Emulex® OneCapture™ Utility

User Guide
Release 12.2

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Chapter 1: Introduction

OneCapture™ is an Emulex® device driver utility that collects information from operating systems, Emulex software, and Emulex adapters. Use this information to examine the functionality of the drivers.

OneCapture checks the library dependencies for the internal tool in OneCapture. This tool collects basic information and ASIC firmware dumps or core dumps. If the dependencies check failed (missing dependencies exist), you can select to continue collecting the rest of the system logs without using the internal tool.

Data collected by OneCapture is compressed into a single file that can be sent to Broadcom® Technical Support for analysis when debugging systems or for diagnostic purposes.

OneCapture supports the following Emulex FC adapters:

- LPe12000-series adapters
- LPe16000-series adapters
- LPe31000-series adapters
- LPe32000-series adapters
- LPe35000-series adapters

1.1 Abbreviations

INET	Internet Network Protocol
I/O	input/output
ISE	Integrated Scripting Environment
MILI	management interface library
MPIO	multipath I/O
NVMe	Nonvolative memory express
PS	PowerShell
RPM	Red Hat Package Manager
SMBIOS/DMI	System Management BIOS/Desktop Management Interface
SSH	Secure Shell
UUID	universally unique identifier
VHD	Virtual Hard Disk

Chapter 2: Running OneCapture

You can run OneCapture on any of the following operating systems:

- Windows
- Linux
- Citrix
- Solaris (supports inbox Solaris drivers only)
- VMware ESXi

OneCapture is installed as a single `.exe` or `.sh` file. Download the appropriate OneCapture file to each of the systems from which you want to collect data, and extract the `.exe` file or the `.sh` file.

- For Windows systems, download the `OneCapture_<version>.zip` file, and extract the `OneCapture.exe` file.
- For Linux and Citrix systems, download the `OneCapture_Linux_<version>.tgz` file, and extract the `OneCapture_Linux.sh` file.
- For Solaris systems, download the `OneCapture_Solaris_<version>.tgz` file, and extract the `OneCapture_Solaris.sh` file.
- For ESXi systems, download the `OneCapture_ESX_<version>.tgz` file to the ESXi host, and extract the `OneCapture_ESX.sh` file.

You can run OneCapture from any directory or folder on your computer. Output is generated as HTML. Data may vary according to the system type in use.

2.1 Choosing a Capture Type

Using OneCapture, you can select one of five capture types: basic, full, safe, minimal, or custom. This section describes the available capture types.

2.1.1 Basic Capture

Basic capture is the default selection. Typically, use basic capture unless instructed by Broadcom Technical Support to use one of the other types.

Basic capture does not reset live adapters, and it does not restart dead adapters. That is, live adapters remain alive, and dead adapters remain dead.

Basic capture performs the following actions:

- Captures all the available configuration files and log files
- Captures the existing adapter dump files (if present)
- Captures the existing flash-resident dump file (if present) on LPe35000-series, LPe32000-series, LPe31000-series, and LPe16000-series adapters

2.1.2 Full Capture

CAUTION! No I/O is possible on the adapter until the system is rebooted. Perform a full capture only when instructed by Broadcom Technical Support.

Full capture performs the following actions:

- Captures all the available configuration files and log files
- Captures all existing adapter dump files (if present)
- Captures the existing flash-resident dump file (if present) on LPe35000-series, LPe32000-series, LPe31000-series, LPe16000-series adapters
- Performs a `dmp` dump on specified LPe12000-series adapters
- Performs a `bin` dump on specified LPe35000-series, LPe32000-series, LPe31000-series, and LPe16000-series adapters

For adapters not specified with the `/Adapters` parameter, full capture performs like basic capture.

2.1.3 Safe Capture

Safe capture collects all the available current information and any existing adapter dump files, but it does not perform any new dumps. I/O is not interrupted on any adapters. Use this parameter to collect existing logs and dumps when it is important not to interrupt I/O, or if the adapter for which information is being collected is a boot device.

Safe capture performs the following actions:

- Captures all the available configuration files and log files
- Captures all existing adapter dump files (if present)

2.1.4 Minimal Capture

Minimal capture collects a subset of dump files. Use this parameter to collect dumps when time is critical. Minimal capture is supported in Linux and VMware only. It is not supported in Solaris. In Windows, you can limit the data collection to firmware dump using the custom capture feature.

2.1.5 Custom Capture

Custom capture allows you to select from a variety of capture parameters. You select the components to capture in the check box list or with the `/Component` parameter in the CLI.

2.2 Running OneCapture on Windows

You can run OneCapture for Windows using the GUI or the CLI. This section describes both methods.

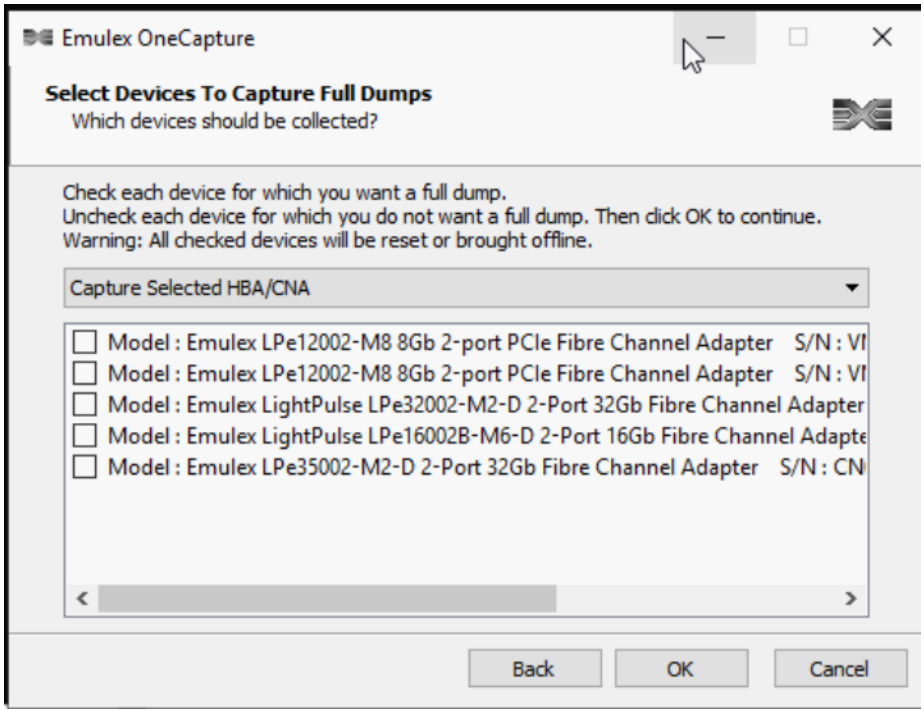
ATTENTION: Before running OneCapture, quiesce the port.

