



TeraVM Classic Release Notes

TeraVM Classic Release 14.4.2



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Chapter 1. What's New in this Release

The following sections detail what is new in this release.

1.1 Java Client

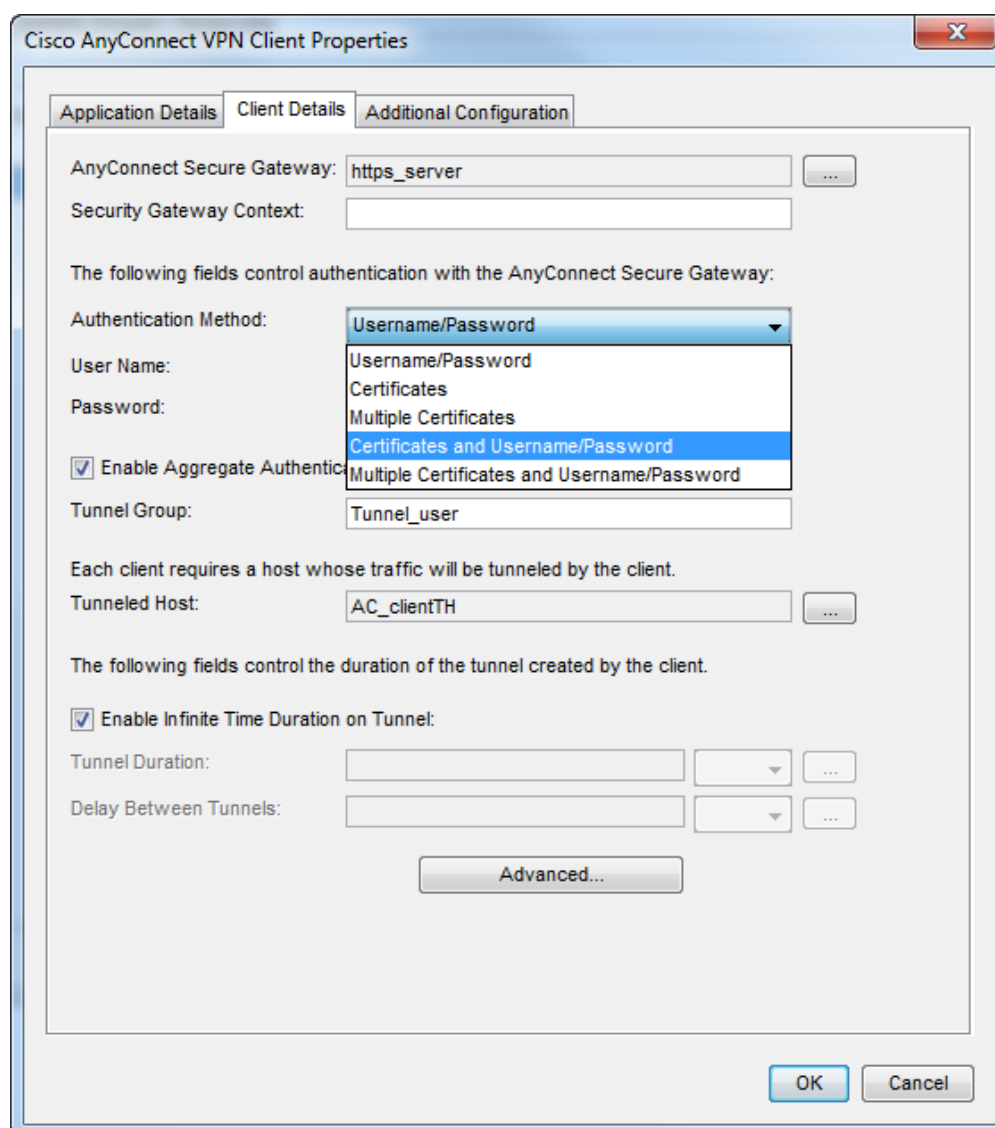
The following section contains the changes made to the TeraVM Java Client for this release.

1.1.1 Cisco AnyConnect – AAA and Certificate Authentication Support

The Cisco AnyConnect Application now has support for AAA authentication with Certificates and Multiple Certificates. Extra menu items in the **Client Details > Authentication Method** drop-down box are included for this feature, they are:

- Certificates and Username/Password
- Multiple Certificates and Username/Password

The content displayed in the **Client Details** tab, when you have selected one of the new options, is the content displayed for the existing **Certificates** and **Multiple Certificates** options plus two new input fields for providing Username and Password.



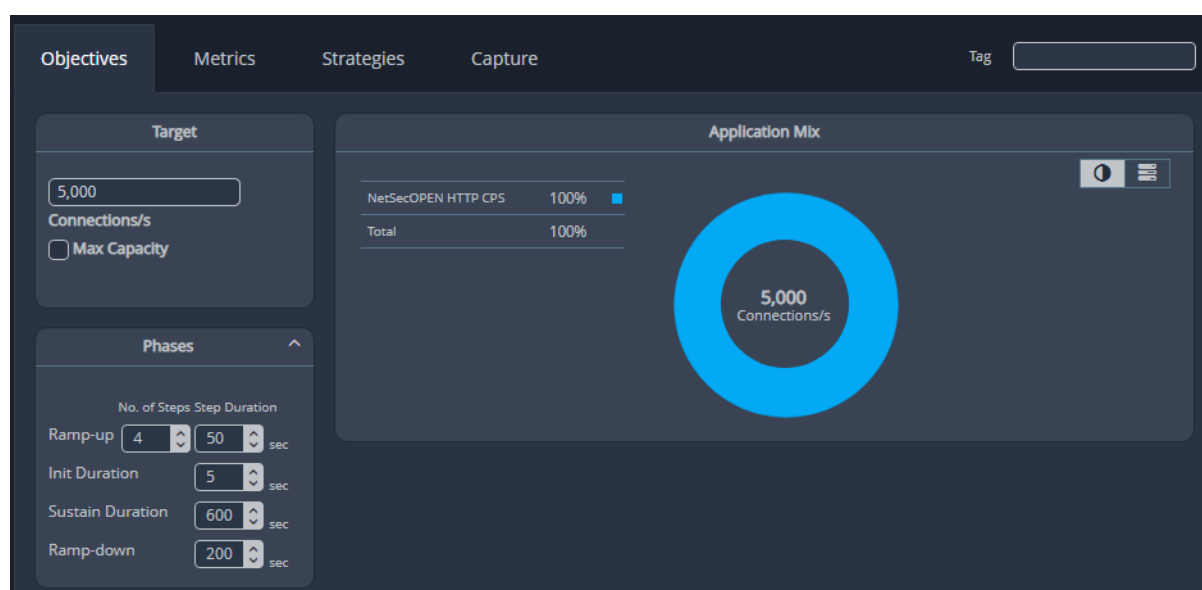
1.2 TeraVM HTML5 Client

The following section contains the changes made to the TeraVM HTML5 Client for this release.

