOTE:** On SAN having many Brocade switches, you need to increase the default time out value of 3 minutes (in milliseconds). This value (*brocade.timeout*) can be modified in the **FCSC.properties** file located in the Lasso install directory.

Manually Collecting Data For Cisco Device

To collect manually:

1. Log in to Cisco Fibre channel switch through SSH
2. Run the commands
 - `do show running-config`
 - `do show flogi database`
 - `do show startup-config`
 - `do show inventory`
 - `do show vsan`
 - `do show zone`
 - `do show version`
 - `do show interface brief`
3. Capture the console output

Manually Collecting Data For McData Device

The following sub-commands are included in the `show all` command. In some older switch firmware, the `show all` command may not work. In this case Lasso attempts a manual collection using the commands:

- `show ip ethernet`
- `show system`
- `show switch`
- `show port config`
- `show frus`
- `show zoning`
- `show port state`
- `show port info`
- `show port technology`
- `show port exit`
- `show loginserver`
- `show feature`
- `show security portbinding`
- `show security switchbinding`
- `show openTrunking config`
- `show thresholdAlerts alerts`
- `show fabric topology`
- `show fabric nodes`

Manually Collecting Data For McDataBlade Device

The following sub-commands are included in the `show all` command. In some older switch firmware, the `show all` command may not work. In this case Lasso attempts a manual collection using these commands.

- `show about`
- `show chassis`
- `show donor`
- `show interface`
- `show mem`
- `show perf`
- `show setup mfg`
- `show setup radius`
- `show setup services`
- `show setup snmp`
- `show setup system`
- `show version`
- `show config port`
- `show config switch`
- `show config zoning`
- `show fabric`
- `show topology`
- `show switch`
- `show domains`

Manually Collecting Data For Enclosures — M1000e

To collect the data, connect to the M1000e using SSH or Telnet.

To collect manually:

1. Start putty and enter the hostname or IP address.
2. Enter the login credentials of the M1000e at the prompt.
3. Run the following commands:
 - `racadm getsysinfo`
 - `racadm getversion`
 - `racadm getversion`
 - `racadm getsvctag`
 - `racadm getslotname`
 - `racadm getniccfg`
 - `racadm getmacaddress -a`
 - `racadm getioinfo`
 - `racadm getdcinfo`
 - `racadm getdcinfo -n`

- racadm getmodinfo
 - racadm getfanreqinfo
 - racadm getflexaddr
 - racadm getpminfo
 - racadm getsensorinfo
 - racadm getactiveerrors
 - racadm getpbinfo
 - racadm getniccfg -m server-1
 - racadm getniccfg -m server-2
 - racadm getniccfg -m server-3
 - racadm getniccfg -m server-4
 - racdump
4. Capture the console output.



NOTE: On SAN having many M1000e, you need to increase the default time out value of 5 minutes (in milliseconds). This value (`enclosure.timeout.value`) can be modified in the `Enclosure.properties` file located in the Lasso install directory.

Manually Collecting Data For Enclosure — VRTX

To collect the data, connect to the VRTX using SSH or Telnet.
To collect manually:

1. Start putty and enter the hostname and IP address
2. Enter the login credentials to the VRTX at the prompt.
3. Run the following commands:
 - racadm getsysinfo
 - racadm getversion
 - racadm getversion
 - racadm getsvctag
 - racadm getslotname
 - racadm getniccfg
 - racadm getmacaddress -a
 - racadm getioinfo
 - racadm getdcinfo
 - racadm getdcinfo -n
 - racadm getmodinfo
 - racadm getfanreqinfo
 - racadm getflexaddr
 - racadm getpminfo
 - racadm getpciecfg -a
 - racadm raid get controllers -o
 - racadm raid get enclosures -o
 - racadm raid get vdisks -o

- racadm raid get pdisks -o
- racadm license view
- racadm getsensorinfo
- racadm getactiveerrors
- racadm getpbinfo
- racadm getconfig -g cfgOobSnmp -o cfgOobSnmpAgentEnable
- racadm getconfig -g cfgTraps -i 1 -o cfgTrapsEnable
- racadm getconfig -g cfgTraps -i 1 -o cfgTrapsAlertDestIPAddr
- racadm getconfig -g cfgTraps -i 2 -o cfgTrapsEnable
- racadm getconfig -g cfgTraps -i 2 -o cfgTrapsAlertDestIPAddr
- racadm getconfig -g cfgTraps -i 3 -o cfgTrapsEnable
- racadm getconfig -g cfgTraps -i 3 -o cfgTrapsAlertDestIPAddr
- racadm getconfig -g cfgTraps -i 4 -o cfgTrapsEnable
- racadm getconfig -g cfgTraps -i 4 -o cfgTrapsAlertDestIPAddr
- racadm eventfilters get -c cmc.alert.all
- racadm getniccfg -m server-1
- racadm getniccfg -m server-2
- racadm getniccfg -m server-3
- racadm getniccfg -m server-4
- racdump

4. Capture the console output.

Manually Collecting Data For Enclosure — PowerEdge FX2

To collect the data, connect to the PowerEdge FX2 enclosure using SSH or Telnet.

To collect manually:

1. Start putty and enter the hostname and IP address.
2. Enter the login credentials to the PowerEdge FX2 at the prompt.
3. Run the following commands:
 - racadm getsysinfo
 - racadm getversion
 - racadm getversion -b
 - racadm getsvctag
 - racadm getslotname
 - racadm getniccfg
 - racadm getmacaddress -a
 - racadm getioinfo
 - racadm getdcinfo
 - racadm getdcinfo -n
 - racadm getmodinfo
 - racadm getflexaddr

- racadm getpminfo
 - racadm getpciecfg -a
 - racadm license view
 - racadm getsensorinfo
 - racadm getactiveerrors
 - racadm getpbinfo
 - racadm getconfig -g cfgOobSnmp -o cfgOobSnmpAgentEnable
 - racadm getconfig -g cfgTraps -i 1 -o cfgTrapsEnable
 - racadm getconfig -g cfgTraps -i 1 -o cfgTrapsAlertDestIPAddr
 - racadm getconfig -g cfgTraps -i 2 -o cfgTrapsEnable
 - racadm getconfig -g cfgTraps -i 2 -o cfgTrapsAlertDestIPAddr
 - racadm getconfig -g cfgTraps -i 3 -o cfgTrapsEnable
 - racadm getconfig -g cfgTraps -i 3 -o cfgTrapsAlertDestIPAddr
 - racadm getconfig -g cfgTraps -i 4 -o cfgTrapsEnable
 - racadm getconfig -g cfgTraps -i 4 -o cfgTrapsAlertDestIPAddr
 - racadm eventfilters get -c cmc.alert.all
 - racdump
4. Capture the console output.

Manually Collecting Data For HITKIT Appliance Under VRTX

To collect manually:

1. Login to the HITKIT VM using root privilege through SSH.
2. Select the **Diagnostics** option in the Hitkit VMware
List of items is displayed.
3. Select **Gather support Information** from the list of items.
The output file is saved in the CIFS share – \\<share IP>\database\<logfile.zip> file.
4. Run the command: net use \\<share IP>\database\USER:<share IP>\<username>
<password> to connect to the appliance from the local system.
5. Run the command: CMD /C MOVE /Y\\<share IP>\database\<logfile.zip> "<User selected path>" to copy the logs to the local system.
6. Run the command net use \\<share IP>\database /d to disconnect the appliance from the local system.

Manually Collecting Data For SAN HQ DEVICE

To connect manually:

1. Log in as administrator to the target Windows system.

 **NOTE:** For 32-bit and 64-bit operating systems, use **SANHQCollector.exe**. Before running **SANHQcollector.exe**, make sure that the Windows Management Instrumentation (WMI) service is running.

2. Copy the **ICSharpCode.SharpZipLib.dll** and **SANHQCollector.exe** config files from the **<LassoInstallDir>\bin** folder to the target Windows system. The files can be found in the Lasso installation directory in the **\Dell\Lasso\Bin** location.
3. Run the **SANHQCollector.exe** file. The **Lassogrpx<timestamp>.zip** file is created in **<SystemRoot>\temp\Dell\Lasso**.

Manually Collecting Data For SCVMM 2008 and 2012

To collect manually:

1. Click **Start** → **Run** type **cmd**, press Enter.
2. To set the execution policy, run the following command: **powershell Set-ExecutionPolicy Unrestricted –Force**.
3. Copy the **SCVMMCollector.ps1** file from **%LASSODIR%\bin** folder to the target host having VMM setup.
4. Run the command : **powershell <dir>\SCVMMCollector.ps1 –User <domain\User Name> –password<password> –outFolder<output folder absolute path> –psdFilePath <absolute path of PSD file>**.

Collection file is stored in the output directory.

Example:

- For SCVMM 2008:

```
powershell c:\temp\SCVMMCollector.ps1 -user AMERICAS\abc -password xyz -outFolder c:\temp\collection.txt -psdFilePath null
```
- For SCVMM 2012:

```
powershell c:\temp\SCVMMCollector.ps1 -user AMERICAS\abc -password $services1 -outFolder c:\temp\collection.txt -psdFilePath %SCVMMINSTALLDIR%\psModules\virtualmachinemanager\virtualmachinemanager.ps1
```

where **%SCVMMINSTALLDIR%** is the SCVMM installation directory.