To run OneCapture on Windows using the GUI:

1. Download the `OneCapture_<version>.zip` file.
2. Uncompress the file.
3. Launch the `OneCapture.exe` file from Windows.

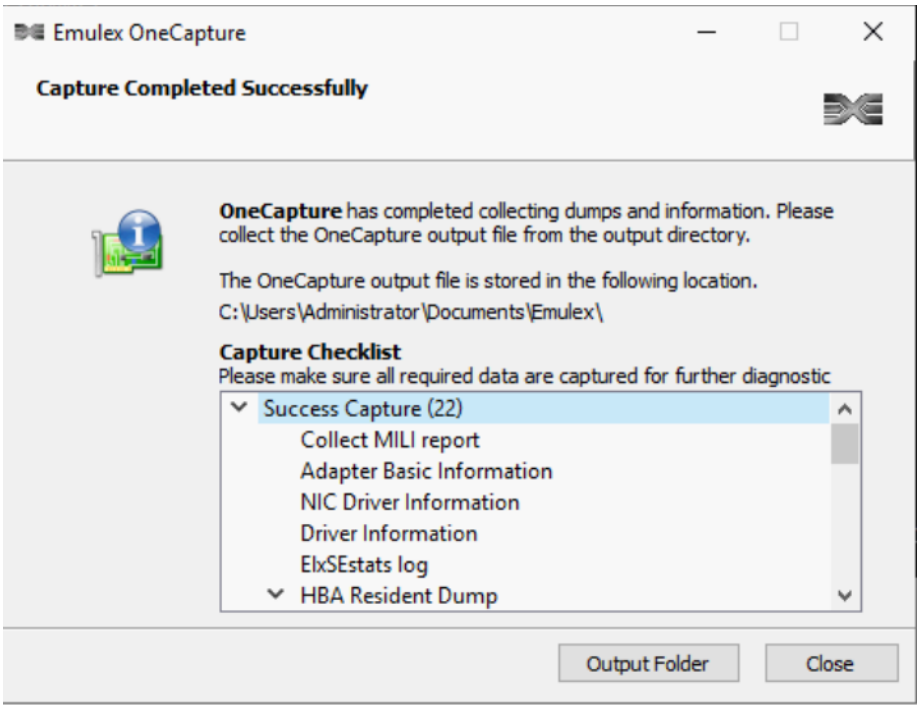
NOTE: Although you can run OneCapture as a regular user, for best results run OneCapture as the administrator or as a user with administrator privileges.

4. To run OneCapture as an administrator, no special steps are required. Access to all output files is unrestricted.
   - To run OneCapture as a user with administrator privileges, the GUI prompts you to enter an administrator user name and password.
   - For non-administrators, the GUI prompts you to enter an administrator user name and password. Access to output files may be restricted. In this case, you must give the desired user access to the OneCapture output folder. Typically, this folder is in `\Users\Administrator\Documents\Emulex`.
5. From the popup window, select where you want the OneCapture output file stored. You can leave the default path or specify a different one.
6. From the drop-down menu, select the capture type you want to use. You can select **Basic**, **Safe**, **Full**, or **Custom**. See Section 2.1, Choosing a Capture Type, for a description of the parameters.
7. Click **OK**. If you selected a full capture, select the adapters for which you want to collect data, and click **OK**.



8. OneCapture gathers the requested information and places the resulting file in the specified folder.

   A window similar to the following is displayed.



You can expand the **Success Capture** line to view the items that were captured. In particular, you can determine whether you have the captures requested by Broadcom Technical Support:

- You can verify that a `.bin` file was created for each requested adapter by expanding the **HBA Firmware Down** line.
- You can determine whether any resident dumps were captured by expanding the **HBA Resident Dump** line.

  A resident dump is a dump that already resided on the adapter. A resident dump is not a requirement, but if it exists, it can help Broadcom Technical Support in diagnosing system issues.

If a line indicates that an error is present, you can hover over the line to see the error associated with it.

An asterisk indicates a file that was not created.

9. Click **Output Folder** to open the directory in which the output file was stored and exit the OneCapture utility, or click **Close** to exit the OneCapture utility.

To run OneCapture on Windows from the CLI:

1. Download the `OneCapture_<version>.zip` file.
2. Uncompress the file.
3. Run the `OneCapture.exe` command from a DOS command shell. You must specify one of the parameters provided in Section 2.2.3, Windows Command Line Interface Parameters.

NOTE: Although you can run OneCapture as a regular user, for best results run it as the administrator or as a user with administrator privileges.

4. To run OneCapture as the administrator, no special steps are needed. Access to all output files is unrestricted.
   - To run OneCapture as a user with administrator privileges, start the DOS command shell with "Run As Administrator", and then enter an administrator user name and password. Access to all output files is unrestricted.
   - For non-administrators, start the DOS command shell with "Run As Administrator", and then enter an administrator user name and password. Access to output files may be restricted. In this case, you must give the desired user access to the OneCapture output folder. Typically, this folder is in `\Users\Administrator\Documents\Emulex`.
5. At the command line, define the type of capture you want. See Section 2.1, Choosing a Capture Type, for a description of the parameters.

See Section 2.2.3, Windows Command Line Interface Parameters, for a list of the available commands.

2.2.1 Output File

OneCapture creates a single zip file containing all of the captured components. This zip file is named `OneCapture_Windows_<date-time>.zip`. The file is located in one of two different directories, depending on whether you run the OneCapture GUI or the CLI.

For the GUI, the output directory is `MyDocuments\Emulex`. For the CLI, it is the working directory from which you run the CLI. The default output directory can be overridden; see Section 2.2.3, Windows Command Line Interface Parameters.