1.2.1 Added NetSecOPEN HTTP CPS Test

This is an HTTP Connections Per Second test that is configured to comply with the NetSecOPEN standard and measures the Connections per second. In order to meet the criteria of the NetSecOPEN standard this test is configured with the following:

- **Page Size:** the page size is 64KB
- **IPv4:** hosts that use IPv4.
- **Traffic Flow:** TCP Connection, perform 1 HTTP GET Transactions –TCP Close with FIN immediately.
- **Test Phases:** the default values for the test Phases are set appropriately



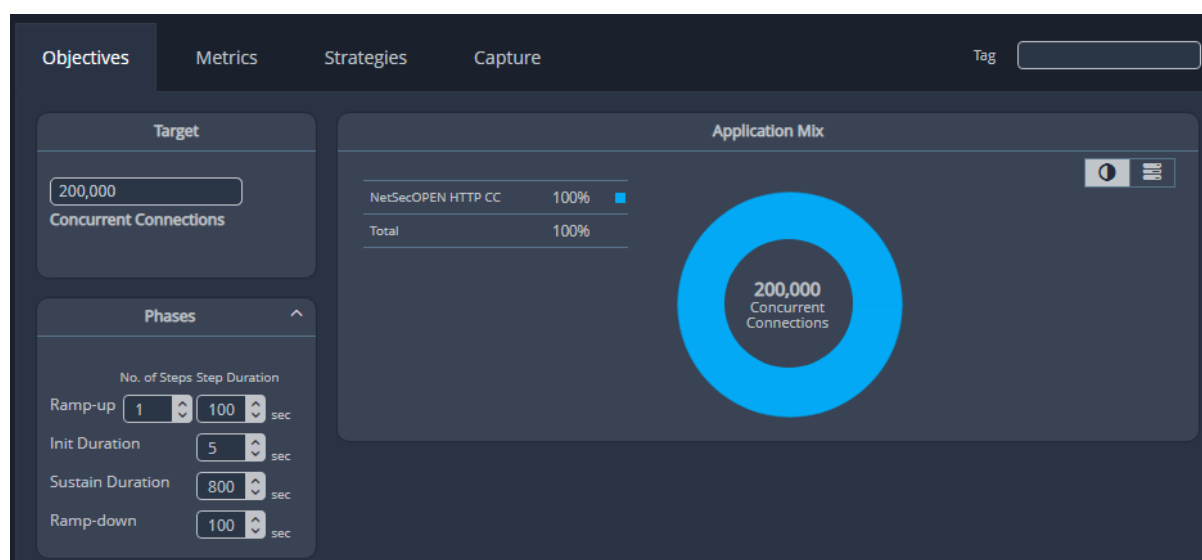
The following table shows the Test Phases for NetSecOPEN HTTP CPS.

Field	Description
Ramp-up	Gradually increase the traffic without overwhelming the system using the following: <ul style="list-style-type: none"> • <i>No. of Steps</i> Minimum value:1 Maximum value: 10, Default value: 4 steps. • <i>Step Duration</i> Minimum value: 10, Maximum value: 300, Default value: 50 seconds.
Init Duration	The initiate phase is the time period set for learning about the network (ARP and MAC tables) and must be set between minimum 5 and maximum 30 seconds. Default value 5 seconds.
Sustain Duration	The sustain phase is the period that the test conditions are maintained at and must be set between 10 and 3596610 seconds. Default value 600 seconds.
Ramp-down	The ramp down phase is the gradual stopping of the test in seconds and must be set between 10 seconds and 300 seconds. Default value 200 seconds.

1.2.2 Added NetSecOPEN Concurrent Connections Test

The NetSecOPEN HTTP Concurrent Connections test returns metrics associated with HTTP connections while configured to comply with the NetSecOPEN standard and attempting to reach the entered Target amount of Concurrent Connections. You can enter a target for the Concurrent Connections or accept the default of 200,000.

- **Page Size:** the page size is 1KB
- **IPv4:** hosts that use IPv4.
- **Traffic Flow:** TCP Connection, perform 1 HTTP GET Transactions –TCP Close with FIN immediately.
- **Test Phases:** the default values for the test Phases are set appropriately.



The following table shows the Test Phases for NetSecOPEN CC CPS.

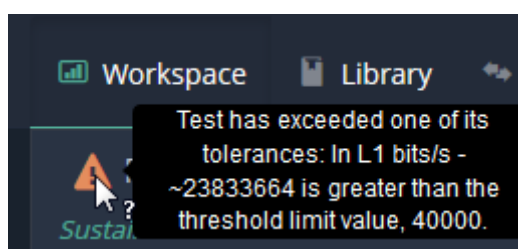
Field	Description
Ramp-up	Gradually increase the traffic without overwhelming the system using the following: <ul style="list-style-type: none"> • <i>No. of Steps</i> Minimum value:1 Maximum value: 10, Default value: 1 step. • <i>Step Duration</i> Minimum value: 10, Maximum value: 300, Default value: 100 seconds.
Init Duration	The initiate phase is the time period set for learning about the network (ARP and MAC tables) and must be set between minimum 5 and maximum 30 seconds. Default value 5 seconds.
Sustain Duration	The sustain phase is the period that the test conditions are maintained at and must be set between 10 and 3596610 seconds. Default value 800 seconds.
Ramp-down	The ramp down phase is the gradual stopping of the test in seconds and must be set between 10 seconds and 300 seconds. Default value 100 seconds.

1.2.2.1 Test Level Thresholds to NetSecOPEN

Test Level Thresholds are available for the two newly added NetSecOPEN tests:

- NetSecOPEN HTTP Connections Per Second
- NetSecOPEN HTTP Concurrent Connections

These can be found in the Constraints pane in the Strategies tab. The test-level thresholds can be applied at runtime to impose further test fail conditions. The following image shows the mouse-over description of a test that failed as a result of one or more threshold conditions being met.



The Thresholds available, shown in the following diagram, are determined by the type of test that you are running. A threshold is made of an **If ... Then** statement with an operator applied to it, currently, only the greater-than operator (>) is available. This means that the test fails, if the runtime metric values are *greater than* the values selected in the test phases.