Manually Collecting Data For PowerConnect Controller

To collect manually:

1. Log in to PowerConnect Controller through SSH/Telnet .
2. Run the following commands:
 - show run
 - show version
 - show license verbose
 - show license limits
 - show log all
 - show tech
 - show ap active
 - show aaa profile

- show aaa authentication all
- show firewall
- show keys all
- show vlan mapping

Manually Collecting Integrated Server Information Within VRTX

To manually collect integrated server information within VRTX

1. Run the command prompt as an administrator.
2. Run **cscript Integrate_Server_Collector.vbs** in the Lasso installation directory.
3. Type the hostname, username, and password.
DSET report collection starts and the report will be copied to the desktop.
4. To view the report, unzip the .zip file using the password 'dell'.

Collecting Data Using CLI

Lasso is normally run from the shortcut that calls a batch file. This batch file launches the Java UI. Once the environment is configured and validated, then Lasso Java UI calls individual scripts to automate the collections. The Java UI process can be automated with Java CLI options.

To start Lasso using CLI, it requires JRE 1.6 or later installed in the system.

Create the configuration file using the GUI, before running Lasso using CLI.

To start collection, run the following command from **<LassoInstallDir>** path:

```
Lasso.cmd <options>
```

Where options are:

- -Q – quiet mode; not using GUI.
- -F<filename> – customer config xml file, absolute path.
- -P<password> – required to unlock password vault.
- -OF<Output Filename> – output filename for collection.
- -IP<Internet Protocol> – IP address of the device.
- -DT<Device Type> – device type.
- -UN<UserName> – user name of the device.
- -PD<Password> – password of the device.
- -RP<RootPassword> – root password of the host.
- -A – Advanced logs for HitKit/VMware collection.
- -B – HitKit collection for Basic mode (default).
- -ST<Storage Array> – type of storage array (optional).
- -SU<SudoUser> – sudo user.
- -D<DomainName> – domain name.
- -UX – upload xml collection only.
- -UZ – upload full collection.
- -Secured – secured CLI information.
- -deltaSR – delta service request number.
- -PMmail – Dell Support Contact.
- -GD – gather diagnostic data. To gather diagnostic data, include this argument for EqualLogic collection. The value is False by default.
- -EP – enable password for Ethernet Switches. If the Ethernet switches are configured with enable password, then -EP argument is mandatory in the command.
- -PI<Proxy IP/Hostname> – proxy server's host name or IP address.
- -PN<Proxy Port number> – proxy server's port number.
- -PU<Proxy Username> – proxy server's user name.
- -PP<Proxy Password> – proxy server's password.

- -RD-<Results directory path> – customize the results directory path.
- -NU – disable the report upload.
- -NA – report not archived.
- -CS – community string.
- -CN – company name.
- -IMPORT – to import the excel sheet.
- -VALIDATE – to validate the device type.
- -SP – to display data collection progress in CLI

 **NOTE:** All options are case-insensitive.

 **NOTE:** -UZ argument cannot be used when -Secured option is used.

While running Lasso in CLI mode, the -p<password> argument in the command is optional. When this argument is not entered, the "Please enter the device password:" message is displayed. To start the collection, enter the password.

 **NOTE:** Authentication of proxy is optional. If proxy is entered, then IP address, port number, user name, and password arguments are optional. If port number is not provided, then default port 80 is used. If proxy user name is included and password is not included, then a prompt requesting for password is displayed. If port number is other than default(80), then IP address is mandatory.

Following are examples of the commands to run lasso:

- The command to run Lasso:

```
lasso.cmd -Q -F<absolute path of customer config XML file> -P<Password to unlock config XML file>
```
- The command to run with secure site option:

```
lasso.cmd -Q -F<absolute path of customer config XML file> -P<Password to unlock config XML file> -Secured
```
- The command to run with input stream option:

```
lasso.cmd -Q -F<absolute path of customer config XML file>
```
- The command to run Lasso and disable upload of the report:

```
lasso.cmd -DT <device type> -IP <Internet Protocol> -Q -UN <User name> -PD <Password> -NU
```
- The command to run Lasso and not archive old reports:

```
lasso.cmd -DT <device type> -IP <Internet Protocol> -Q -UN <User name> -PD <Password> -NA
```
- The command to import the excel sheet:

```
lasso.cmd -Q -IMPORT<absolute path to excel sheet>
```
- The command to display data collection progress:

```
lasso.cmd -Q -IP <Internet Protocol> -DT <Device Type> -UN <User name> -PD <Password> -SP <Display Progress>
```

Collecting For Single Device Using CLI

For single device collection, run the command:

```
lasso.cmd -Q -OF <O/P FileName> -IP <Device IP> -DT <DeviceType> -UN <User Name> -PD <Password> -D <Domain Name> -Secured -RD <Results directory path>
```

NOTE:

- -OF argument is optional in the command.
- If password is not entered in the command, then the input stream is prompted to enter the password.
- -RD argument is mandatory when running Lasso using System account.

The following table provides the device types supported by Lasso for single device collection

Devices	Device Types	Parameters Required	Optional Parameters
Storage Arrays	CLARiiON	-IP <IP/HostName>, -UN <UserName>, -PD <Password>, -DT CLARiiON	
	EqualLogic	-IP <IP/HostName> -CS <Community String>, -DT EqualLogic	-UN <UserName>, -PD <Password>
	Compellent	-IP <IP/HostName>, -UN <UserName>, -PD <Password>, -DT Compellent	
	Celerra	-IP <CS IP/HostName>, -UN <UserName>, -PD <Password>, -DT Celerra	
	MDSeries	-IP <IP/HostName>, -DT MDSeries	
NAS	EQLFluidFSNAS	-IP <Mgmt IP>, -UN <UserName>, -PD <Password>, -DT EQLFluidFSNAS	
	PVFluidFSNAS	-IP <Mgmt IP>, -UN <UserName>, -PD <Password>, -DT PVFluidFSNAS	
	CompellentFluidFSNAS	-IP <Mgmt IP>, -UN <UserName>, -PD <Password>, -DT CompellentFluidFSNAS	

Devices	Device Types	Parameters Required	Optional Parameters
Fibre Channel Switches	Brocade	-IP <IP/HostName>, -UN <UserName>, -PD <Password>, -DT Brocade	
	McData	-IP <IP/HostName>, -UN <UserName>, -PD <Password>, -DT McData	
	McDataBlade	-IP <IP/HostName>, -UN <UserName>, -PD <Password>, -DT McDataBlade	
	Cisco	-IP <IP/HostName>, -UN <UserName>, -PD <Password>, -DT Cisco	
Ethernet & FCoE Switches	CiscoEthernet	-IP <IP/HostName>, -DT CiscoEthernet	-UN <UserName>, - PD <Password>, - EP<Enable Password>
	CiscoNexus	-IP <IP/HostName>, -UN <UserName>, -PD <Password>, -DT CiscoNexus or CiscoFCoE	
	PowerConnect or Dell Networking	-IP <IP/Hostname>, -DT PowerConnect/ DellNetworking	-UN <UserName>, - PD <Password>, - EP<Enable Password>
	Force10 or Dell Networking	-IP <IP/HostName>, -DT Force10/DellNetworking	-UN <UserName>, - PD <Password>, - EP<Enable Password>, -OF<Output FileName>
	BrocadeEthernet	-IP <IP/Hostname>, - UN<UserName>, - PD<Password>, -DT BrocadeEthernet	
	EthernetSwitch	-IP <IP/Hostname>, -DT EthernetSwitch	-UN <UserName>, - PD <Password>, - EP<Enable Password>
	Dell Networking	-IP <IP/Hostname>, -DT DellNetworking	-UN <UserName>, - PD <Password>, - EP<Enable Password>

Devices	Device Types	Parameters Required	Optional Parameters
		 NOTE: -EP is optional. If the PowerConnect Ethernet switch is configured, then password is required for Lasso to perform the collection.	
		 NOTE: -EP is not required for PowerConnect B-Series and M8428K.	
Tape Libraries	PV132T	-IP <IP/HostName>, -UN <UserName>, -PD <Password>, -DT PV132T	
	PV136T	-IP <IP/HostName>, -UN <UserName>, -PD <Password>, -DT PV136T	
	TL2000	-IP <IP/HostName>, -DT TL2000	
	TL4000	-IP <IP/HostName>, -DT TL4000	
	ML6000	-IP <IP/HostName>, -PD <Password>, -DT ML6000	
		 NOTE: Lasso does not support Tape Libraries in this release.	
Attached Hosts	Windows	-IP <IP/HostName>, -UN <UserName>, -PD <Password>, -DT Windows, -D <Domain>, -ST <Storage Array Type>	-D <Domain>
	Linux	-IP <IP/HostName>, -UN <UserName>, -PD <Password>, -DT Linux, -ST <Storage Array Type>	-RP <RootPassword>, -SU
	Solaris	-IP <IP/HostName>, -UN <UserName>, -PD <Password>, -DT Solaris, -ST <Storage Array Type>	
	HP-UX	-IP <IP/HostName>, -UN <UserName>, -PD <Password>, -DT HP-UX, -ST <Storage Array Type>	
	AIX	-IP <IP/HostName>, -UN <UserName>, -PD <Password>, -DT AIX, -ST <Storage Array Type>	