Most items in the OneCapture output zip file can be examined directly from the zip file, without the need to unzip the entire file. The exception is the `OneCapture_Windows.html` file, which is a navigable directory of the captured components. When you launch this file in your browser, you can browse through the captured objects, but you must unzip the OneCapture output file first.

The adapter dump files are placed in a directory called `CoreDump`. Typically you do not need to unzip these files individually because Broadcom Technical Support will normally request the entire OneCapture output zip file.

CAUTION! You must ensure that the adapter dump file in the `CoreDump` directory has been created properly. This file is critical for proper diagnostics. You can examine the component files in the `.zip` file before you send the `.zip` file to Broadcom Technical Support. A `.txt` file that contains an adapter list is also available in the same directory. This file allows you to verify whether all corresponding adapters are properly listed for capture purposes.

2.2.2 Output Summary File

OneCapture produces an output summary file at the end of the capture process. The file displays an onscreen list of the critical items that should have been captured, and a status as to whether the capture was successful, so you can verify whether the collected output is valid. For an example of an output summary file, see Step 8 in Section 2.2, Running OneCapture on Windows.

The file is included in the generated OneCapture output file for use by Broadcom Technical Support for additional debug purposes.

2.2.3 Windows Command Line Interface Parameters

The following is an example of Windows command syntax:

```
OneCapture.exe /FullCapture /Adapters=0,2 /Directory=C:\Capture\LP /FileName=output.zip
```

The following CLI parameters are available for Windows.

/? or /H or /help

Displays a brief guide on command usage and supported parameters.

/L or /ListAdapters

Lists the discovered adapters. The list command shows each adapter's adapter number (0, 1, . . .), which is used in the dump command for the `/Adapters` parameter.

NOTE: For LPe12000-series adapters, each port on the adapter is shown as a separate adapter. Thus, if the adapter has two ports, it is shown as two adapters.

/Quiet or /Q

Forces the capture without displaying warning messages or prompts.

/Directory=<*OutputDirectory*> or /D=<*OutputDirectory*>

Specifies a directory in which OneCapture will create the output zip file. If this parameter is not used, the default is the working directory from which you run the CLI. For example:

```
OneCapture.exe /Directory=C:\Users\Administrator\Desktop\Dump
```

/Filename=<*OutputFilename*> or /N=<*OutputFilename*>

Specifies the file name that OneCapture uses when it creates the output zip file. If this parameter is not used, the default is `OneCapture_Windows_<date-time>.zip`. For example:

```
OneCapture.exe /Filename=example1.zip
```

/BasicCapture or /B

Specifies the basic capture type. For example:

```
OneCapture.exe /BasicCapture
```

/SafeCapture or /S

Specifies the safe capture type. For example:

```
OneCapture.exe /SafeCapture
```

/FullCapture or /F

Specifies the full capture type. Use both the /FullCapture and /Adapters parameters. For example:

```
OneCapture.exe /FullCapture /Adapters=0
OneCapture.exe /FullCapture /Adapters=2,3
OneCapture.exe /FullCapture /Adapters=all
```

CAUTION! This parameter can temporarily interrupt I/O on live adapters, and it can force live adapters offline.

/Adapters=<*AdapterNumber* | <*list*> | all>

Use only with /FullCapture. This parameter specifies the adapters for which OneCapture will perform a full dump. For example:

- Perform a full dump on adapter 0 only:
  ```
  OneCapture.exe /FullCapture /Adapters=0
  ```
- Perform a full dump on adapters 2 and 3 only:
  ```
  OneCapture.exe /FullCapture /Adapters=2,3
  ```
- Perform a full dump on all adapters:
  ```
  OneCapture.exe /FullCapture /Adapters=all
  ```

/Components=< <*component*> | <*list*> > or /Components=< <*component*> | <*list*>>

OneCapture collects several types of components by default, such as driver information and disk information. This parameter specifies the individual components to be captured while ignoring all the rest. You can specify a single component, or a list of components, separated by commas. For example:

Capture system information only:

```
OneCapture.exe /Components=system
```

Capture system information and driver information only:

```
OneCapture.exe /Components=system,driver
```

Following is a list of the available components:

- system – System information
- driver – Driver information
- disk – Disk information
- sestats – SEstats log
- win/setup – Windows setup log
- win/event – Windows event log
- ocm/log – OneCommand® Manager log
- ocm/status – OneCommand Manager status
- ocm/dumps – Dumps collected in the OneCommand Manager dump folder
- ocm/nvme – NVMe information
- hba/list – HBA basic list
- hba/attr – HBA attributes
- hba/info – HBA information
- hba/residentdump – LPe35000-series, LPe32000-series, LPe31000-series, and LPe16000-series and resident dump

- `hba/dumpdown` – HBA FirmwareDown
- `elxtrace` – ELX trace information
- `autopilot` – AutoPilot Installer information
- `milirpt` – Collect MILI report
- `mpio` – MPIO information

2.3 Running OneCapture on Linux, Citrix, and Solaris

NOTE: While Linux offers the option to select a destination directory for the dump files, OneCapture does not. If you specify a destination directory for the dump files other than the default directory, the dump files are not created.

The following distributions are included for Linux (including Citrix) and Solaris OneCapture:

- `OneCapture_Linux_<`*`version`*`>.tgz` (including the `OneCapture_Linux.sh` file)
- `OneCapture_Solaris_<`*`version`*`>.tgz` (including the `OneCapture_Solaris.sh` file)

For Linux:

- You must have executable permission for `root` where the script is executed.
- The following library files must be installed to run OneCapture:
  - `linux-vdso.so`
  - `libstdc++.so`
  - `libgcc_s.so`
  - `libc.so`
  - `libm.so`
  - `libz.so`
  - `libpci.so`
  - `libpthread.so`
  - `libnl.so`
  - `librt.so`
  - `libresolv.so`
- OneCapture must be able to access the following directories:
  - `/var/log/`
  - `/sys/class/`
  - `/proc/`
  - `/etc/`
  - `/boot/`
  - `/usr/sbin/ocmanager/`

NOTE: For Solaris systems, if the OneCommand Manager application was not installed or allowed, only a degraded capture is available.

