

TeraVM

COBHAM

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TeraVM Release Notes

TeraVM Release 13.4.3



Help and Support

TeraVM User Documentation, Online Training Guides and Videos are available on the documentation portal:

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

For support queries, please log a call on the Cobham Wireless Support Portal

<https://support.aeroflex.com/>

For help on using the support portal, download the [Cobham Wireless Customer Support Portal User Guide](#).

(For accounts, please contact your local Cobham Account Representative).

Note

You can also contact support using the mail alias for your region:

TeraVMSupport.CN@aeroflex.com (China)

TeraVMSupport.EMEA@aeroflex.com (EMEA)

TeraVMSupport.USA@aeroflex.com (North America)

TeraVMSupport.JP@aeroflex.com (Japan)

TeraVMSupport.KO@aeroflex.com (Korea)

TeraVMSupport.SG@aeroflex.com (South East Asia)

TeraVMSupport.IND@aeroflex.com (India)

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Chapter 1. What's New in this Release

New features, changes, and updates made in this release are detailed in this chapter.

1.1. System Under Test Metrics

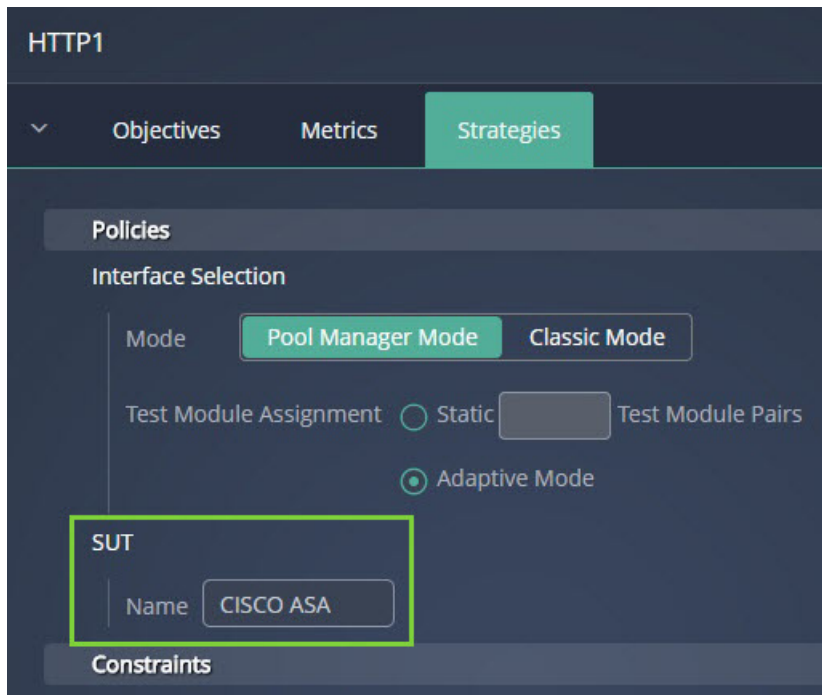
This release adds an API to push SUT metrics to TeraVM. By using the TeraVM REST API, CPU and RAM values can be pushed to TeraVM UI and displayed at runtime through the Test Results KPI display. The following is an overview of how to use the new SUT metrics features.

1. Set values for SUT API to POST to TeraVM. The following example shows the new POST method for the SUT API, see the API documentation for more information.

```
POST /v1/workspace/sut
{
  "name": "CISCO ASA",
  "metrics": [
    {
      "name": "CPU",
      "value": "96.74"
    },
    {
      "name": "RAM",
      "value": "99.125"
    }
  ]
}
```

2. In the TeraVM UI under the **Strategies** tab use the new SUT **Name** field to name your SUT. This must be in the format of a string with 64 maximum alphanumeric characters, with no special characters allowed [a-zA-Z0-9].