If...	Then...	Applicable in
<input checked="" type="checkbox"/> In L1 bits/s > 40,000,000,000 Bits/s	Fail the test	<input checked="" type="checkbox"/> Ramp Up <input checked="" type="checkbox"/> Sustain
<input checked="" type="checkbox"/> Established Connections/s > 1,000,000 Connections/s	Fail the test	<input checked="" type="checkbox"/> Ramp Up <input checked="" type="checkbox"/> Sustain
<input checked="" type="checkbox"/> HTTP Client Transactions Per Second - Gets/s > 10,000,000 Gets/s	Fail the test	<input checked="" type="checkbox"/> Ramp Up <input checked="" type="checkbox"/> Sustain

Rules for configuring Thresholds:

- All threshold values must be above zero.
- At least one test phase (**Ramp-up**, **Sustain** or both) must be selected, otherwise a validation will be triggered.

1.2.3 HTTP Payload Configurable as 1 Byte

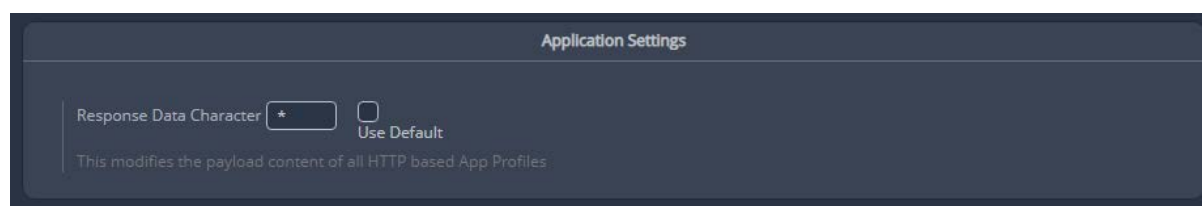
A payload can be configured as 1 Byte in an HTTP profile and can be used in an HTTP CPS test.

1.2.4 Configurable HTTP Payload Content

A text entry field is provided so that the payload content can be configured, as shown in the image that follows. The **Use Default** check box is selected by default.

- When the check box is selected, the payload will contain a string of characters in alphabetical order that is repeated until the page size criteria is met.
- When the check box is clear, enter a character into the Response Data Character text field. The payload will now consist of a string made up of this single character repeated many times to meet the page size criteria. Note that using this setting in an App Mix test that has both FTP profile and HTTP Profile will affect the payload content FTP traffic also in addition to the

HTTP Traffic. But using this setting in an App Mix with an FTP Profile but no HTTP profile will not affect the payload content of FTP traffic.



1.2.5 Generating 25 Million Concurrent Connections on UCS M5 Server

TeraVM can generate 25M HTTP Concurrent Connections in a C240 M5 Golden Config environment with 20 x TVM-2. The test starts generating traffic within 2 minutes and can reach the objective of 25 Million within 5 minutes of starting the test.

To achieve this, you must change the memory settings in the `vmutil.cfg` file before orchestration. The example below shows the parameters to change in the `vmutil.cfg` file.

Once deployed, checkout the *Concurrent TCP Connections* test from the HTML UI, change the default **No. of Steps** to **1** and the **Step Duration** to **300** sec. You must also set the Strategies Test Module Assignment to use Static with 10 Test Module Pairs."

TVM changes (for TVM-2 only)

```
tvmVmProp[0]="memoryMB=8704"
tvmVmProp[1]="memoryAllocation.reservation=8704"
tvmVmProp[2]="memoryAllocation.limit=8704"
tvmVmProp[3]="numCPUs=2"
tvmVmProp[4]="numCoresPerSocket=2"
tvmVmProp[5]="cpuAllocation.reservation=0"
tvmVmProp[6]="cpuAllocation.limit=-1"
```

TVM-C changes

```
vmcVmProp[0]="memoryMB=5120"
vmcVmProp[1]="memoryAllocation.reservation=5120"
vmcVmProp[2]="memoryAllocation.limit=-1"
vmcVmProp[3]="numCPUs=4"
vmcVmProp[4]="numCoresPerSocket=4"
vmcVmProp[6]="cpuAllocation.limit=-1"
```

Chapter 2. Patches

In the case where you need to apply a patch from VIAVI, please use the steps that follow. All previous patches between the last and current release are included in this release.

2.1 Installing a Patch

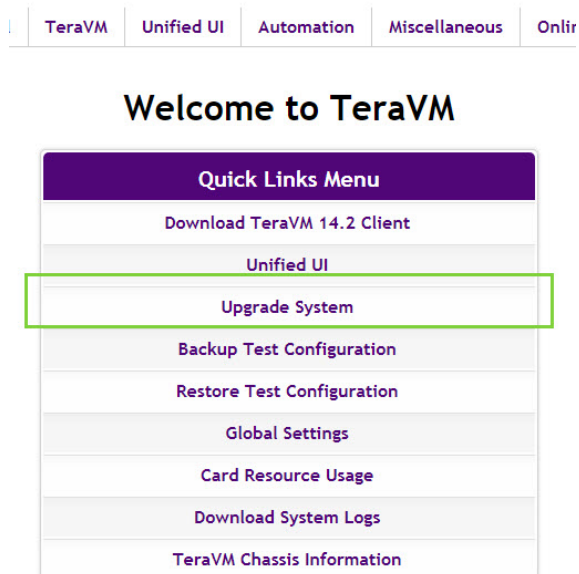
Use this procedure to install a patch using the Web Administration Interface.

1. Download the patch from the relevant folder. Close any open TeraVM user interfaces and stop any tests.
2. In your browser, enter the IP address of the Executive/Controller.
3. Enter your User Name and Password and click **Sign In**.
4. Select **Utilities**.
5. From the *Welcome to TeraVM* page, select **Upgrade System** and login using:

User Name: **driverAdmin**

Password: **diversifEye**

Figure 2-1. Welcome to TeraVM



6. Select the **Choose File** button.
7. Select the appropriate patch file and click **Open**.
8. Click **Upload**. The file uploads in several seconds.
9. Click **Upgrade** and wait for the patch to complete upgrading.

Chapter 3. Upgrading to this Release

As a general guideline, when upgrading to a new version of TeraVM, deploy the new TeraVM Management Assistant (TeraVM MA) and remove the previous version. The TeraVM MA is used for deploying new Test Modules, and when moving from TeraVM 11.4, it is used to deploy a TeraVM Executive.