For Linux, Citrix, and Solaris systems, if the OneCommand Manager application is installed, OneCapture collects OneCommand Manager application-related data.

ATTENTION: Before running OneCapture, quiesce the port.

To run OneCapture on Linux, Citrix, and Solaris systems:

1. Log in as `root`.

2. Copy the OneCapture kit onto the system through SSH or another method, and uncompress the script file.
   - For Linux and Citrix systems, download the `OneCapture_Linux_<version>.tgz` file, and extract the `OneCapture_Linux.sh` file.
   - For Solaris systems, download the `OneCapture_Solaris_<version>.tgz` file, and extract the `OneCapture_Solaris.sh` file.
3. Run the shell script for the corresponding system, for example:
   `./OneCapture_Linux.sh /BasicCapture`
   See Section 2.3.3, Linux, Citrix, and Solaris CLI Parameters, for parameters.
4. Change the script to executable mode, for example, `chmod 777 OneCapture`.
   The progress of the script is displayed. For example:

```
Running Emulex OneCapture Solaris, version
Emulex Corporation Report Utility
Started at Friday, January 25, 2019 12:50:42 PM CST
Initializing report environment for host:solaris
Collecting System Information...
 [-]      1%                          uname -a
```

5. After the OneCapture script finishes gathering information, it creates a zipped tarball file in its current working directory. Open that file to view the information.

2.3.1 Output File

OneCapture creates a single `.tgz` file containing all the captured components. This `.tgz` file is named `OneCapture_<Operating_System>_<date-time>.tgz`. This file is placed in the working directory from which you run OneCapture.

To examine the items in the OneCapture output `.tgz` file, first untar it. This action creates a directory in the current working directory called `dump`. It also creates a file in the current working directory called `OneCapture-<Operating_System>.html`.

`OneCapture-<Operating_System>.html` is a navigable directory of the captured components. When you launch this file in your browser, you can browse through the captured objects. Or, you can examine the captured components directly by browsing through the folders and files in the `dump` directory.

The adapter dump files are placed in a directory called `dump/CoreDump`. Typically, you do not need to examine these files individually, because Broadcom Technical Support usually requests the entire OneCapture output `.tgz` file.

CAUTION! You must ensure that the adapter dump file in the `CoreDump` directory has been created properly. This file is critical for proper diagnostics. You can examine the component files in the `.tgz` file before you send the `.tgz` file to Broadcom Technical Support. A `.txt` file that contains an adapter list is also available in the same directory. This file allows you to verify whether all corresponding adapters are properly listed for capture purposes.

2.3.2 Output Summary File

OneCapture produces an output summary file at the end of the capture process. The file displays an onscreen list of the critical items that should have been captured, and a status as to whether the capture was successful, so you can verify whether the collected output is valid.

```
linux:~ # ./OneCapture_Linux.sh
Creating directory .onecapture_temp
Verifying archive integrity...  100%   All good.
Uncompressing Emulex OneCapture - Copyright(c) 2012-2018 Broadcom. All Rights Re
ubsidiaries.  100%
Beginning basic capture.
Running Broadcom ECD OneCapture Linux, version 12.0.167.0
Started at Tue Apr 24 12:12:05 CST 2018
Initializing report environment for host:linux
Collecting System Information...
Capture Completed
Capture Checklist - Please make sure all required file are properly captured for
==================================
* SUCCESS: mili2d.log is collected - mili2d.log
* SUCCESS: mili2d.log is collected - mili2d.log
* SUCCESS: Kernel log messages file collected - messages-old.tgz
* SUCCESS: Kernel log warn file collected - warn-old.tgz
* SUCCESS: /var/crash kernel crash dump is collected - /var/crash
==================================
Generating Compressed Capture...
Done
OneCapture_Linux_2018-04-24_121205.tgz is under current directory /root
```

The file is included in the generated OneCapture output file for use by Broadcom Technical Support for additional debug purposes.

2.3.3 Linux, Citrix, and Solaris CLI Parameters

The following CLI parameters are available for Linux, Citrix, and Solaris.

`-h` or `--help`

Displays the help text.

`-L` or `--ListAdapters`

Lists the discovered adapters. The `ListAdapters` parameter shows each adapter's adapter number (0, 1, . . .), which is used in the `dump` command for the `--Adapters` parameter.

NOTE: For LPe12000-series adapters, each port on the adapter is shown as a separate adapter. Thus, if the adapter has two ports, it is shown as two adapters.

-Q or --Quiet

Forces the capture without displaying a warning message or prompt.

-X or --NoCrashDump

Does not collect crash dump files under `/var/crash`. For example:

```
./OneCapture_Linux.sh --NoCrashDump
```

-B or --BasicCapture

Specifies the basic capture type. To specify a basic capture, omit the `--FullCapture` and `--Adapters` parameters. For example:

```
./OneCapture_Linux.sh --BasicCapture
```

-F or --FullCapture

Specifies the full capture type. To specify a full capture, use both the `--FullCapture` and `--Adapters` parameters. For example:

```
./OneCapture_Linux.sh --FullCapture --Adapters=0
./OneCapture_Linux.sh --FullCapture --Adapters=2,3
./OneCapture_Linux.sh --FullCapture --Adapters=all
```

CAUTION! This parameter can temporarily interrupt I/O on live adapters, and it can force live adapters offline.

-S or --SafeCapture

Specifies the safe capture type. To specify a safe capture, use the `-S` or `--SafeCapture` parameter with no other parameters. For example:

```
./OneCapture_Linux.sh -S
./OneCapture_Linux.sh --SafeCapture
```

-M or --MinimalCapture

Specifies the minimal capture type. The core dump and the kernel logs are captured. To specify a minimal capture, use the `-M` or `--MinimalCapture` parameter with a full or basic capture. You can use other parameters, such as `--Adapters`, with the minimal capture command. For example:

```
./OneCapture_Linux.sh -A=All -M -F
./OneCapture_Linux.sh --Basic --MinimalCapture
```

-A=<*AdapterNumber* | <*list*> | all> or **--Adapters=<*AdapterNumber* | <*list*> | all>**

Use only with the `--FullCapture` parameter. This parameter specifies the adapters for which OneCapture will perform a dead dump. For example:

- To perform a full dump on adapter 0 only:
  `/OneCapture_Linux.sh --FullCapture --Adapters=0`
- To perform a full dump on adapters 2 and 3 only:
  `/OneCapture_Linux.sh --FullCapture --Adapters=2,3`
- To perform a full dump on all adapters:
  `/OneCapture_Linux.sh --FullCapture --Adapters=all`

2.4 Running OneCapture on VMware ESXi

Before running OneCapture on VMware ESXi systems, you must enable the ESXi shell by doing the following:

1. Press **F2** on the ESXi main screen.
2. Go to **Troubleshooting Options**.
3. Choose **Enable ESXi shell**.

NOTE: You can also run the `OneCapture_ESX.sh` by `SSH` to the ESXi host.