Figure 1-1. SUT Name field



Selected in the API as:

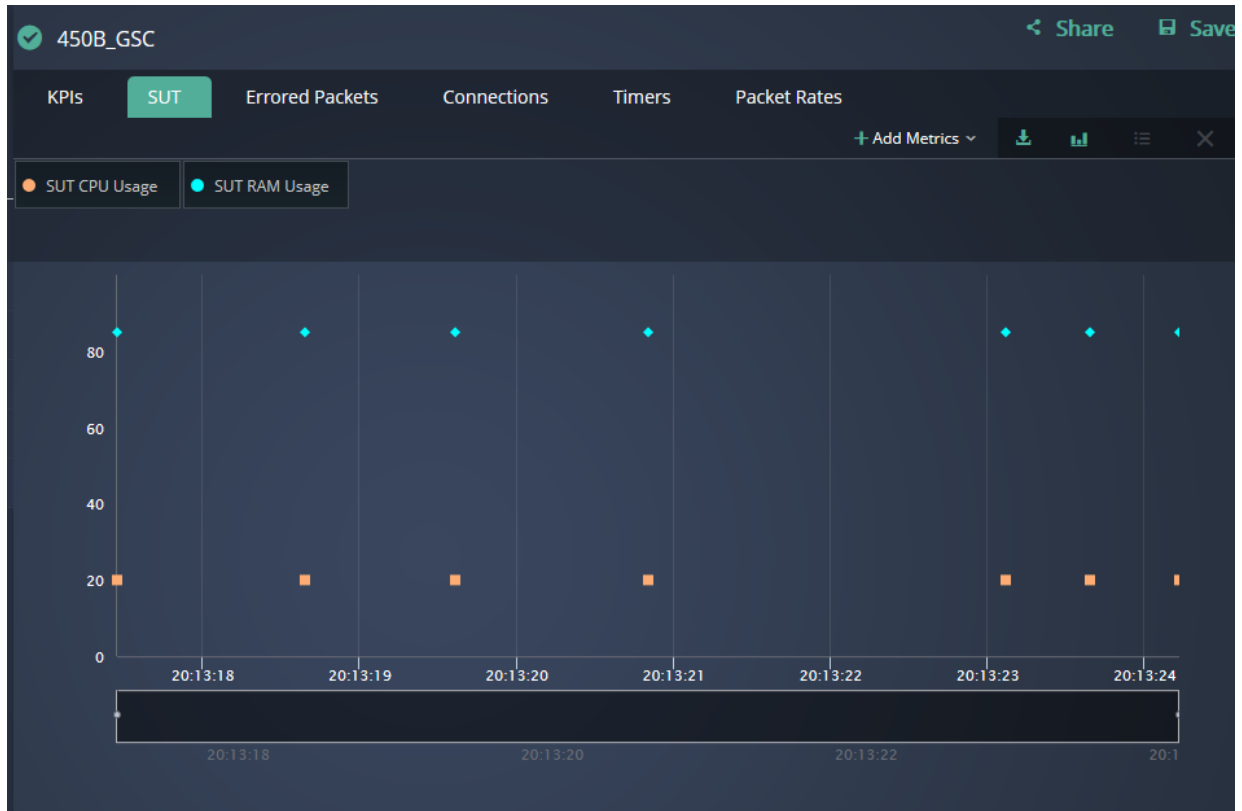
```
"strategies":{...},
"systemsUnderTest": [
  {
    "name": "CISCO ASA"
  }
]
```

3. Use the SUT API to GET the SUT information from the metrics that were previously pushed. This call only works when there are previously pushed metrics.

```
GET/v1/workspace/sut
```

4. Run the test as usual through the TeraVM UUI.
5. During runtime, the test results for the SUT KPI can be seen in a plotted graph display format, see the following figure.

Figure 1-2. SUT KPI display



- To export to a CSV file, click the **Download** button. The CSV file will then save to the location specified in your browser.