To use the Streamlined Upgrade Process, see *3.4 Streamlined Upgrade Process*. Otherwise, use the following sequence of actions for the upgrade:

Required Upgrades

- TeraVM Executive (TeraVM) – see Section 3.3.1 Download and Install Upgrade. If your upgrading from 11.4, then you must deploy an Executive from the new TeraVM MA see the TeraVM VMWare ESXi Setup Guide for more information.
- TeraVM Controller (TeraVM and d500/d1000) – see Section 3.3.1 Download and Install Upgrade.
- Delete the old Test Modules and then redeploy new Test Modules (TeraVM) – see the relevant platform setup guide.
- Upgrade Off Controller Repository (if using an Off Controller Repository) – see Section 3.2 Upgrading Off Controller Repository.

Optional Upgrades

- Cybersecurity (TeraVM).

For more release specific guidelines, you must follow the conditions below and refer to the appropriate TeraVM Setup Guide for your platform.

Important: You must check to see if your upgrade process is impacted by any of the following conditions.

Installation Conditions

- **Centralized Executive Upgrade**

If you are using a Centralized Executive and planning to upgrade, ideally all your Executives should be upgraded to the same version or at least the Central Executive is the newest.

- **Upgrading from 13.1**

If upgrading from 13.1 to 13.2 or, 13.3, 13.4, 13.4.1, 13.4.2, 14.0, 14.1 you must follow the upgrade procedure from Section 3.1, for both the Controller and the Executive. This is to ensure that you do not encounter a timeout while upgrading them.

- **Pre-12.0 Introduction of TeraVM Executive**

TeraVM 12.0 was a major release, with many new features and architectural changes to the product. Therefore, if you are migrating from a pre-12.0 release, you must deploy the TeraVM Test Modules and the TeraVM Executive to use TeraVM successfully.

- **Pre-12.1 to Post 12.1: Authentication Service**

If upgrading from a pre-12.1 to post 12.1 release, you will see the message The Authentication Service from the Executive Machine Could Not Be Reached. To get around this, in the browser, you must amend the TeraVM Controller IP with :8181. For example: `http://TVM-C IP:8181`.

- **12.1 Security Certificate Required**

When upgrading from pre-12.1 to post-12.1 and trying to reach the Executive or Controller via the browser, the browser displays a connection not secure dialog. This dialog will differ from browser to browser. You must add an exception to accept a security certificate before you can log into the Executive or Controller. You will also need to do this the first time that you open Pool Manager from the UI.

- **Upgrade to Off Controller Repository**

13.1 release includes performance improvements to the Off Controller Client Repository. If you have a have an installed Off Controller Client Repository, then use the procedure in Section 3.2 to perform the upgrade. TeraVM supplies a separate Client Repository which can be of unlimited size, external to the Controller (Off Controller). It comes as a separate virtual machine, and must be downloaded separately. The repository is sized at 32 GB by default. You can increase this by adding disks in vSphere (you cannot remove or resize existing disks).

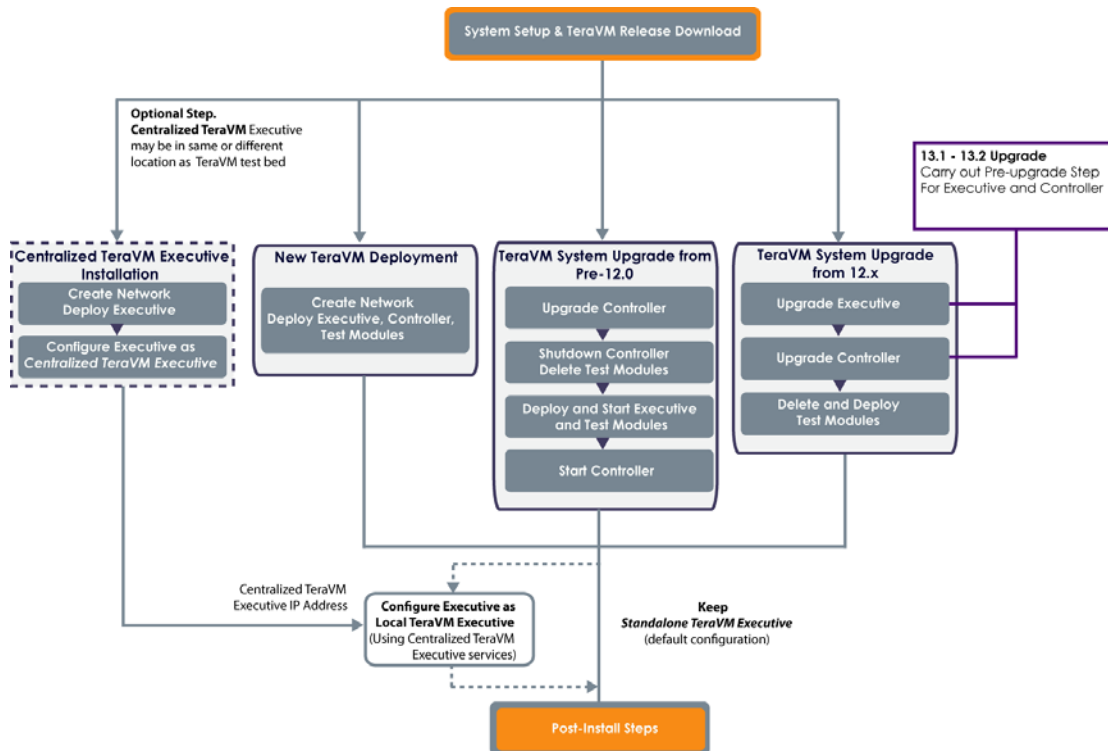
- **Cybersecurity Updates**

This release includes the addition of ETPro files, these files are only supported from TeraVM Controller version 13.3-4267 and onward.

When you perform this upgrade, all Cybersecurity Updates from the last Cybersecurity upgrade will be removed. Please download the latest Cybersecurity updates and reboot your controller before reinstalling. Contact support for details. This only applies if you have purchased the additional Cybersecurity Database license from VIAVI.

An overview of the TeraVM install and upgrade process is shown below. For details on installing or upgrading to this release, please see the relevant hypervisor/cloud guide.

Figure 3-1. Installing or Upgrading to this Release



3.1 Upgrade from 13.1 Pre-Upgrade Step

This procedure must be done for both the TeraVM Executive and Controller before upgrading from TeraVM 13.1 to 13.2 or, 13.3, 13.4, 13.4.1, 13.4.2, 14.0, 14.1.