ATTENTION: Before running OneCapture, quiesce the port.

To run OneCapture on an ESXi system:

1. Log in as `root`.
2. Download the zipped script file `OneCapture_ESX_<version>.tgz`.
3. Extract the script file by running the following command:
   `- tar -zxvf OneCapture_ESX_<version>.tgz`
4. Show the available target volumes by typing:
   `./OneCapture_ESX.sh [-T | --ShowVolumes]`
   For example:
   ```
   # ./OneCapture_ESX.sh -T
   Verifying archive integrity... All good.
   Uncompressing Emulex OneCapture ESX..........
   Copyright(c) 2012-2019 Broadcom. All Rights Reserved. The term 'Broadcom' refers to Broadcom Inc.
   and/or its subsidiaries.............
   --showvolumes selected
   Volume ID :  538474e9-59b93266-e8b8-f04da23f74e4  Free space:  74379689984
   Volume ID :  538555c4-c83454f8-d9d2-f04da23f74e4  Free space:  4267900928
   Volume ID :  e2026c71-52b57cde-56c2-b9ae66445c72  Free space:  96399360
   Volume ID :  cc98d67e-0a7c79da-97d1-27c3a68e6d5f  Free space:  87855104
   Volume ID :  538555bd-5c9bd074-35cc-f04da23f74e4  Free space:  97705984
   ```
5. Select the target volume for the dump by typing:
   `[-V | --Volume]=volume_id`
   For best results, specify a large local volume.
6. Run the shell script for the corresponding systems with the selected options. For example:
   `./OneCapture_ESX.sh --Volume=538555c4-c83454f8-d9d2-f04da23f74e4 --BasicCapture`
   The progress of the script is displayed in the following example:
   `Verifying archive integrity... All good.`

```
Uncompressing Emulex OneCapture ESX - Copyright(c) 2012-2019 Broadcom. All Rights Reserved. The
term 'Broadcom' refers to Broadcom Inc. and/or its subsidiaries.............
--Volume selected 52c30d1d-147a6563-e383-c81f66d81203
Beginning basic capture.
Emulex OneCapture ESXi, version 12.2.215.0
Started at Fri Jan 25 12:40:25 UTC 2019
Initializing report environment for host:dell94
Collecting System Information...
 [-] Obtaining vm-support...
 [-] Obtaining CoreDump
 [/] Gathering Logs...
 [/] Gathering kv_pages...
 [-] Generating Compressed Capture...
 [-] OneCapture_ESX_2019-01-25_124023.tgz is under /vmfs/volumes/52c30d1d-147a6563-e383-
c81f66d81203
```

2.4.1 Output File

After the OneCapture script finishes gathering information, a zipped tarball file is created. This file is placed in the volume that you created. Open the file to view the information. For example:

```
OneCapture_ESX_2015-12-15_172850.tgz is under /vmfs/volumes/4dbe20fd-14f1689b-950d-78e7d1fbfe0e
```

2.4.2 Output Summary File

OneCapture produces an output summary file at the end of the capture process. The file displays an onscreen list of the critical items that should have been captured, and a status as to whether the capture was successful, so you can verify whether the collected output is valid.

```
[root@dhcp-10-231-144-118:/vmfs/volumes/5c1d1f52-883a9713-ec6f-901b0e0
Verifying archive integrity... All good.
Uncompressing Emulex OneCapture ESX - Copyright(c) 2012-2018 Broadcom.
or its subsidiaries.....
-v selected 5c1d1f52-883a9713-ec6f-901b0e0cda06
Beginning basic capture.
Emulex OneCapture ESXi, version 12.2.195.0
Started at Mon Jan 14 21:55:38 UTC 2019
Initializing report environment for host:dhcp-10-231-144-118.lab.emule
Collecting System Information...
 [|] Obtaining vm-support...
 [-] Obtaining CoreDump
 [\] Gathering Logs...
 [/] Gathering NVME information...
 [\] Gathering kv_pages...
 [-] Capture Checklist - Please make sure all required file are proper
==================================
vmsupport - SUCCESS: VMsupport collected
lpfc-kv-pages.txt - SUCCESS: lpfc kv-page collected
==================================
 [\] Generating Compressed Capture...
 [/] OneCapture_ESX_2019-01-14_215536.tgz is under /vmfs/volumes/5c1d1
 [-] [root@dhcp-10-231-144-118:/vmfs/volumes/5c1d1f52-883a9713-ec6f-90
```

The file is included in the generated OneCapture output file for use by Broadcom Technical Support for additional debug purposes.

2.4.3 ESXi Command Line Interface Parameters

The following CLI parameters are available for ESXi systems.

`-h` or `--help`

Displays the help text.

-T or --ShowVolumes

Lists the available volumes. The Volume IDs given can be used in a `-V` or `--Volume` parameter.

-V or --Volume

Sets up the dump volume. For best results, specify a large local volume for the dump. For example:

```
./OneCapture_ESX.sh --DumpVolume=53874dd8-cf5f5e64-5396-002564fab52f
```

NOTE: For LPe12000-series adapters, each port on the adapter is shown as a separate adapter. Thus, if the adapter has two ports, it is shown as two adapters.

-Q or --Quiet

Forces the capture without displaying a warning message or prompt.