Devices	Device Types	Parameters Required	Optional Parameters
	VMware	-IP <IP/HostName>, -UN <UserName>, -PD <Password>, -DT VMware, -ST <Storage Array Type>	-RP <RootPassword>, -A, -SU
	Oracle VM Server	-IP <IP/HostName>, -UN <UserName>, -PD <Password>, -DT OracleVMServer, -RP <RootPassword>, -A, -SU, -ST <Storage Array Type>	
		 NOTE: -A is used to collect advanced logs (VM support logs) information.	
		 NOTE: To provide the Sudo user credentials in Lasso for collecting data from Linux or VMware, the switch -SU is mandatory.	
		 NOTE: -ST is mandatory and can have Celerra, CLARiiON, EqualLogic, MD Series or Compellent types of storage array. If do not want to select any storage type, type "no storage array" or nostoragearray	
Enclosures	M1000e	-IP<IP/HostName>, -UN<UserName>, -PD<Password>, -DT M1000e	
	VRTX	-IP<IP/HostName>, -UN<UserName>, -PD<Password>, -DT VRTX	
	PowerEdge FX2	-IP<IP/HostName>, -UN<UserName>, -PD<Password>, -DT PE FX2	
Management and Monitoring Software	HIT Kit for VMware	-IP<IP/HostName>, -UN<UserName>, -PD<Password>, -DT HITKITVM	-A or -B
	SANHQ	-IP<IP/HostName>, -UN<UserName>, -PD<Password>, -D<Domain>, -DT SANHQ	

Devices	Device Types	Parameters Required	Optional Parameters
	VCenter	-IP<IP/HostName>, - UN<UserName>, - PD<Password>, -DT VCENTER	-D<Domain>
	SCVMM	-IP<IP/HostName>, - UN<UserName>, - PD<Password>, - D<Domain>, -DT SCVMM	
Management and Monitoring Software	PowerConnectController	-IP<IP/HostName>, - CS<Community String>, - UN<UserName>, - PD<Password>, - EP<EnablePassword>, - DT PowerConnectController	-D<Domain>

The following examples provide the command for single device collection for various devices.

- `lasso.cmd -Q -IP <IP/HostName> -DT <Device Type> -ST <Storage Array Type> -UN <UserName> -PD <Password> -CN <Company Name>`
- `lasso.cmd -Q -OF <OutputFileName> -IP <IP/HostName> -DT <Device Type> -UN <UserName> -PD <Password>`
- `lasso.cmd -Q -IP <IP/HostName>,<IP/HostName> DT <Device Type> -UN <UserName> -PD <Password>`
- `lasso.cmd -Q -IP <IP/HostName> -CS <Community String> -DT <Device Type>`
- `lasso.cmd -Q -IP <IP/HostName> -DT <Device Type> -UN <UserName> -PD <Password>`
- `lasso.cmd -Q -IP <IP/HostName> -DT <Device Type> -UN <UserName> -PD <Password> -Secured`
- `lasso.cmd -Q -DT <Device Type> -IP <IP/HostName> -CS <Community String> -UN <UserName> -PD <Password> -Secured`
- `lasso.cmd -Q -IP <IP/HostName> -DT <Device Type> -ST <Storage Array Type> -UN <UserName> -PD <Password> -SU`
- `lasso.cmd -Q -DT <Device Type> -IP <IP/HostName> -UN <UserName> -PD <Password>`
- `lasso.cmd -Q -DT <Device Type> -IP <IP/HostName> -UN <UserName> -PD <Password> -EP <Password>`
- `lasso.cmd -Q -DT <Device Type> -IP <IP/HostName> -UN <UserName> -PD <Password> -A`
- `lasso.cmd -Q -DT <Device Type> -IP <IP/HostName> -UN <UserName> -PD <Password> -B`
- `lasso.cmd -Q -DT <Device Type> -IP <IP/HostName> -UN <UserName> -PD <Password> -RD c:\LassoReports\`
- `lasso.cmd -Q -IP <IP/HostName> -DT <Device Type> -CS <Community String> -PI <Proxy IP/Hostname>`

 **NOTE:** The default proxy port number that is used is 80.

- `lasso.cmd -Q -IP <IP/HostName> -DT <Device Type> -CS <Community String> -PI <Proxy IP/Hostname > -PN <Proxy Port Number>`
- `lasso.cmd -Q -IP <IP/HostName> -DT <Device Type> -CS <Community String> -PI <Proxy IP/Hostname > -PN <Proxy Port Number> -PU <Proxy UserName> -PP <Proxy Password>`

 **NOTE:** Proxy password can be used a input stream and depends on `-PU` option.

Where options

- `-Q` is quiet mode and is mandatory for all devices.
- `-OF` is the output file name for collection and is optional for all devices.

 **NOTE:** To validate the input values with special characters, type in double quotation marks ("").

```
lasso.cmd -Q -DT "Cisco Ethernet" -IP XX.XX.XX.XX -UN admin -PD
"Sample*&^Pwd"
```

Troubleshooting

Lasso may receive errors when trying to automate validation and collection.

When a collection fails, click the **Error Found** icon and review the log. The error code and the description are available at the end of the log.

Try to run the collection again. For this, select the required device and click **Start Collection**.

If the problem persists, try to run one of the commands related to the device type. To only collect the data and not troubleshoot, see [Manual Collection](#).

 **NOTE:** When there are many Storage Arrays, Switches, and Attached Hosts, then run the collection in multi threaded mode. For this, change the thread level value to 0 in the **Parser.properties** file located in the InstallDir.

`thread.level = 0` – Lasso runs in Forceful multi thread mode.

`thread.level = 1` – Lasso runs in normal mode.

`thread.level = -1` (default) – Lasso runs in system configuration.

Troubleshooting EMC Package Installation

For successful download and install of EMC Package, make sure FTP client is running on Lasso management station and **ftp.dell.com** is reachable (check the FTP service on the same it should be available and running) or check respective server FTP service status for which the URL is defined in **LassConfig.xml**.

How to check target FTP server is available and running?

1. Using the browser, enter the **ftp://ftp.dell.com/serviceability** url.
2. Check for **LassoCatalog.cab** file.

If the file is not available, retry downloading the catalog file from lasso.

Related Topics:

- [Troubleshooting Unsuccessful Lasso Catalog Download](#)
- [Troubleshooting Unsuccessful Catalog Download Using Proxy](#)
- [Troubleshooting Unsuccessful EMC Package Download](#)
- [Troubleshooting Unsuccessful EMC Package Install](#)

Troubleshooting Unsuccessful Lasso Catalog Download

To troubleshoot unsuccessful Lasso catalog download:

1. Make sure that local ftp client is running:
 - a. Click **Start** → **Run** type cmd, press Enter.
 - b. Type **ftp <server address>**.
2. Make sure that ftp server is available and running:
 - a. Using the browser, enter the **ftp://ftp.dell.com/serviceability** url.
 - b. Check for **LassoCatalog.cab** file.
3. If the ftp server is not available:
 - a. Ping ftp server.
 - b. If the server is accessible, check the firewall settings to unblock the ftp port (port 20 and 21).

Troubleshoot Unsuccessful Lasso Catalog Download Using Proxy

To troubleshoot unsuccessful Lasso catalog download using proxy:

1. Make sure that local ftp client is running:
 - a. Click **Start** → **Run** type cmd, press Enter.
 - b. Type **ftp <server address>**.
2. Make sure that ftp server is available and running:
 - a. Using the browser, enter the **ftp://ftp.dell.com/serviceability** url.
 - b. Check for **LassoCatalog.cab** file.
3. If the ftp server is not available:
 - a. Ping ftp server.
 - b. If the server is accessible, check the firewall settings to unblock the ftp port (port 20 and 21).
4. Make sure that proxy server is reachable with port mentioned.
5. If the server is reachable, make sure that user name and password are valid.

Troubleshooting Unsuccessful EMC Package Download

To troubleshoot unsuccessful EMC package download:

1. Make sure that local ftp client is running:
 - a. Click **Start** → **Run** type cmd, press Enter.
 - b. Type **ftp <server address>**.
2. Make sure that ftp server is available and running:
 - a. Using the browser, enter the **ftp://ftp.dell.com/serviceability** url.
 - b. Check for **LassoCatalog.cab** file.
3. If the ftp server is not available:
 - a. Ping ftp server.

- b. If the server is accessible, check the firewall settings to unblock the ftp port (port 20 and 21).
4. Make sure that proxy server is reachable with port mentioned.
5. If the server is reachable, make sure that user name and password are valid.
6. If the checksum validation is unsuccessful, retry package download.

Troubleshooting Unsuccessful EMC Package Installation

To troubleshoot unsuccessful EMC package installation:

1. Make sure that the files and folder permissions are in `%allusersprofile%\Dell\Lasso`.
2. Make sure that there is necessary disk space in `%systemdrive%`.
3. Make sure that no other installation process is in progress for the same EMC package.

Troubleshooting Unix Host Collection

To complete the Unix host collection, Lasso uses SSH. The `EMCGrab` or `vm-support` command requires root level access.

The following are required for SSH connection/collection:

- Root credentials — Lasso uses this to connect to the system through SSH protocol.
- Normal user credentials and root password — Lasso uses this to connect to the system through the SSH protocol.
- Sudo user credentials — Lasso uses this to connect to the system through the SSH protocol. The root password is not required for Sudo user with admin rights.

 **NOTE:** For EqualLogic and MD Series SAN, the Sudo user credentials are applicable only to Linux and vSphere.

Allowing Root Access To Unix Server

To allow root access to a UNIX server, make the change directly to the configuration file. To do this:

1. Login to the system console (or SSH as user and type `su` to gain root access).
2. Edit the file `/etc/ssh/sshd_config`.
3. Change the setting from `PermitRootLogin no` to `PermitRootLogin yes`.
4. Change the setting from `PasswordAuthentication no` to `PasswordAuthentication yes`.