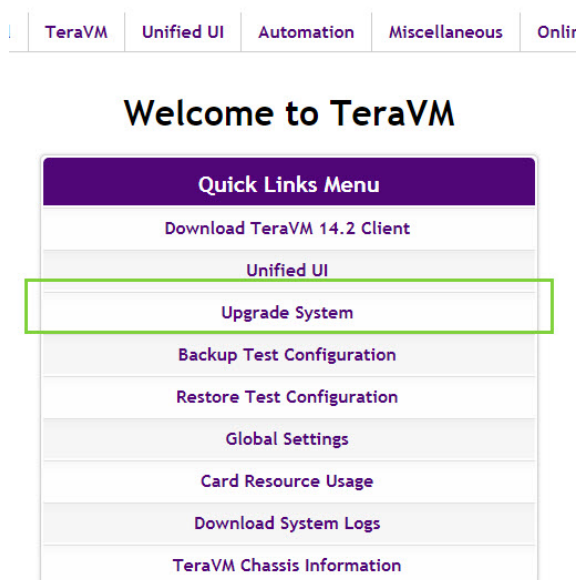
Prerequisite

- Failure to follow this procedure during an upgrade will lead to a timeout or an error message. This will not negatively impact the upgrade, but you must follow this procedure and apply the pre-upgrade steps.
1. In your browser, enter the IP address of the Executive/Controller.
 2. Enter your User Name and Password and click **Sign In**.
 3. Select **Utilities**.
 4. From *the Welcome to TeraVM* page, select **Upgrade System** and login using:

Username: **diverAdmin**

Password: **diversifEye**

Figure 3-2. Welcome to TeraVM



5. Select the **Choose File** button.
6. Select the appropriate pre-upgrade file and click **Open**.

TeraVM_Controller-13.2_preupgrade-98134-upload.tgz
TeraVM_Executive_1.6_preupgrade-98132-upload.tgz

7. Click **Upload**. The file uploads in several seconds.
8. Click **Upgrade**.
9. After the pre-upgrades have been completed continue with the Executive and Controller upgrades as normal.

3.2 Upgrading Off Controller Repository

Use this procedure to upgrade the Off Controller Client Repository. The following conditions apply to the upgrade process.

- When upgrading TeraVM to 13.4.2 release, the pcaps stored on the Off Controller Client Repository are deleted. For upgrades to post 13.4.2 release, the pcaps are not deleted.
- The Client Repository Off Controller versions older than 1.5-525 will not work with the TeraVM version 13.4.2 or higher. When upgrading TeraVM to 13.4.2 you must also upgrade the Client Repository Off Controller to the 1.5-525 version.

Note

If you are upgrading an Off Controller Repository deployed from 1.3-329 ova and you encounter the error message: <unable to validate signature>, please contact support.

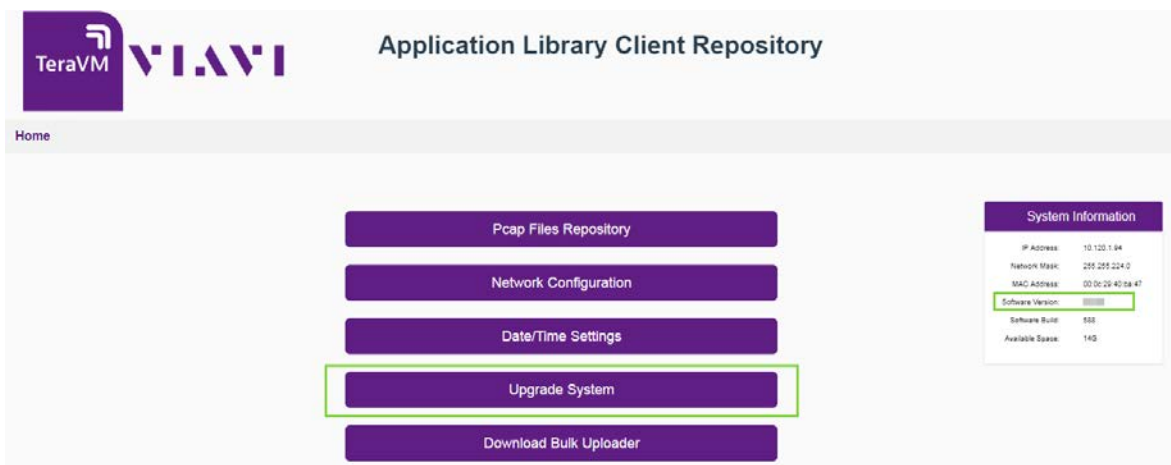
Prerequisites

- This procedure assumes you have a correctly installed Off Controller Client Repository.
- Check the Off Controller is supported in the following Supported Off Controller Repository table.

1.2-161	1.3-329	1.4-417
1.5-525	1.6-550	1.7-650

1. Download the Client Repository Off Controller Upgrade file from the release folder > Upgrade folder: ClientRepositoryOffController_Upgrade-_upload.tgz.
2. In the vSphere Client ensure that the Client Repository Off Controller is powered on.
3. In the vSphere Client select the Client repository Off Controller and note its IP Address from the Summary tab in the **General** pane.
4. Enter the IP Address in your browser and make a note of the Software Version displayed under the System Information.

Figure 3-3. Application Library



5. Select **Upgrade System**. *The Upgrade System page opens.*
6. Click **Browse** and select the Off Controller Client Repository Upgrade file that you previously downloaded.
7. Click **Upload**. *When completed, a file uploaded message is displayed.*

8. Click **Upgrade**.
 - An error is displayed in your browser. **Please note** that this is expected behaviour.
 - If the error states **<unable to validate signature>** please contact support.
 - Check the IP Address of the Client Repository Off Controller, it may have changed.
9. Enter the IP Address of the Client Repository in the browser and check the **Software Version** under the System Information panel. *The Software Version has incremented.*

3.3 Check Your Current Versions against Upgrade Installer

The Upgrade installer can be used in conjunction with the versions listed below. If the release you are currently using is not listed, please contact VIAVI support.

Attention: If you are upgrading from a release prior to 11.0, please contact VIAVI support as you may need to run an additional step.

Release versions use the following convention: ``Major.Minor-BuildNumber” or “X.Y-Build”

Where X represents the major version, Y the minor version.

Table 3-1. Controller Releases Supported by Installer

11.0-257	11.0.1-259	11.1-300
11.2-334	11.2.1-339	11.3-379
11.3.1-401	11.3.2-420	11.4-613
12.0-1454	12.0.1-1692	12.0.2-1961
12.0.2-1996	12.0.3-2053	12.0.2-2030
12.1-3090	12.1-3110	12.1.1-3121
12.1.2-3152	13.0-3297	13.1-3699
13.1-3703	13.2-3946	13.2.1-4090
13.3-4261	13.3-4267	13.3.1-4289
13.3.2-4488	13.3.3-4502	13.4-4623
13.4.1-4645	13.4.2-4707	13.4.3-4718
14.0-5096	14.0-5106	14.0-5113
14.0.1-5118	14.0.2-5163	14.1-5432
14.1.1-5609	14.1.2-5527	14.1.3-5238
14.2-5819	14.2.1-5826	14.3-6124
14.3-6150	14.3.1-6228	14.4-6324
14.4.1-6439	14.4.2-6395	

Table 3-2. Executive Releases Supported by Installer

1.0	1.1	1.2
1.3	1.4	1.5
1.6	1.7	1.7.2
1.8	1.9	1.9.1
1.9.2	1.9.3	1.10
1.11	1.16	1.17
1.18		

3.3.1 Download and Install Upgrade

Use this procedure to install an upgrade using the HTML5 interface.