-B or --BasicCapture

Specifies the basic capture type. To specify a basic capture, omit the `--FullCapture` and `--Adapters` parameters. For example:

```
./OneCapture_ESX.sh --Volume=538555c4-c83454f8-d9d2-f04da23f74e4 --BasicCapture
```

-F or --FullCapture

Specifies the full capture type. To specify a full capture, use both the `--FullCapture` and `--Adapters` parameters. For example:

```
./OneCapture_ESX.sh --Volume=538555c4-c83454f8-d9d2-f04da23f74e4 --FullCapture --Adapters=0
./OneCapture_ESX.sh --Volume=538555c4-c83454f8-d9d2-f04da23f74e4 --FullCapture --Adapters=2,3
./OneCapture_ESX.sh -V=538555c4-c83454f8-d9d2-f04da23f74e4 --FullCapture --Adapters=all
```

CAUTION! This parameter can temporarily interrupt I/O on live adapters and can force live adapters offline.

-S or --SafeCapture

Specifies the safe capture type. To specify a Safe capture, use the `-S` or `--SafeCapture` parameter with no other options. For example:

```
./OneCapture_ESX.sh --Volume=538555c4-c83454f8-d9d2-f04da23f74e4 -S
./OneCapture_ESX.sh --Volume=538555c4-c83454f8-d9d2-f04da23f74e4 --SafeCapture
```

-M or --MinimalCapture

Specifies the minimal capture type. The `-M` option omits the collection of vm-support data. To specify a minimal capture, use the `-M` or `--MinimalCapture` parameter with no other options. For example:

```
./OneCapture_ESX.sh --Volume=538555c4-c83454f8-d9d2-f04da23f74e4 -M
./OneCapture_ESX.sh --Volume=538555c4-c83454f8-d9d2-f04da23f74e4 --MinimalCapture
```

-A=<*AdapterNumber* | <*list*> | all> or **--Adapters=<*AdapterNumber* | <*list*> | all>**

This parameter specifies the adapters for which OneCapture will perform a full dump. Use only with the `/FullCapture` parameter. For example:

- To perform a full dump on adapter 0 only:
  `./OneCapture_ESX.sh --Volume=538555c4-c83454f8-d9d2-f04da23f74e4 --FullCapture --Adapters=0`
- To perform a full dump on adapters 2 and 3 only:
  `./OneCapture_ESX.sh --FullCapture --Adapters=2,3`
- To perform a full dump on all adapters:
  `./OneCapture_ESX.sh --FullCapture --Adapters=all`

-SVM or --SkipVMsupport

This option causes OneCapture to skip the collection of vm-support data. You can collect the vm-support data manually using any of the following commands:

- With the local ESXi:
  `vm-support -w <path_to_destination_directory>`
- With a remote system:
  a. Using any HTTP client, download the resource from
  `https://<ESX host name or IP address>/cgi-bin/vm-support.cgi`.
  b. Download the resource using the `wget` utility on a Linux or other Posix client, such as the vSphere Management Assistant appliance.
  `wget <ESX host name or IP address>/cgi-bin/vm-support.cgi`
  A compressed bundle of logs is produced on the client at the specified location.
  c. Using a Linux or Posix client, such as the vSphere Management Assistant appliance, log in to the ESXi host, and run the `vm-support` command with the streaming option enabled, specifying a new local file. A compressed bundle of logs is produced on the client at the specified location. For example:
  `ssh root@<ESX host name or IP address> vm-support -s > vm-support-<Host name>.tgz`

Chapter 3: Collected Data

By default, OneCapture collects live firmware dumps. For dead dumps, Emulex adapters are taken offline during OneCapture execution. You must reboot to bring the adapters back online.

To skip collecting live firmware dumps, perform one of the following actions:

- For Linux and Solaris systems, use the `/SafeCapture` parameter.
- For Windows and VMware systems, choose `Safe mode`, or uncheck dump options in the GUI. Use `/SafeCapture`, or specify the `/component` option to choose the necessary items in the CLI.

To collect dead dumps, perform one of the following actions:

- For Linux and Solaris systems, use `/FullCapture`.
- For Windows and VMware systems, choose full capture, or select options in GUI interface. Use `/FullCapture` or specify the `/component` option to choose the necessary items in the CLI.

OneCapture cannot collect data for certain nondefault library commands. However, you can install add-on packages for those commands if the packages are compatible with your system.

The following list of packages may not be included with default installations. Install these packages to capture the most data.

- For Linux:
  - `sysstat` – To use `iostat mpstat`
  - `hwinfo` – To use `hwinfo`
  - `sg3_utils` – To use `sg_map`
  - `dmidecode` – To use `dmidecode` and `biosdecode`
  - `smbios-utils` – To use `smbios`
  - `netstat-nat` – To use `netstat`
  - `libblkid` – To use `blkid`
  - `procps` – To use `vmstat`
  - `device-mapper-multipath` – To use `multipath`
  - `bridge-utils` – To use `brctl`
  - `libvirt-utils` – To use `virsh`
- For Solaris:
  - `pciconf` – To use `pciconf`
  - `prtdiag` – To use `prtdiags`

NOTE: OneCapture packet data can be captured as part of the memory dump within the firmware dump.

The following sections describe, by operating system, the information collected by OneCapture.

3.1 Windows Systems

The following information is available for Windows systems.

Table 1: Windows Information Collected

Type	Information
AutoPilot Report	FC
Coredump	MILI report
	OneKat adapter list
	OneKat adapter dumps
Disk	Disk detail
Driver Configuration	`Devcon` collected information
	`<HKLM>/Hardware/DeviceMap/Scsi`
	`Driverquery` collected information
ElxTrace	Trace messages
MILI	MILI log
	MILI service status
	MILI service information
MPIO Information	`mpclaim -s`
	`mpclaim -e`
	`mpclaim -v`
OneCommand Manager Application Information	`Hbacmd` version
	`Hbacmd ListHBAs` (local)
	`Hbacmd HbaAttribute` (local)
	`Hbacmd PortAttribute` (local)
	`Hbacmd nvme-list`
	`Hbacmd nvme-list-ctrl`
	`Hbacmd nvme-id-ctrl`
	`Hbacmd nvme-list-ns`
	`Hbacmd nvme-get-feature`
	`RM.log`
	OneCommand Manager installer log
System Configuration	System information
	System inventory
	PCI information
	CPU information
	CPUEx information
Win Logs	Windows logs
Win Setup Log	Windows setup log
Windows Information	Broadcom services status
	`setupapi.*.log`
	Event logs

3.2 Linux Systems

The following information is available from Linux systems.