 **NOTE:** In a few Unix systems, the `PasswordAuthentication` is set to `yes` by default.

5. Run the command `service sshd restart`.

Allowing Root Access Using Multi User Interface (MUI) On VMware

The Multi User Interface (MUI) on VMware ESX 3.0/4.0 can also be used to allow root access. When using the MUI, do the following:

1. Select the ESX server in the VI Client
2. Select Configuration
3. Select Security Profile
4. Choose Properties

5. Select SSH Server and place a check in the box
6. Retry Lasso against this host

 **NOTE:** In few UNIX systems including VMware ESX 3.0, SSH is disabled as root by default. This default behavior prevents Lasso from executing the command through SSH remotely if root credentials are used. For more information, see [Prerequisites For Data Collection](#).

Troubleshooting MD Series

To troubleshoot MD Series, make sure that:

- MDSM software is installed in the system or you can download this from `%SystemDrive%\Program Files\Dell\MD Storage Manager\client\` location. However, the location may vary depending on the system.
- The path of MDSM software is defined before executing commands.

To troubleshoot:

MD Series validation:

Run the command `SMcli -A <IPAddress of MD Series Array>`. Example: `SMcli -A 10.15.216.101`

If the IP address is validated successfully, the **SMcli executed successfully** message is displayed. Else, **SMcli failed** message is displayed.

 **NOTE:** When a new MD Series array is added, the device is always validated. This assists in quick connection to each Raid Core 0 IP or Raid Core 1 IP.

Click **Validated** or **Error Found** to view the validation status.

MD Series collection:

Before troubleshooting, also make sure that the RAID controller module firmware is compatible with the MD Storage Manager software on the management station. If the RAID controller module firmware is upgraded, then upgrade the MD Storage Manager software. Else, there may not be access to the storage array.

1. Run the command `SMcli -c "show storagearray profile;" < IPAddress of MD Array><USERPROFILE Dir\Results\Hostname.txt>`
The command output is generated in the `Hostname.txt` file in the `USERPROFILE Dir\Results\` location.
2. Run the command `SMcli -c "save storageArray SupportData file=\"USERPROFILE Dir\Results\Hostname.zip\";" < IPAddress of MD Array>`
The command output is generated in the `Hostname.zip` file in the `USERPROFILE Dir\Results\` location.

 **NOTE:** When the validation or collection operation of a Storage Array is timed out, then check the `DasArray.properties` file in the `InstallDir` location and increase the timeout value.

For example: `mdseries.timeout.value.collection = 200000`. The value is 120000 by default.

To view the collection status, click **Collected** or **Error Found**.

Troubleshooting Compellent Collections for SCOC Versions Prior to 6.6.x

For successful validation or collection, make sure that the PhoneHome functionality to the Compellent Co-pilot services is working.

To troubleshoot Compellent collections:

 **NOTE:** The following troubleshooting steps are applicable only for SCOS versions prior to 6.6.x

1. If multiple IPs are configured on Lasso management station, include the IP address of the same subnet as array in the Compellent.property file to connect to the array.
2. Enter the storage center IP address and log in credentials in Lasso, and then run the collection.
3. Verify the proxy configuration on the array.
4. If the data collection is unsuccessful, the PhoneHome configuration may not be reset correctly and the array may not be able to start PhoneHome to the Compellent Co-pilot. Information about the failure to PhoneHome can be found in the system logs on the storage array. To troubleshoot the issue:

Browse to the Lasso installation directory and run the following command in the CLI.

```
CSC_Client.exe resetmc <StorageCenterIP> <UserName> <Password> <AltPhoneHome IPAddr> <UseAltPhoneHome IPAddr> <Alt PhoneHome PortNo> <Use Alt PhoneHome proxy> <Use PhoneHome Proxy>
```

- `CSC_Client.exe resetmc` – command used to reset the PhoneHome service to point to Co-pilot
- `StorageCenterIP` – IP address of the storage center
- `UserName` – User name of the storage center
- `Password` – Password of the storage center
- `AltPhoneHome IPAddr` – IP address of the alternate PhoneHome

 **NOTE:** If alternate PhoneHome IP address is not configured, then set the `AltPhoneHome IPAddr` value to "".

- `Alt PhoneHome PortNo` – Port number of the alternate PhoneHome
- `UseAltPhoneHome Proxy` – Set to `False` for disabling the alternate PhoneHome proxy
- `Use PhoneHome Proxy` – Set to `True` for enabling the PhoneHome proxy

Troubleshooting Compellent Collections for SCOS Versions Later Than 6.6.x

For successful validation or collection, make sure that the Enterprise Manager Client is installed on the server on which Lasso is installed.

To Troubleshoot Compellent collections:

1. Verify the EM logs to check the array configurations.
2. If the collection is unsuccessful with a time out error, increase the time out and retry the collection.

Troubleshooting EqualLogic

For successful validation or collection, make sure that SNMP is enabled on the EqualLogic. To enable, connect to the array using a browser and provide the <GROUP/Network Management IP Address>. To troubleshoot:

1. In the EqualLogic Array UI, click **Group Configuration**.
2. Navigate to **SNMP** tab and add a SNMP community string in the **Access** section.

 **NOTE:** The string is case sensitive.

If validation or collection fails when the Group IP or Member IP of the array is provided, then make sure that the IP is correct and available. If yes, to verify that the IP is listed:

- a. Connect to the EqualLogic array using the browser and enter **http://groupIPAddress** or **http://managementIPAddress** in the URL. The array GUI is displayed.
- b. Click the **Members** tab and select the required member.
- c. Click **Network** tab and verify that the Member IP provided is in the list.

Troubleshooting Storage Processor

The following section includes troubleshooting for Storage Processor validation and collection.

To troubleshoot:

Storage Processor validation

1. Connect to the storage processor using Navisphere Manager by entering **http://hostname_or_ipaddress/**.
2. Check if the administrative access to the processor is available with the provided username and password.
3. Make sure that **NaviCLI.exe** is installed in your system and available at the correct path. To verify this run **NaviCLI.exe** at the command prompt.
If error is displayed, then verify that **NaviCLI.exe** is available in Navisphere install directory. If not, reinstall Navisphere by selecting the option **Install Classic CLI** in **Navisphere CLI Optional Features** page of the installer.

Storage Processor Collection

1. Use **http://hostname_or_ipaddress/** to connect to SP through Navisphere Manager.
2. Right click SPA or SPB to check the SP event logs.
3. Clear all the old SP collection using File Transfer Manager.
4. Clear all listed Privileged Users to open access to all users.
 **NOTE:** This is the default for CX arrays.
5. Add the entry for the system running Lasso to the array. This will limit access to only the listed users. AX arrays have one entry by default. Therefore, SPCollects always fail on AX arrays unless the system running Lasso is added as a privileged user.
6. Connect to Navisphere Manager manually and run the SPCollect.
7. Copy the collection to **%USERPROFILE%\Dell\Lasso\results**

While troubleshooting collectio, to edit privilege user on:

- CX array, see [Edit Privilege User on CX array](#).
- AX Array, see [Edit Privilege User on AX Array](#).

Edit Privilege User On CX Array

To edit privileged users on CX array:

1. Use **http://ip.address.of.sp** to login to the setup of the array.
2. Expand the Array tree
3. Right-click on the SP and choose **Properties**.
4. Select the required **Agent**.
5. Clear any entry in the list. The access is now available to all or you can add the system that is running Lasso in the form of **username@host** . Example: samus_aran@some.system

Edit Privilege User On AX Array

To edit privileged user on AX array:

1. Use **http://ip.address.of.sp/Setup** to login to the setup for the Array.
2. Select **Set Privileged Users** option or add the system that is running Lasso as **username@host**. Example: samus_aran@some.system



NOTE: The list of available privileged users cannot be viewed but user is available on all AX Arrays. Therefore, by default SPCollects will not work on the AX array unless an entry is included.

Troubleshooting Switches

To reproduce the steps Lasso performs when automating Switch validation or collection, add SSH/Telnet to each switch to make sure that the user name/password credentials are correct and the prompt requesting for password change is not displayed.

MCData switches have different password databases for the web UI and CLI. If the CLI administrator password cannot be used, a password reset may be needed. Refer to *McData's documentation for password reset procedures* for the procedure.

To add a user (newuser) to the authentication database using the CLI, run the following commands at the prompt:

1. `config security authentication user add newuser web cli`
2. `config security authentication user role newuser Administrator`
3. `config security authentication user show cli`

The following table provides the list of user name, interfaces, and the user role:

Interface: CLI

Username	Interfaces	Role
Administrator	Web, CLI	Administrator
newuser	Web, CLI	Administrator

Troubleshooting Ethernet Switch

To reproduce the steps Lasso performs when automating Ethernet Switch validation or collections:

1. Add Telnet to each switch to make sure that username/password credentials are correct and the prompt such as password change request is not displayed.
2. Enter the execute mode to make sure that the enabled password is available.

Troubleshooting Tape Library

 **NOTE:** Lasso does not support Tape Libraries in this release.

To reproduce the steps Lasso performs when automating Tape Library validations or collections:

1. Add Telnet to each switch to make sure that username/password credentials are correct and the prompt such as password change request is not displayed.
2. Test the actual command Lasso runs.
For the commands, see [Manual Collection for Tape Libraries](#).

Troubleshooting Unix

Validation or collection uses the provided username and password to make a remote connection to the target device and execute a simple command.

- If validation or collection fails for Lasso, error messages are displayed.
- If error is displayed on validation or collection, try running the Lasso commands.
- To test the command, use putty or other SSH client to login to the remote system. Use the same credentials as Lasso. If a non-root id is used to login to the system, run `su-` to make sure that the root password entered is correct. If root prompt is displayed, log out and close putty.