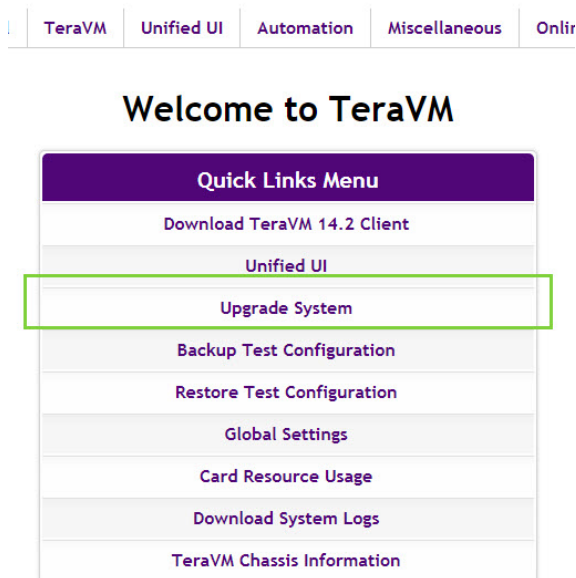
Installing an Upgrade

1. Download the upgrade from the location provided by VIAVI support. Close any open TeraVM user interfaces and stop any tests.
2. In your browser, enter the IP address of the Executive/Controller.
3. Enter your User Name and Password and click **Sign In**.
4. Select **Utilities**.
5. From the *Welcome to TeraVM* page, select **Upgrade System** and login using:

User Name: **diverAdmin**

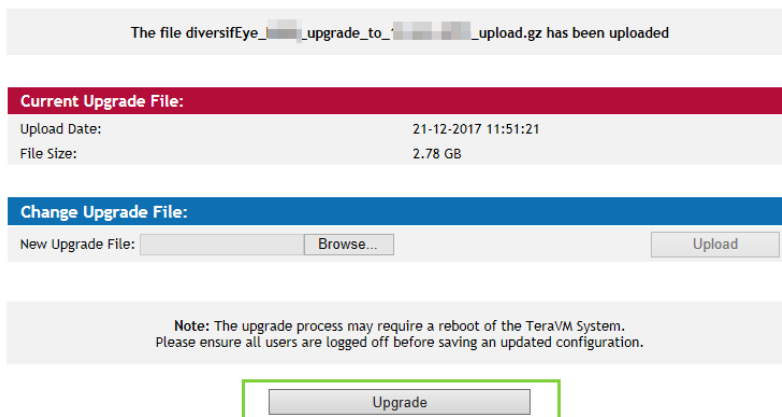
Password: **diversifEye**

Figure 3-4. Welcome to TeraVM



6. Select the **Choose File** button.
7. Select the appropriate patch file and click **Open**.
8. Click **Upload** and wait until the file has uploaded.

Figure 3-5. Upload File



9. Click **Upgrade** and wait for the patch to complete upgrading.

Note: The controller reboots twice during the upgrade procedure. The upgrade progress can be followed using the Console on the VM or connecting to the Console on a physical system (d500/d1000). If the system updates successfully, a message similar to the following appears:

```
MD5 checksum
-----
Untarring payload
Validating signatures....validated
Unloading payload...finished
Running contained payload...

-----
The system will now be rebooted to perform the upgrade.
Progress messages can be observed on the system console.
The system will automatically reboot once the upgrade completes.
DO NOT MANUALLY REBOOT THE SYSTEM WHILE UPGRADING.
-----

Success!
Upload files successfully applied
finished
```

10. Otherwise, a message will appear with instructions about how to ftp the upgrade file to the system. Follow these instructions to complete the upgrade step.

Note: Older hardware may require ftp. Contact VIAVI support if you run into issues.

11. If you are a TeraVM Cybersecurity user and have not already updated to the latest Cybersecurity Database, note that this is an extra step in the upgrade process. For further details, contact VIAVI Support.
12. Next, continue to the relevant platform set up guide, for example, VMWare EXSi, to deploy the TeraVM Test Modules and Executive.

3.4 Streamlined Upgrade Process

Use this procedure to upgrade from TeraVM 14.0 and upward. You can also use the script for upgrades from TeraVM 11.4, but you must manually deploy a TeraVM Executive first and power it on before running the script. This script considers for upgrade all the TeraVM Virtual Machines that are powered on and on the same Comms network. The Upgrade TeraVM Testbed script is available from TeraVM 14.0.

Note

The Streamlined Upgrade Process is only applicable on a TVM-630 or a testbed on 1 server with only 1 TVM-E.

Table 3-3. Supported TeraVM Controller Versions

11.4-613	11.4-618	13.0.3927	13.3-4261
13.3-4267	13.4-4623	13.4.2-4707	14.0-5096
14.0-5106	14.0-5113	14.0.1-5118	14.0.2-5163
14.1-5432	14.1.1-5609	14.1.2-5527	14.1.3-5238
14.2-5819	14.3-6124	14.3-6150	14.3.1-6228
14.4-6324	14.4.1-6439	14.4.2-6395	

1. Check that you are upgrading from a Supported TeraVM Controller Version.
2. In the vSphere Client, right-click the TeraVM MA and select **Open Console**, if it is not already open. *The TeraVM Management Assistant Opens.*
3. From the icons displayed on the TeraVM Management Assistant desktop, double-click the **03 Upgrade TeraVM Testbed** icon. The Upgrade TeraVM Testbed script runs. Enter parameters as prompted:

```
upg>TeraVM Upgrade Script upgrade.pl-0.01...
upg>Using VMware-Perl-Sdk-5.5.0... upg>Using perl-v5.18.4...
upg>Reading config settings from: "/usr/local/share/perl5/diversifEye/Upgrade/upgrade.cfg"...
ESXi Host IP Address/Hostname[10.110.1.11]: 10.110.1.11
ESXi Host Username[root]: root
ESXi Host Password[Password1234]: Password1234
IP Address or VM Name of TVM-E[10.110.2.22]: 10.110.2.22
```