Table 2: Linux Information Collected

Type	Information	Parameter
Adapter Info	`Onekat` adapter list	
	`Onekat milirpt`	
Crash Dump	`kdump`	`/var/crash`[a]
Device Interrupts	Emulex device interrupts counter, in 5-second intervals	
Driver Information	RPM packages with an `elx` prefix name	
	Loaded kernel modules with an `elx` prefix name	
	`lpfc` kernel module information	`modinfo lpfc`
FC-Specific Information		`modinfo`
		`SCSI device info`
		`SCSI class information`
Hardware Information	System hardware description through SMBIOS/DMI	`dmidecode`
HBACMD	`listhbas`	
	`version`	
	`hbaattr` (local HBA only)	
	`hbacmd nvme-list-linux`	
	`hbacmd nvme-list-ns-linux`	
Kernel Configuration	Compile-time kernel configuration	`/proc/config.gz`
	`xinetd` configuration, network services daemon configuration	
	Module loading configuration	`/proc/modprobe.conf`
Kernel Information	CPU structures	`/proc/cpuinfo`
	Memory structures	`/proc/meminfo`
	Kernel version	`/proc/version`
	System uptime	`/proc/uptime`
	Kernel boot parameters	`/proc/cmdline`
	System memory mapping	`/proc/iomem`
	Memory zones and virtual memory	`/proc/zoneinfo`
	Devices group	`/proc/partitions`
	Kernel caches	`/proc/slabinfo`
	Network device status	`/proc/net/dev`
	SCSI devices	`/proc/scsi/scsi`
Kernel Log	`dmesg` kernel log	
Kernel Runtime Parameters	List of all kernel runtime parameters	
Library Information	The version number for the following libraries: ■ `libdfc` ■ `libmili` ■ `libHBA`	
MPIO Info	`multipath -ll`	`/etc/multipath.conf`

Table 2: Linux Information Collected (Continued)

Type	Information	Parameter
Network Statistics	Summary statistics for each protocol	
	Table of all available network interfaces	
	All current TCP connections	
	Routing table	
OneCommand Manager Application Information	RPM packages with an `elx` prefix name	
	Running status of the process `hbanywhere`	
	Running status of the process `ocmanager`	
	List of executable files with an `elx` prefix name	
	List of executable files with a `mili` prefix name	
	`rm.log`	
	`cnaboardmgnt.log`	
	`utils-install.log`	
	`mili2d.log`	
	`Installer.log`	
PCI Information	Tree diagram containing all buses, bridges, devices, and connections. Verbose and detailed information plus PCI configuration space dump on devices with Emulex vendor ID.	
System Information	Kernel version	
	Distributed version	
	Kernel modules currently loaded	`lsmod`
	Kernel memory allocations	`numastat`
	Running processes	`ps`
	Running tasks	`top`
	Processors statistics	`mpstat`
	Memory statistics	`free`
	Installed packages	`rpm -qa`
Virtualization Logs		`/var/log/xen/xend.log`
		`/var/log/libvirt/libvirtd.log`
Virtual Memory Statistics	Various event counters and memory statistics	
	Disk statistics	
	`slabinfo`	

a. Use the `/var/crash` directory only for crash dump files. Dump files will not be created under any other path.

3.3 Solaris Systems

The following information is available from Solaris systems.

NOTE: Solaris support is available for Solaris inbox drivers only.

Table 3: Solaris Information Collected

Type	Information	Parameter
Core Dump	`hbacmd dump`	
	`hbacmd dump down`	
Crash Dump	`kdump`	`/var/crash`[a]
Device Interrupts	Emulex device interrupts counter, 5 seconds	
Hardware Information	BIOS information	`smbios`
	PCI buses information	`scanpci`
	System peripherals information	`prtconf -v`
	System peripherals tree	`prtconf -vp`
	Host HBA information	`fcinfo hba-port`
HBACMD	`listhbas`	
	`version`	
	`hbaattr` (local only)	
	`portattr` (local only)	
Kernel Configuration	System parameters	`/etc/system`
	Kernel symbols	`nm -x /dev/ksysm | grep OBJ`
Kernel Log	`dmesg` kernel log	
Kernel Parameters	System definition	`sysdef -D`
	System definition, in device tree format	`sysdef -dD`
	Kernel statistics	`kstat`
Network Statistics	Per-protocol statistics	`netstat -s`
	ARP tables	`netstat -p`
	All TCP statistics	`netstat -aP tcp`
	Routing tables	`netstat -rn`
	Multicast memberships	`netstat -g`
	INET family streams statistics	`netstat -idm -f inet`
OneCommand Manager Application Information	Running status of the process `hbanywhere`	
	Running status of the process `ocmanager`	
	List of executables with an `elx` prefix name	
	List of executables with a `mili` prefix name	
	`rm.log`	
	`utils-install.log`	
	`mili2d.log`	
	`installer.log`	

Table 3: Solaris Information Collected (Continued)

Type	Information	Parameter
System Information	Kernel version	`uname -a`
	Network interface	`ifconfig -a`
	Processors information	`psrinfo -pv`
	Swap information	`swap -s`
	Last reboot time	`last reboot`
	Uptime	`uptime`
	Running tasks	`top -d 5 -n 2`
	Running processes	`ps -ef)`
	Loaded modules	`modinfo`
	Service status	`svcs`
	Device status	`cfgadm -al`
System Statistics	System events since boot	`vmsat -s`
	Paging activity in 5 seconds	`vmstat -p 1 5`

a. Use only the `/var/crash` directory for crash dump files. Dump files will not be created under any other path.

3.4 VMware Systems

The following information is available from VMware systems.