If you wish to collect the data manually, see [Manual Unix Collection](#) or [Manual VMware Collection](#).

Troubleshooting Windows

Validation or collection uses the provided username and password to make a remote connection to the target device and execute a simple command.

- If validation or collection fails for Lasso, error messages are displayed.
- If error is displayed on validation or collection, try running the Lasso commands.

To test the command:

1. From Start menu open the command prompt window.
2. At the prompt, change to the **bin** directory where Lasso is installed. To do this, enter:`cd c:\Program Files\Dell\Lasso\bin\.`
3. For collection, copy from **mkdir \\Device_Hostname\c\$\temp\Dell\Lasso\EMCReports\ the appropriate EMCReport** to the remote system using the command `copy EMCRPTS_*_V30.EXE \\Device_Hostname \c$\ temp\ Dell\ Lasso\ EMCReports\.`

The output should be the hostname of the system you are connecting to and the original prompt should be displayed.

If errors are displayed, then the system cannot connect to the remote device.

If you wish to just collect data manually, see [Manual Windows Collection](#)

Troubleshooting Enclosures

To reproduce the steps Lasso performs when automating Enclosures validation or collection:

- Telnet or SSH to each Enclosure to make sure that user name/password credentials are correct

Troubleshooting HITKIT Collection

To complete the Hitkit software collection, Lasso uses SSH.

The root credentials are required for SSH connection. Lasso uses this to connect to the system through SSH protocol.

Troubleshooting SAN HQ Device

To troubleshoot, check the server installation details of Dell EqualLogic SAN Headquarters device from the registry entry: `HKLM\SOFTWARE\EqualLogic\PerformanceMonitor`.

Make sure that the value of the *install type* attribute is "Full" and *logdir* attribute has a value.

Troubleshooting PowerVault FluidFS NAS Collection

If validation fails when the Management IP of the array is provided for validation, make sure that the provided IP is correct and available. Also make sure that the FTP connection to the Management IP is established from the Windows host on which Lasso is installed.

Troubleshooting EqualLogic FluidFS NAS Collection

If validation fails when the Management IP of the array is provided for validation, make sure that the provided IP is correct and available. Also, make sure that the FTP connection to the Management IP is established from the Windows host on which Lasso is installed.

For more information, see [Manual EqualLogic FluidFS NAS Collection](#)

Troubleshooting Celerra Collection

To troubleshoot:

- Use `http://hostname_or_ipaddress/` to connect to the Celerra control station.
- If you are not using root credentials, then verify that the user name has the *State* enabled, primary group is *nasadmin (operator)*, and groups are *fullnas (nasadmin)*.

Troubleshooting VMware Collection

To display the error message received during collection, try to run the Lasso commands.

Lasso collection uses the provided user name and password to make a remote connection to the target device and execute a command. If collection fails in Lasso, test the command using the following steps:

1. Use a secure telnet client like putty to login to vmware system using root privilege.

For steps to allow root access, see [Allowing Root Access To Unix Server](#).



NOTE: If root access is not enabled through SSH, use dual mode authentication.

2. Run `vm-support-n` and use secure ftp client to transfer the collection created in the root user's home directory. The collection is transferred to the `%USERPROFILE\ Dell\ Lasso\ results` folder.

To collect the data manually and not troubleshoot, see [Manual VMware Collection](#).

Troubleshooting PowerConnect Controller

For successful validation and collection, make sure that prerequisites are met. For more information on prerequisites, see [Prerequisites For Data Collection](#)

Troubleshooting Lasso Run As System Account

When Lasso is run using the system account, the report is not saved in the default location. To troubleshoot this:

1. Install PSEXec.
2. Run CMD as Administrator.
3. Navigate to PSEXec.
4. Enter the command `psexec -I -s cmd.exe`.
5. In the new console window that appears, run the command with `-RD` parameter.

Error Codes

The following table provides the error codes and the messages.

Error Code	Error Message
0	Operation completed normally.
1	Unable to complete operation. Check the log file.
2	Undefined device subtype. Check the log file.
3	Undefined device type. Check the log file.
4	Operation in progress.
5	One or more collection failed. This is applicable only in case of multiple device collection and not for single device collection. When you invoke Lasso in quiet mode (CLI) with a customer configuration file, and if any one of the device collection fails, Lasso will exit with this error.
6	Collection and upload failed. If the collection failed and also the upload, Lasso will exit with this error code.
7	Upload unsuccessful.
9	Unknown option. Check the log file.
10	Parameter is already specified for the session. Check the log file.
11	Operation timed-out.
20	UPLOAD_UNKNOWN_ERROR Unknown error while uploading.
21	UPLOAD_OPTION_ERROR Upload option provided is not found. Check the option provided to upload the file.
22	UPLOAD_FILE_SIZE_ERROR File size is large. Ensure that the file size does not exceed the expected limit.
23	UPLOAD_CERTIFICATE_ERROR

Error Code	Error Message
24	<p>Certificate authentication failed. Ensure that the client certificate is valid and able to authenticate to the server.</p> <p>UPLOAD_CHUNK_ERROR</p> <p>Not able to split the file into chunks. Ensure that the file size is not equivalent to zero KB.</p>
25	<p>UPLOAD_SERVER_ERROR</p> <p>Not able to receive acknowledgement for the chunk sent. Ensure that the server is responding to the client's requests.</p>
26	<p>UPLOAD_INVALID_FILE_ERROR</p> <p>File not found. Ensure that the file is available to upload.</p>
27	<p>UPLOAD_TIMEOUT_ERROR</p> <p>The upload has timed out. Check the network connection.</p>
28	<p>UPLOAD_MODULE_INIT_FAILED</p> <p>Failed during the module initialization.</p>
29	<p>UPLOAD_MODULE_PROXY_ERROR</p> <p>Unable to reach Proxy server. Check the proxy settings in the browser.</p>
30	<p>UPLOAD_MODULE_PROXY_UNSUPPORTED_AUTH_SCHEME</p> <p>Unsupported type of authentication scheme.</p>
31	<p>AUTHENTICATION_FAILED</p> <p>Authentication for proxy has failed.</p>
32	<p>UPLOAD_MODULE_RETRY_SEND_CODE</p> <p>Retry upload after the certificates are installed.</p>
101	<p>%emcExecutable% not found. The package is either corrupt or not installed correctly. Try to reinstall Lasso.</p>
102	<p>%dsetExecutable% not found. The package is either corrupt or not installed correctly. Try to reinstall Lasso.</p>
103	<p>Failed to determine remote system drive and remote system root.</p>

Error Code	Error Message
104	Failed to create temporary directory on remote host.
105	Failed to retrieve completed collection from remote system. Lasso is unable to copy the completed collection from the remote system. Make sure that dot net version 2.0 or later is installed on the remote system to run Dell Collector and create the collection file. Try to run Lasso again.
106	Failed to copy EMC Reports to remote host. Lasso is unable to copy the script from the remote system and the script may be suspended. Try to reboot the remote host. If rebooting failed, try to navigate to Task Manager on the remote host and find an <i>EMCReport</i> process and terminate it.
107	Host collection execution failed. Lasso is unable to copy the script from the remote system and the script may be suspended. Try to reboot the remote host. If reboot failed, try to navigate to Task Manager on the remote host and find the <i>EMCReport</i> process and terminate it.
108	Failed to retrieve completed collection from remote host. Lasso is unable to copy the completed collection from the remote system. Try to run Lasso again. If this error persists, check the <code>%SystemRoot%\EMCReports\collection\zip\</code> directory for a <code>.zip</code> file in the remote host system.
109	Another collection process may already be running on the host. Wait for the process to complete. If the error persists, then the remote script may be suspended. Try to reboot the remote host system. If rebooting failed, try to terminate the EMCReport.exe/DellCollector.exe or emcgrab.sh/dellcollector.sh process by navigating to Task Manager in Windows or ps -elf in the remote host system.
110	WMIC service currently unavailable.
111	Execution of a process or a command on the remote machine is unsuccessful.
113	Unable to access the remote folder.
114	Copying file to remote host was unsuccessful.

Error Code	Error Message
115	Cluster IP cannot be provided for windows host collection. Please provide the node IP and retry the collection.
118	Copying HyperVRecognize.exe to remote host was unsuccessful.
119	Host collection execution failed during HyperV Recognition. Lasso is unable to copy the script from the remote system and the script may be suspended. Try to reboot the remote host. If rebooting failed, try to navigate to Task Manager on the remote host and find the <i>HyperVRecognize</i> process and terminate it.
120	Failed to retrieve completed collection from remote host. Lasso is unable to copy the completed collection from the remote system. Try to run Lasso again. If the error persists, check for the .txt file in the %SystemRoot%\temp\Dell\Lasso\HyperV\ sub directories on the remote host system.
121	Failed to find debug log file in remote host. Lasso is unable to find the debug log file in the remote host. Try to run Lasso again. If the error persists, check the %SystemRoot%\temp\Dell\Lasso\DellCollector\ sub directories for a .txt file.
122	Failed to retrieve debug log file from remote host. Lasso is unable to copy the debug log file from the remote system. Try to run Lasso again. If the error persists, check the %SystemRoot%\temp\Dell\Lasso\DellCollector\ sub directories for a .txt file in the remote host.
150	Unable to determine the switch model details.
151	DSET validation is not successful. Dell System E-Support Tool is unable to connect to the system using any of the supported protocols.
152	DSET validation is not successful. Unable to gather Chassis or Storage data. Make sure that credentials and namespace are correct.
153	DSET validation is not successful. DSET application must be run with administrator or root privileges.
154	DSET validation is not successful. Exiting report collection because of an internal error.