4. Press **Enter** to accept the default empty values for the following:

```
TVM-E User[teravm]:
TVM-E Password[teravm]:
```

5. A connection is established to the ESXi Host IP Address/Hostname, enter **y** to continue.

```
upg>Connecting to: "10.110.1.11"...
upg>WARNING: OAUTH is apparently not supported by the TVM-E at: "10.110.2.22"
"! Assuming no token is necessary for access to the testbed...
```

```
Upgrading TeraVM Testbed on ESXi Host: 10.110.1.11...
```

VM	From	To	Upgrade
TVM-E-001	1.7.2-1672	1.9-1893	Yes
TVM-C-001	13.4-4623	14.0-4998	Yes
TVM-2-003	3.0.39-1248	3.0.49-1473	Yes
TVM-2-004	3.0.39-1248	3.0.49-1473	Yes

```
Proceed with upgrade(y|true|n|false)[yes]:y
```

6. The upgrade script automatically upgrades the TeraVM Controller and changes and deploys the Test Modules.

```
Final Upgrade Status:
```

Name	State	Sec Phase	Log
TVM-E-001	OK	949	
TVM-C-001	OK	2438	
TVM-2-003	OK	701	
TVM-2-004	OK	210	

```
upg>All VMs upgraded OK.
```

```
upg>Disconnecting from: "10.110.1.11"...
```

```
Type ENTER to dismiss:
```

7. The upgrade is complete, press **Enter** to dismiss.

Chapter 4. Platforms

This chapter details the supported: certified hardware, hypervisors, operating systems and web browsers.

4.1 Hardware Platforms

The matrix below shows which hardware TeraVM has been certified on.

Table 4-1. Certified Hardware

Cisco UCS		DELL	
Model	NIC	Model	NIC
C240	Cisco VIC 1285 and 1385 PCIe Ethernet NIC (40Gig)	R640	Intel X550 Dual Port 10G Base-T
			Intel X710 Dual Port 10Gb
			Broadcom (1G)
C220	Cisco Systems Inc VIC 1225 PCIe Ethernet NIC (10Gig)	R630	Intel 82599EB 10-Gigabit SFP
			Intel 10-Gigabit X540-AT2
		R620	Intel 82599EB 10-Gigabit SFP
			Broadcom (1G)

4.2 Hypervisors

This release has been tested with the following hypervisors and versions (AWS, XEN and Azure platforms are tested with major releases):

Table 4-2. Hypervisors

Hypervisor	Hypervisor Version	TVM Version	TVM Types	vSwitch Types	Executive Version	Virtual NIC
ESXi‡	ESXi 5.5_U1 and U3	3.0.90	See ‡	VMXNET3	1.18	VMware VMXNET3 virtual interface
	ESXi 6.5_U2†					

† The Dell R640 support requires VMware ESXi 6.5 U2 Dell EMC Customized A04 and CISCO Custom Image for ESXi 6.5U2 GA.

‡ Additional ESXi Information

- ESXi supports TVM-2 to TVM-5, TVM-7, TVM-8 and TVM-16.
 - TVM-7 is supported or VPN applications only.
 - TVM-8 and TVM-16 are for use with Mellanox Cards. They require a minimum version of ESXi of 5.5.0. Unlike other Test Module types which have only one core for interrupt processing, TVM-8 and TVM-16 use half of their cores for control.
- ESXi supports both Direct Path/DPIO and virtual switch configurations.
- You can now specify a solid-state drive when deploying TeraVM.
- TeraVM is now also tested with ESXi version 6.0 and 6.5 but is not fully certified in performance tests.

4.3 Virtual Machine Requirements

The following table shows TeraVM Virtual machine CPU and Memory requirements.

Virtual Machine	CPU	Memory
TeraVM Controller	1 vCPU	4 GB
TeraVM Executive	2 vCPU	4 GB
TVM-1	1	2.5 GB
TVM-2	2	2.5 GB
TVM-3	3	5 GB
TVM-4	4	7.5 GB
TVM-5	5	10 GB
TVM-7	7	15GB
TVM-8	8*	17.5GB
TVM-16	16*	37.5GB

*Generally, Test Modules use one core for interrupt handling, and the rest for traffic generation. However, TVM-8 and TVM-16 only use half of their CPU cores for traffic generation, the rest is for interrupt handling.

4.4 Operating System

The following table shows the operating systems that TeraVM Java Client has been tested with.

Table 4-3. Operating Systems

Operating System	Version
Windows	7,8
Fedora (32-bit)	22

4.5 Web Browsers

TeraVM is developed to work with modern web browsers that support HTML5. The following table shows the web browsers that TeraVM has been tested with. VIAVI will make every reasonable effort to support older versions.

Table 4-4. Web Browsers

Browser	Version
Mozilla Firefox	46 or later
Internet Explorer	11
Google Chrome	56

Chapter 5. Bugs Fixed and Known Issues

This chapter details any bugs fixed or known issues at the time of the release.

5.1 Bugs Fixed

The following defects were addressed in this release. For further details, please contact VIAVI support.

Table 5-1. Bugs Fixed in this Release

Bug Number	Description
25419	Azure deployment document is missing step to deploy TVM-E
25421	Difference in HTTP CPS test between Max Capacity and Target mode
25422	HTML5 UUI GSC test TCP Settings lists "Two Segments Only" as a Delayed ACK option (Typo)
25404	Latency Stats do not work, appear as NAN across Customer network with MC-PTT
25317	TCP Characteristics Delayed ACKs do not apply to Encrypted HTTP SSL

5.2 Known Issues

These are the known issues in this release. For further details, please contact VIAVI support.

5.2.1 Difficulty Connecting to UI When Using Pcap Repo

If you encounter difficulties connecting to the UI and you are using Pcap Repos, ensure the connection details are still valid for the Repo, if not unregister and re-register the Repo.