Table 4: VMware Information Collected

Type	Information
HBA Dump	Core dump
	`Onekat` adapter list
Log Configuration	`/tmp/*.log`
	`/tmp/ucna.txt`
	`/etc/cim/emulex/*.log`
	`/etc/cim/emulex/*.dmp`
	`/etc/cim/emulex/*.conf`
MILI Log	`RM.log`
	`mili2d.log`
MILI Report	`Onekat milirpt`
VM_KV_PAGE	`vm_kv_page -v`
	`lpfc-kv-pages.txt`
	`vm_kv_page -q all -p all`
	`lpfc-kv-pages.txt`
VMware `vm-support` package (as provided by the default manifest in ESXi)	Active directory
	CIM
	Configuration
	Crash
	Fault
	File system
	Hardware
	Hung VM
	Installer
	Integrity checks
	Logs
	Network
	Performance snapshot
	Storage
	System
	Testing
	Userworld
	Virtual
	Host profiles

Chapter 4: Troubleshooting

This section describes circumstances under which your system may operate in an unexpected manner, and it offers resolutions for each situation.

NOTE: If an operating system is not specified, the issue is applicable to all operating systems.

Table 5: OneCapture Troubleshooting

Situation	Resolution
Adapter information was not captured.	1. Install OneCapture on the system on which you are collecting data. 2. Install the driver for the devices on the system. The drivers must be installed before driver information is available for capture. 3. Install the OneCommand Manager application from the Broadcom website.
The output HTML file displays a `missing Data File` error.	Verify that the zip file has been extracted completely from the archive folder before you open the HTML file.

OneCapture scripts can generate the error messages described in the following table.

Table 6: OneCapture Script Error Messages

Message Text	Cause and Action	Status Code on Exit
`--FullCapture not valid (OS not supported)`	OneCapture does not support this operating system or Linux distribution; OneCapture does not exit.	—
`--ListAdapters not valid (OS not supported)`	OneCapture does not support this operating system or Linux distribution; OneCapture exits immediately.	0
`--ListAdapters selected` `FreeBSD do not support FC adapter dump`	The dump tool does not support FreeBSD; OneCapture exits immediately.	0
`Adapter $index does not exist` `Please re-select adapters to do dead dump`	The specified adapter number does not exist in the system; OneCapture exits immediately.	0
`Do not use this option if the adapter is the boot device.` `If you must perform a dump on the boot adapter, use --SafeCapture option.`	You are running OneCapture on an adapter that is configured as a boot device; you are prompted whether to continue. Use `--SafeCapture` (in Linux and VMware) or `/SafeCapture` (in Windows) to run OneCapture on a boot device.	0

`Dump tool has missing dependencies:`
`<missing packages>`
`If you must perform a dump on this system, please fix those missing packages.`
	A required library file is missing; you are prompted whether to continue.
	See the list of library files required for Linux in Section 2.3, Running OneCapture on Linux, Citrix, and Solaris.
		0

Table 6: OneCapture Script Error Messages (Continued)

Message Text	Cause and Action	Status Code on Exit

`Invalid options. --FullCapture requires the --Adapters option.`
`Please specify the adapters for which you want to collect dead dumps.`
`Use --ListAdapters to obtain the adapter numbers.`
`Use --Adapters to specify the desired dump adapters.`
`Syntax:`
`--Adapters=<AdapterNum1 [,AdapterNum2,...] | all>`
`Example,`
`to dump adapters 2 and 3:`
`--Adapters=2,3`
`to dump all the adapters reported by --ListAdapters:`
`--Adapters=all`
	The `--FullCapture` parameter was specified, but no adapter option was specified; OneCapture exits immediately.	0

`OneCapture is already running, please run only one instance at a time`	Another instance of OneCapture has been detected; OneCapture exits immediately.	0

`OneCapture requires the libnl1 package.`
`You must install it manually, and then re-run OneCapture.`
`To install the libnl1 package, use "apt-get install libnl1".`
	The `libnl1` package is not installed; OneCapture exits immediately.
	See the list of library files required for Linux in Section 2.3, Running OneCapture on Linux, Citrix, and Solaris.
		0

`onekat is not available for this distro` `If you must perform a dump on this system, please use an updated OneCapture`	The version of OneCapture that you are using does not support the operating system distribution; you are prompted whether to continue.	0
`option '-A' | '--Adapters' invalid.` `please add '-F' | '--FullCapture' if you wish to collect dead dumps`	An adapter number was specified, but full capture was not specified; OneCapture exits immediately.	0
`Please make sure you are using valid options` `'-H' | '-h' | '--help' to see help`	An unsupported parameter was specified; OneCapture exits immediately.	0
`Please specify only one of the Capture Type.` `You could choose only one of -B, -S, or -F.`	More than one capture parameter was specified; you must choose only one. OneCapture exits immediately.	0
`Some Critical information will be missed if OCM is missing` `Do you wish to continue this capture? (y/n)`	In Solaris, OneCommand Manager is not installed on the system; you are prompted whether to continue.	0

`This script only support the following Unix variants`
`* Linux`
`* Solaris`
`* FreeBSD`
	An unsupported operating system was detected; OneCapture exits immediately.	0

`Unsupported architecture: <detected architecture>`	Only the following architectures are supported: ■ i386 ■ x86_64 If another architecture is detected, OneCapture exits immediately.	-1

Table 6: OneCapture Script Error Messages (Continued)

Message Text	Cause and Action	Status Code on Exit
`user cancelled capture, will generate zip for data already captured`	You pressed **Ctrl+C** to cancel a currently running script; OneCapture generates a `.zip` file of the data that has been collected and then exits.	0
`We do not support Adapter Dumps for your Operating system.` `Currently Support Only SLES, RHEL, Citrix XenServer and Oracle Linux (UEK).`	A Linux operating system was detected, but adapter dumps are not available for the detected operating system type or distribution; you are prompted whether to continue.	0

`You have chosen a capture which includes a dead dump.`
`Dead dump causes the adapter to be taken offline.`
`A system reboot is required to bring the adapter back online.`
`Do not use this option if the adapter is the boot device.`
`If you must perform a dump on the boot adapter, use --SafeCapture option.`
	In Solaris, the dump you selected requires the adapter to be taken offline; you are prompted whether to continue.	0

`You have chosen a capture which includes an adapter reset.` `Adapter reset will cause temporary interruption of I/O`	The dump you selected requires an adapter reset; you are prompted whether to continue.	0
`You must run this as root.`	The script is being run under a non-root user; OneCapture exits immediately.	1


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