Error Code	Error Message
155	DSET validation is not successful. Unable to gather Software or Logs data. Make sure that user name and password are correct, and then retry.
156	DSET validation timeout.
157	DSET validation is not successful. Validating Dell System E-Support Tool is not successful because of an unknown error code.
187	Unable to validate the device. Make sure that the connection to the device is available through FTP and then retry the operation.
188	Unable to validate the device. Make sure that MDSM Software has valid permissions and then retry the operation.
189	Unable to validate the device. Make sure that MD Storage Manager version is supported for the device and then retry the operation.
190	Unable to validate the device. Make sure that you login as administrator and then retry the operation.
191	Unable to validate the device. Timed out during validation.
192	Unable to validate the device. Make sure that the IP address or hostname are correct and then retry the operation.
193	Unable to validate the device. Make sure that the connection to the device is available through SSH and does not have active SSH console open, and then retry the operation.
194	Unable to validate the device. Make sure that you have provided CLI credentials and then retry the operation.
195	Unable to validate the device. Make sure that the connection to the device is available through SNMP, IP address or hostname and community string are correct and then retry the operation.
196	Unable to validate the device. Make sure that it is a valid Group or Member or Network Management IP address and then retry the operation.
197	Unable to validate the device. Make sure that the firmware version is 4.3.0 or later.
198	Unable to validate the device. Make sure that the connection to the device is available through SSH

Error Code	Error Message
	or Telnet and does not have active SSH or Telnet console is open, and then retry the operation.
199	Unable to validate the device. Make sure that the IP address or hostname, user name, and password are correct, and then retry the operation.
200	plink.exe not found.
201	pscp.exe not found.
202	Lasso_grab.sh not found. The error occurs when the package is either corrupt or not installed correctly. Try to reinstall Lasso.
203	EMC executable not found. The error occurs when the package is either corrupt or not installed correctly. Try to reinstall Lasso.
204	VMware support logs not collected.
205	VMware execution failed. The command vm-support failed for reason such as the collection may have timed out. Try to collect again or try to collect manually.
206	Failed to retrieve completed collection. Check the remote host at the /tmp/Dell/Lasso/[timestamp] location for the collection.
207	Failed to copy Dell Collector executable to remote host. The error could because of insufficient space or insufficient privileges. Check the space and the permissions in the /tmp folder.
208	Failed to copy Lasso_grab.sh to remote host. Check the validation and run the collection again or collect manually.
209	Failed to execute Lasso_grab.sh remotely. The error occurs when the collection has timed out. Check the validation and run the collection again or collect manually.
210	Failed to determine name of collection file to retrieve. Check /tmp/Dell/Lasso/[timestamp] location for the collection results.

Error Code	Error Message
221	Unable to copy Service Tag exe to the remote system.
222	Dependent Exe's and DLL's not found.
224	Enclosure module host collection is not successful.
223	SAN HQ server version not found.
295	Compellent Storage Client exe is not found. Make sure that the Compellent Storage Client exe is available in the bin folder.
297	Failed to get Service Tag Information. Refer to Manual UNIX collection and Linux Service Tag Collection.
300	NaviCLI.exe was not found. The file should be in the C:\Program Files\EMC\Navisphere CLI location by default. If file is not found, run the installer again.
301	NaviCli version could not be determined. Make sure that Navisphere CLI is installed. Run the installer again. The installer will check and install.
302	Navisphere CLI command failed trying to retrieve Agent Revision. Verify that SP is accessible on the network, and the firewalls are not blocking the access. See the Troubleshooting section for more details.
303	Failed to retrieve completed SP Collect from SP. Connect to SP through Navisphere Manager and use the File Manager to get the SP Collect.
304	Failed to collect <code>getall</code> . Make sure that the SP is available and running. Also, connect to Navisphere Manager setup page and restart the management server.
305	Failed to collect <code>getlog</code> . Make sure that the SP is available and running. Also, connect to Navisphere Manager setup page and restart the management server.
306	NaviCLI <code>getagent</code> failed.

Error Code	Error Message
307	<p>Make sure that the SP is available and running. Also, connect to Navisphere Manager setup page and restart the management server.</p> <p>Failed to create .zip file out of <code>getall</code> and <code>getlog</code>.</p> <p>Manually, you may need to compress the <code>getall</code> and <code>getlog</code> into a .zip file.</p>
308	<p>SP collection timed out.</p> <p>Try the collection again. If the error persists, make sure that you have the latest Navisphere CLI. To verify this, run the installer. Also, try to collect the SP Manually. Finally, make sure that the firewall is not blocking Navisphere from retrieving the collection. For more information, see Network Ports.</p>
309	<p>Non-supported SP version found.</p>
310	<p>NaviSECCLI.exe was not found.</p> <p>The .exe should be in C:\Program Files\EMC\Navisphere CLI by default. If it is not found in this location, try to run the installer again.</p>
311	<p>No LUNs found on Storage Array.</p> <p>Configure at least 1 LUN or Hot Spare. Else Dell cannot parse the SPCollect.</p>
312	<p>Not a Valid SPA or SPB Identifier.</p> <p>The IP address entered may not be the Storage Processor A in an EMC array. Verify that the IP address is SPA (and not SPB).</p>
313	<p>Export command is not supported.</p>
314	<p>Navisphere CLI command failed to determine whether EMC Array is having Navisphere Express or Navisphere Manager.</p>
315	<p>Upgrade of Celerra is in progress.</p>
316	<p>EMC Add-on upgrade is in progress. Unable to run <code>NaviCLI.exe</code>.</p>
397	<p>One or more commands that were run as part of device collection failed.</p>
398	<p>SPCollect could not be automated. However, <code>getall/getlog</code> was collected. You may need to manually connect to Navisphere Manager and collect an SPCollect.</p>

Error Code	Error Message
401	<p data-bbox="828 243 1267 296">Unable to collect storage management information on RAID controller module.</p> <p data-bbox="828 327 1358 415">The storage management software in use is not compatible with the firmware on the RAID controller modules in the Storage Array.</p>
411	<p data-bbox="828 436 1385 489">Switch collection was complete, but collection file not found!</p> <p data-bbox="828 506 1315 531">You may try to collect switch data manually.</p>
412	<p data-bbox="828 569 1294 621">Tape Library collection was complete, but collection file not found!</p> <p data-bbox="828 638 1369 663">You may try to collect tape library data manually.</p> <p data-bbox="828 695 1385 747"> NOTE: Lasso does not support Tape Libraries in this release.</p>
413	<p data-bbox="828 785 1289 810">Switch collection file not moved properly!</p> <p data-bbox="828 821 1262 842">You may try to collect switch manually.</p>
415	<p data-bbox="828 879 1342 936">Could not open connection to the Specified IP Address!</p>
416	<p data-bbox="828 963 1342 1020">Manually telnet to the device to make sure it is responsive.</p>
417	<p data-bbox="828 1047 1062 1073">Collection timed out.</p> <p data-bbox="828 1083 1358 1125">Try to run the collection when the system is not loaded.</p>
418	<p data-bbox="828 1173 1091 1199">Switch collection failed.</p> <p data-bbox="828 1209 1262 1230">You may try to collect switch manually.</p>
420	<p data-bbox="828 1268 1310 1325">Collection was not successful. Cannot start SCVMM collector in the remote host.</p>
422	<p data-bbox="828 1352 1342 1377">Failed to retrieve diagnostic files from FTP Site.</p>
423	<p data-bbox="828 1394 1378 1451">Remote VMM script was not run because the user cancelled the collection process.</p>
424	<p data-bbox="828 1478 1321 1503">Cannot run script as PSD file path not found.</p>
450	<p data-bbox="828 1520 1082 1545">Malformed URL found!</p> <p data-bbox="828 1556 1278 1577">Error in connection or invalid host name.</p>
489	<p data-bbox="828 1625 1362 1682">I/O module does not have any IP that is used for telnet session to be established.</p>
498	<p data-bbox="828 1709 1374 1745">Maximum SSH/Telnet remote sessions are active. Close the active sessions and try to validate again</p>

Error Code	Error Message
499	Authentication validation failed! Try validation again, and check username and password.
500	For information, see <ul style="list-style-type: none"> • Troubleshooting • Manual Collection
501	Unable to bind to the Controller specified. Verify the IP Address.
601	Vault password is incorrect.
602	Connection failed! Make sure that the IP/device is valid and reachable.
700	Failed to copy Dell Collector to remote host. The remote host may be preventing the copy of the script. Lasso has tried to copy the script and it is possible that the remote script is suspended. You may need to reboot the remote host. If rebooting fails, try to use the Task Manager on the remote host and try to terminate the DellCollector process.
701	Failed to copy dependant DLL which are used for zipping the collection files on the remote host.
702	Host collection execution failed. The remote host may be preventing the execution of the script. Lasso has tried to copy the script and it is possible that the remote script is suspended. You may need to reboot the remote host. If rebooting fails, try to use the Task Manager on the remote host and try to terminate the DellCollector process.
703	Failed to rename Collection File name on the remote host.
704	Failed to move the Collection File from temp directory to %System%\DellCollector directory on the remote host.
705	Failed to delete the temporary folder from the remote host.
706	Unable to find DellCollector.exe on the Management Station. Verify if this file is available after the installation of Lasso in the Management Station

Error Code	Error Message
707	Host collection timed out.
708	QLogic SANSurferCLI is not found.
802	Another collection process may already be running on the host.
803	Collection timed out for enclosure collection.
805	Collection has failed for Enclosure due to incorrect IP/hostname and credentials.
807	Another collection process may already be running on the host
808	HitKit for VMware collection has timed out.
809	The IP/hostname and credentials provided for the HITKIT type are not valid.
810	Collection has failed for the HITKIT type due to wrong IP/hostname and credentials.
811	Unable to retrieve the collection files as the .zip file does not exist.
812	Collection is not successful.
901	Overall host Validation was not successful.
902	Invalid operation requested.
903	Collection of one or more EqualLogic details failed.
904	Collection of EqualLogic details failed.
905	Unable to perform ping test. Access to Management Network is restricted.
906	Compellent collection timed out Compellent collection timed out because of no response from array or the port to communicate to array is not open.
907	Compellent log collection timed out Incomplete Compellent collection. Time out occurred while gathering logs from Compellent Array.
908	Compellent collection timed out due to delay in response
909	Unable to resolve the specified hostname. Make sure that the hostname is correct, and then retry the operation.