File Repositories Registered:			
Name	URL	User	Action
TeraVM Default Repository	https://10.120.5.22:9200	anonymous	
My Client Repository	https://10.120.5.22:9201	diverUser	<input type="button" value="Uninstall"/>

Register New File Repository:	
URL	<input type="text" value="https://10.202.4.196"/> :9203
Username:	<input type="text" value="editor"/>
Password:	<input type="password" value="*****"/>
Re-type Password:	<input type="password" value="*****"/>
<input type="button" value="Register New Repository"/>	

5.2.2 TeraVM Executive Connectivity Lost

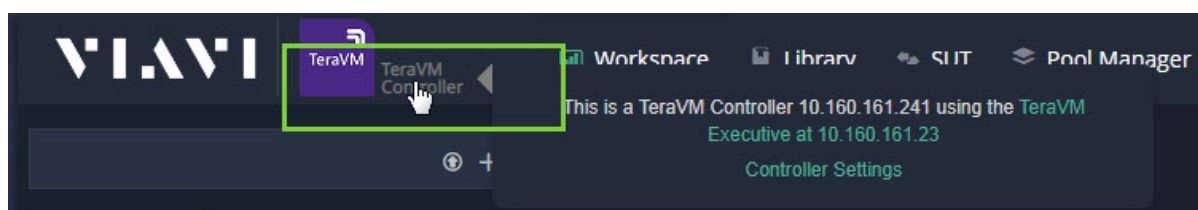
An issue may occur when connectivity to a TeraVM Executive has been lost and the TeraVM Executive needs reconnecting with the TeraVM Controller, but you are not prompted to do so on TeraVM Controller UUI login. Where this occurs use the following procedure.

Setting the Executive IP Address

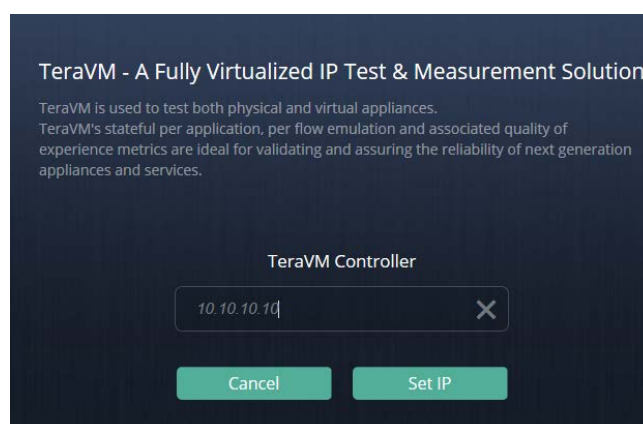
A new **Controller Settings** link can be accessed under the logo on the TeraVM Controller. This setting improves the accessibility for setting a new Executive IP Address. This feature can be used if you want to quickly set a new Executive IP address.

To change the Executive IP Address:

1. Click the **TeraVM Controller** link next to the logo, in your TeraVM Controller UUI, to open the **Controller Settings** dialog box.



2. Enter the Executive IP Address in the IP Entry Field and click **Set IP**.



3. In ESXi vSphere client, restart the TeraVM Executive and TeraVM Controller.
4. The new Executive IP is set.

5.2.3 Transitioning from Primary to Failover Licence Server

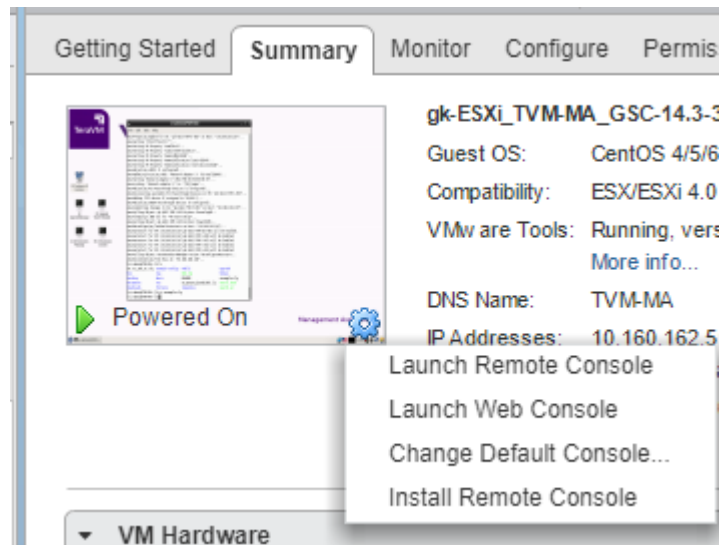
Transitioning from Primary to Failover Licence Server can take approximately 2 minutes. If you have a test running while transitioning then you will see no interference with the test, but if you start a test before the transition is complete the test will fail to start. But once the transition is complete the test will start as normal.

5.2.4 Missing Buttons from Java Client GUI

If you are using more than 100% text size, please be aware that some items on the UI may not be visible. Reduce to 100% and if the issue persists then please contact support.

5.2.5 MA Console Does Not Always Open

Along with VMWare we recommend that when using the ESXi Console on the MA, please select the Remote Console option instead of the Web Console option, as shown in the following image.



Appendix A: TeraVM Documentation Set

All TeraVM Guides are available for download at the TeraVM documentation portal:

<http://ats.aeroflex.com/login-account>

The complete TeraVM documentation set is listed below.

Table 5-2. TeraVM User Guides

User Guides	Description
Release Notes	New features / Changes in the latest release. (Includes supported versions).
TeraVM HTML5 User Guide	TeraVM overview includes setting up and running tests in the HTML5 UI, Centralized Test Library.
TeraVM Java Client User Guide	How to create and run tests in the Java Client: Details of applications and hosts supported. There are also separate application notes for Citrix ICA, SIP trunking and EoGRE.
TeraVM CLI User Guide	Using the Automation Interface (CLI, Perl commands and RFC scripts) for testing. Also man pages are available for commands and scripts in the Documentation sub-directory <i>cli</i> .
TeraVM Appliance Set Up Guide	TeraVM Hardware Appliance Set Up (Appliance Customers only).
TeraVM vRAN User Guide	Combined NG4T / VIAVI solution for RAN, Core and Peripheral IP Emulation for 4G.
TeraVM Licensing Guide	How to set up and configure licensing features, e.g. set up license servers and license reporting.
TeraVM Application Library Test Configuration Guide, Application Library Repository Users Guide	Traffic generation test solution for creating application flows. Includes repository setup information.

Table 5-3. Hypervisor/Cloud Specific TeraVM Setup Guides

Hypervisor/Cloud Environment	Document Name
ESXi	TeraVM on VMWare Set Up Guide
KVM	TeraVM on KVM Set Up Guide
OpenStack on KVM	TeraVM on OpenStack Set Up Guide
Citrix XenServer	TeraVM on Citrix Xen Set Up Guide
Hyper-V	TeraVM on Hyper-V Set Up Guide
Amazon AWS	TeraVM on Amazon AWS Set Up Guide
Microsoft Azure	TeraVM on Microsoft Azure Set Up Guide

Table 5-4. TeraVM Reference Guides

Reference Guides	Description
TeraVM Metrics Guide	Statistics/Metrics available with TeraVM
CLI Reference Guides (under Documentation/cli).	Man pages are available for commands and scripts in the Documentation sub-directory.



For further information please contact:

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