Use Case Scenario

Using Lasso GUI, collect data for devices such as PowerConnect switches, CLARiiON and EqualLogic storage arrays in your SAN environment and upload the collection to Dell Technical Support.

To do this:

1. Before running Lasso, make sure:
 - You have the following details for each device:
 - PowerConnect Ethernet Switch — IP address, Username, and Password.
 - CLARiiON — SPA IP address, SPB IP address, Username, and Password
 - EqualLogic — Group IP address, Management IP address, and Member IP address.
 - Prerequisites are met for data collection. For details, see [Prerequisites For Data Collection](#).
2. Run Lasso. For details, see [Running Lasso](#).
3. In the **Welcome to Lasso** page, select the **Start with a new configuration** option and click **Continue**.
4. In the **Your Company Information** page, enter your company details and click **Continue**.
5. In the **Your Company Contacts** page, enter your company contact details and click **Continue**.
6. In the **Your Hardware Environment** page, select **Ethernet & FCoE Switches** and **Storage Arrays** options and click **Continue**.
7. In the **Your Hardware Environment: Storage Arrays** page, from the **Type of Storage Array** drop down list, select the following storage arrays, enter the information for each array as mentioned in the following table and click **Save New Storage Array** to validate and save the device:

Type of Storage Array	Fields
CLARiiON	<ul style="list-style-type: none"> • SPA IP/Hostname — 10.94.XXX.YYY • SPB IP/Hostname — 10.94.XXX.YY • Username — testuser • Password — testpassword
EqualLogic	<ul style="list-style-type: none"> • Group/Mgmt IP — 10.94.XXX.YY • Community String — public • Username — testuser • Password — testpassword

 **NOTE:** The table provides sample values for the fields.

If validation fails, edit the information for the device and update to re-validate. Click **Continue**.

8. In the **Your Hardware Environment: Ethernet Switches** page, from the **Type of Ethernet Switch** drop down list, select **PowerConnect** switch, enter the following information and click **Save New Ethernet Switch** to validate and save the device:
 - **IP/Hostname** — 10.94.XXX.YY
 - **Username** — testuser

- **Password** — testpassword
- **Enable Password** — enablepassword

If validation fails, edit the information for the device and update to re-validate the device. Click **Continue**.

9. In the **Device Collection** page, all the selected devices are displayed. If there are devices that have failed validation, edit and re-validate the devices or remove them from the list. For more details see [Device Collection](#).
10. Click **Start Collection** to start the data collection.
11. Click **Continue** to parse the data and generate the Lasso report. For more information on file formats, see [Generated File Formats](#).
12. In the **Upload** page, click **Open Location** to view the reports. Click **Continue** to upload the report to Dell Technical Support site. For more details, see [Upload Collection](#).
13. The **Confirmation** page displays the status of the file upload.
14. To view the HTML file created during parsing the data, select the **View your SAN Configuration** option. Click **Finish** to open the report.

Frequently Asked Questions

This section has the following types of frequently asked questions:

- [FAQ – About Lasso](#)
- [FAQ – Passwords and Security](#)
- [FAQ – Dealing with errors](#)

FAQ – About Lasso

- What is Lasso?
 - Lasso is a stand alone collection utility that automates the collection of all pertinent hardware and software configuration details from the target SAN attached servers, Dell Storage Arrays, Fibre Channel, Ethernet and FCoE Switches.
- What are the uses of Lasso?
 - Lasso is used as a standalone tool to collect data from various server models and storage arrays that are interconnected to a SAN environment with the attached storage.
 - The collected data is used to provide information to the Dell Proactive Maintenance and Dell Technical Support teams for analyzing and troubleshooting issues.
 -  **NOTE:** Data collection by Lasso can also be performed manually.
 -  **NOTE:** The configuration of the SAN environment assists Lasso in collecting the data successfully.
- Which language is used to develop Lasso?
 - The Lasso user interface and the collection logic is developed in Java. The parser component is in C#.
- Which third party software is used by Lasso?
 - Lasso uses open-source and free software to complete various tasks. Lasso also uses programs such as GPG, GNU zip/unzip, EMCReport, and various EMCGrab scripts.
- Where should Lasso be installed?
 - Lasso can be installed on any Windows OS that has IP connectivity to the SAN with the following caveats:
 - * For EMC SANs, install on a computer that is not attached to the SAN.
 -  **NOTE:** Use a workstation whose credentials match with the SAN server credentials. This results in automatic discovery and validation of Windows Hosts and saves time.
 - * EqualLogic SANs are sometimes in an isolated network, and may require connecting a computer to that network to run Lasso.

- How does Lasso operate?
 - Lasso initiates scripts against all defined devices. The scripts collect specific information about the devices. Lasso then captures the output of individual process separately for each device. This helps to simultaneously complete the collection. If the time taken for manual login, copy collection (example:EMCReports) for a host is 5minutes, Lasso can collect data against 10 hosts for the same time.



NOTE: The limit for simultaneous processes is 10. The limit can be modified in the **LassoConfig.xml** file.

- What is the time taken by Lasso to run?
 - The time taken is approximately 30 minutes for a normal run. Many factors can modify the estimated time. The approximate time is determined by adding the following:
 - * Time taken to input profile and environment information (dependent on the user).
 - * Time taken to copy EMCReports/emcgrab to the remote device (less than 2MB file size. It is fast on a LAN but slow if remote).
 - * Time taken by the longest device. It is 5-10 for hosts, but may be over 20 minutes on a busy host. For SPCollects, the time taken is approximately 10 minutes, but on a busy SP it is 30 minutes or higher. For switches, less than 5 minutes, but on large switches with error logs, may be 20 minutes or higher.
 - * Time taken to copy the collection data from the remote device (may be fast on a LAN but slow if remote).
 - * Time taken to zip and encrypt the data (may be less than a few minutes).
 - * Time taken to upload the data to Dell's FTP site (may be the longest time depending on the size of the environment and the speed of the Internet connection).

Using the above guidelines, assuming that the profile and environment information is already entered, all devices are on a LAN, the longest device takes 15 minutes, a few minutes to zip/encrypt, and the Internet connection is fast, the entire collection should be completed in less than 30 minutes.

If there are environment specific settings that prevent remote execution of some of the scripts, then troubleshooting may take more time.

- What is Navisphere CLI and where is it available?
 - Lasso uses EMC's Navisphere CLI to initiate commands to CX and AX Storage Processors. Among these commands are SPCollect, getall, and getlog. Navisphere CLI is available at **http://powerlink.emc.com** and also provided with the Lasso package.
- What types of devices are supported by Lasso?
 - For the list of supported types of devices and operating systems, see [Support Matrix](#).
- What are the system requirements to run Lasso?
 - For information on the system requirements to run Lasso, see [Prerequisites For Data Collection](#).
- How can the timeout value for FC Switches be modified?
 - On a SAN having many Brocade and McData switches, increase the timeout value. By default, timeout value for the switch is 3 minutes (in milliseconds). This value can be modified in the file **FCSC.properties** available in the Lasso install directory.
- How can the timeout value for Unix hosts be modified?
 - On a SAN having Linux, Solaris, HP-UX, and AIX hosts, the collection process may exceed the default timeout value of 30 minutes (in milliseconds). Therefore, increase the timeout value in **UnixHC.properties** file, available in the Lasso install directory.

- How can the time out value for validating automatically discovered hosts be modified?
 - On a SAN having many attached hosts, increase the timeout value for the successful completion of automatic validation in:
 - * **SAC.properties**— while automatically discovering hosts attached to arrays.
 - * **WinHC.properties**— while validating already discovered hosts in the background. This happens when the customer configuration file is open.
- What are the Storage Arrays supported by Lasso?
 - Lasso collects data from the following Storage Arrays:
 - * CLARiiON
 - * EqualLogic
 - * Celerra
 - * Power Vault MD Series
 - * EqualLogic Fluid File System (NAS)
 - * PowerVault Fluid File System (NAS)
 - * Compellent Fluid FS NAS
- How to collect data from EqualLogic Storage Arrays?
 - To collect data from EqualLogic Arrays in the SAN, install Lasso on a system that has access to the array using the IP address. If the array is on a non-routable iSCSI network, then install Lasso on one of the iSCSI server or add an additional system to the network to ensure connectivity.

FAQ — Passwords and Security

- Why is password mandatory?
 - Lasso executes scripts that need access to administrative level resources. This requires remote login to the systems to execute the scripts. Lasso does not save the entered passwords as it is captured from the input and deleted after the connection. Blank password can also be used. The processes (net use, putty, telnet and so on) that launch will prompt for the password . Enter the password multiple times for each device. To avoid this, create a new user dedicated to run Lasso. This user can be deleted after running Lasso. See *Readme* for more information.
- How to ensure that the password is secured?
 - Search for a word or phrase used in your password in the **c:\Program Files\Dell\Lasso** file. Also, create a specific user for Lasso that can be disabled after running Lasso.
- Why should administrative Windows password be used?
 - The collection script **EMCReports** requires system access to obtain information about the system. See the directory **ftp://ftp.emc.com/pub/emcgrab/Windows** for more information.
- Why should UNIX Root password be used?
 - The collection script **emcgrab** requires root level system access to obtain information about the system. See the directory **ftp://ftp.emc.com/pub/emcgrab/Unix** for more information.
- What are the other options instead of using UNIX Root password?
 - Enter a blank password, when prompted by the SSH session, before Lasso prompts this authentication. The password may be entered several times for each UNIX host in the spawned windows. Add a new user with root access, or change the password temporarily for the Lasso run. It is not recommended to use central authentication scheme. Future versions of Lasso will allow SSH from a normal user that can then "su" or "sudo" the script.
- How does Lasso provide security and privacy protection?

- Lasso creates a single **.zip** file that is 2048-bit encrypted (unless this option is disabled, or Lasso is running in a non-exportable country). Lasso uploads the file to the Dell's ftp site and provides high level of privacy protection and security. This site has "write-only" access to Lasso and the public, and has no read access.
- Who can view the uploaded data collection?
 - From version 2.9.0 and later, a "write-only" ftp site is used and "view" or "read" permission are not available. The data can be uploaded, but no other collections can be viewed.
- What network ports does Lasso use?
 - For more information, see [Network Ports](#)
- What is Secure Site option?
 - The Secure Site option is used to remove the Customer Identification Information (CII) such as company name, company address, IP address, MAC address, iSCSI volume names, and Host names from the Lasso output **.xml** file.

The customer sensitive data is replaced by tokens in the **.XML** file. Mapping between the tokens and customer sensitive data is maintained in an encrypted **.XML** file. This data is secured when the **.XML** file is uploaded to Dell's FTP site.

FAQ – Dealing With Errors

- What is the description of the error code?
 - For information on the error code and descriptions, see [Error Codes](#)
- Why does the Switch password fail each time even though the login to the Switch Web UI is successful?
 - All Switch collections use SSH/Telnet user name and password. For McData switches, if a user name is accepted with the Web UI, it does not automatically work with the CLI.. The access should be granted specifically. To verify that the password enter is valid, telnet into the switch and try the user name/password. To do this, go to **Start** → **Run** and enter telnet hostname or ip address. If SSH interface is used by lasso and fails, connect to the switch using putty and try the user name/ password to manually execute the command(s). See the documentation on the Switch for instructions to configure the user name or see troubleshooting section for more information.
- How to troubleshoot device errors on collection?
 - Make sure to validate the devices. If the devices are already validated and using a saved configuration, then validate them again. The password may have changed. Click **Error found** icon to view the log of the device. This will include the reason for the device to fail collection. Also see the troubleshooting section for steps to run the collections using the CLI to verify or collect the data manually.
- Why is the collection against a VMware ESX 3.0 server failing?
 - To troubleshoot, see [VMware Root Access](#)
- Does Lasso work on a 64-bit system?
 - Yes, Lasso can collect against a 64-bit system. Lasso version 3.5 and later can be installed and run on a 64-bit system with limited support. For more information, see *Readme*.
- What is error code 398 and why is it only a warning?
 - Error code 398 describes that a full SPCollect was not obtained from the Storage Processor. A full `getall` and `getlogis` collected. For information on complete SP collect, see [Manual Collection For CLARiON](#).
- Why should Lasso be used when the time taken to troubleshoot problems is longer than manually collecting the data with Lasso?

- Lasso automates the collection process. The data collected remotely is dependent on the network configuration of the environment . If the access to the system running Lasso to the target devices is blocked, then the scripts can not complete the collection. If all the devices are unavailable, then run the collection scripts manually. Example: If the "admin\$" share is disabled on Windows through a Group Policy, then Lasso can not execute the EMCReports remotely and is a limitation in Lasso.
- How to troubleshoot a failed device?
 - If the Lasso full collection is failing, then manually collect the remaining devices. If there are many devices, then modify the security settings to resolve. Also, report the error for more assistance.
- How to run Lasso against a Meditech host that displayed a blue screen?
 - A Meditech system is not Windows system. EMCReports fails when running on a Meditech system. Lasso automatically runs the EMCReports and the issue can occur if run against a Meditech system. Do not manually or using Lasso, run the EMCReports against a Meditech system. For more details, see the **<ftp://ftp.emc.com/pub/emcgrab/Windows>** directory.

License

Various programs are used throughout Lasso, and may have different licenses.

Dell: Export Compliance Disclaimer

By downloading from Dell's Web site, you are agreeing that you will not use or otherwise export or reexport, directly or indirectly, this Software and/or Technology except as authorized by U.S. law and the laws of the jurisdiction in which the Software and/or Technology was obtained. The Software and/or Technology may not be exported or reexported (i) to any U.S. embargoed country (currently Cuba, Iran, Libya, North Korea, Sudan and Syria) or (ii) to an end-user or end-use prohibited by U.S. law or the laws of the jurisdiction in which the Software and/or Technology was obtained. By downloading the Software and/or Technology, you represent and warrant that you are not located in, under the control of, or a national or resident of any such country and are not a prohibited end-user or engaged in a prohibited end-use.

Dell Software Disclaimer

TO USERS OF DELL'S SERVICE & SUPPORT WEB SITE: DELL INC. ("DELL") DOES NOT WARRANT THE FILES (INCLUDING ANY FIXES AND UPDATES) PROVIDED IN THE DOWNLOADABLE FILE LIBRARY AREA(S) OF THE DELL SERVICE & SUPPORT WEB SITE (THE "SITE"). ALL FILES AVAILABLE FOR DOWNLOAD (THE "FILES") FROM THE SITE ARE PROVIDED "AS IS." IN CONNECTION WITH THE FILES, DELL MAKES NO WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OF TITLE, OR OF NON-INFRINGEMENT OF THIRD PARTY RIGHTS. USE OF THE FILES BY A USER IS AT THE USER'S RISK AND IS DEEMED ACCEPTANCE OF THESE TERMS. IN NO EVENT SHALL DELL BE LIABLE TO THE USER FOR ANY DAMAGES ARISING FROM USE OF OR INABILITY TO USE THE FILES, INCLUDING ANY DAMAGES AS A RESULT OF VIRUS INFECTION OR OTHER CONTAMINATION, INCLUDING ANY LOST PROFITS, LOST SAVINGS, OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES, EVEN IF DELL HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, OR FOR ANY CLAIM BY ANOTHER PARTY.

THE DRIVERS PROVIDED FOR DOWNLOAD ON DELL'S WEBSITE ARE THE LATEST ONES THAT HAVE BEEN VALIDATED BY DELL. FOR ANY GIVEN HARDWARE COMPONENT, NEWER DRIVERS MAY EXIST ON THE RESPECTIVE MANUFACTURER'S SITE. PLEASE NOTE THAT DELL HAS NOT VALIDATED ANY DRIVERS NOT DIRECTLY AVAILABLE FROM DELL'S WEBSITE, AND CAN THEREFORE MAKE NO REPRESENTATIONS AS TO THEIR EFFECTIVENESS, STABILITY, APPROPRIATENESS OR SAFETY . IF YOU WISH TO DOWNLOAD AND INSTALL ANY NON-VALIDATED DRIVER, DELL STRONGLY RECOMMENDS THAT YOU MAKE A BACKUP OF YOUR CURRENT WORKING CONFIGURATION SO THAT YOU HAVE SOME ABILITY TO RETURN TO A KNOWN WORKING STATE IF THE NEW DRIVER FAILS TO FUNCTION PROPERLY OR CAUSES SYSTEM PROBLEMS. ANY PROBLEMS ENCOUNTERED WITH NON-VALIDATED DRIVERS SHOULD BE ADDRESSED TO THE RESPECTIVE MANUFACTURER(S) -- DELL WILL NOT HAVE INFORMATION ON ANY NON-VALIDATED DRIVERS.

Dell Software Copyright

EACH ONE OF THE FILES (AS DEFINED IN THE "DISCLAIMER" SUBSECTION ABOVE) IS THE COPYRIGHTED WORK OF EITHER DELL OR OF THE THIRD-PARTY VENDOR SUPPLYING THE DOWNLOADABLE FILE. USE OF THE FILES IS SUBJECT TO COPYRIGHT LAWS OF THE UNITED STATES. USE OF ANY OF THE FILES IN ANY MANNER THAT WOULD VIOLATE THE COPYRIGHT LAWS OF THE UNITED STATES IS EXPRESSLY FORBIDDEN.

EMCGrab: ftp://ftp.emc.com/pub/emcgrab/Unix/Readme_EMCGrab_v3.8.txt

EMCReport: ftp://ftp.emc.com/pub/emcgrab/Windows/EMCRPTS_V28_README.TXT

GNU GENERAL PUBLIC

Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc. 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

1. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

2. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

3. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:
 - a. You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
 - b. You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.
 - c. If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of

this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

4. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:
 - a. Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
 - b. Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
 - c. Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

5. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.
6. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.
7. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.
8. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order,

agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

9. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

10. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

11. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

12. **NO WARRANTY**

BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

13. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING

RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

one line to give the program's name and a brief idea of what it does.> Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author

Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'. This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989

Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.