Figure 1-3. SUT CSV

	A	B	C	D	E	F	G	H	I	J	K	L	M	
1	Time	Out bits/s-Interface	SUT CPU Usage %-Sut	SUT RAM Usage %-Sut	Out of Sequence P	Retransm	Attempts	Establishe	Failed Cor	Failed Cor	Failed Cor	SYN/SYNA	In Packets/s-H	Out P
2	2017-12-04 17:45:40	0	nan	nan		0	0	0	0	0	0	0	nan	0
3	2017-12-04 17:45:41	23722.27417	nan	nan		0	0	0	0	0	0	0	nan	0
4	2017-12-04 17:45:42	9178346656	nan	nan		0	0	279.9966	279.9966	0	0	0	7.121189	738502.138
5	2017-12-04 17:45:43	9967512010	nan	nan		0	0	0	0	0	0	0	nan	814322.7719
6	2017-12-04 17:45:44	9968330831	nan	nan		0	0	0	0	0	0	0	nan	814698.0383
7	2017-12-04 17:45:45	9976960032	nan	nan		0	0	0	0	0	0	0	nan	814680.9615

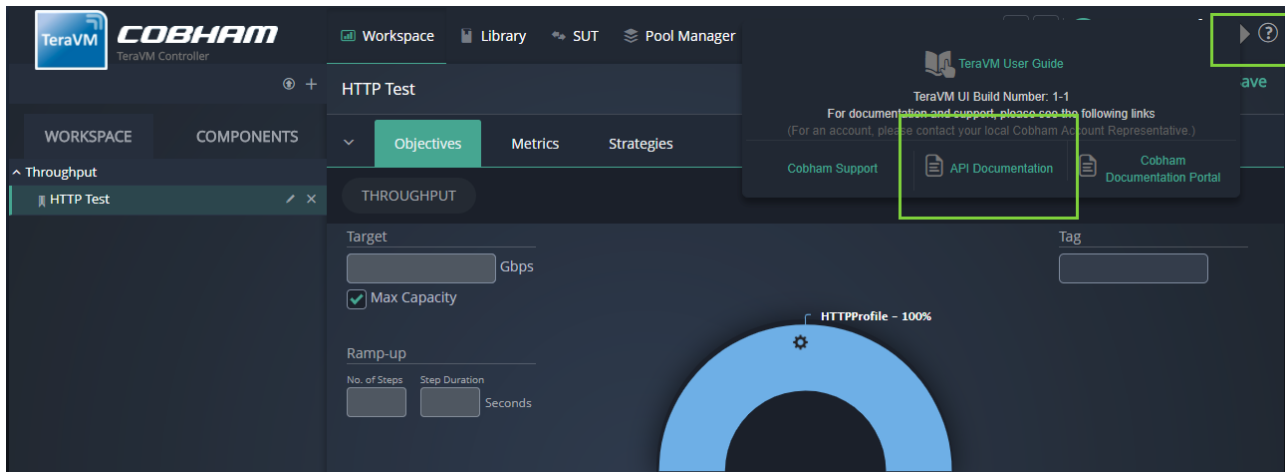
Note

The CSV file will show time-stamps at one second intervals for each row; however, the SUT metrics will only show a value for the intervals at which the statistics are generated, that is, if the stats are generated every 5 seconds, every 5th row should have a value for these SUT metrics.

1.2. Online Access to API Documentation

The TeraVM Rest API Documentation is now available in the TeraVM UI from the help icon. When clicked, a landing page containing the links to the three API documents opens. The links to the API landing page can be seen in the following figure.

Figure 1-4. Link to API Documentation



1.3. API Authentication

Authentication has been introduced to the API so that the correct credentials must be used to login to TeraVM. Failure to supply the correct credentials will stop the automation script from proceeding and all subsequent calls will fail. If the authentication module is unreachable then the impact will be as follows:

- The HTML5 UI user will be unable to login to the application until the authentication has been reached.
- The CLI automation user of Java GUI , will receive a warning message and will be able to execute tests.
- The Java GUI user will be able to login , will receive a warning message and will be able to execute tests.
- The GSC API user will not able to exchange credentials for an OAUTH2 token to access the system

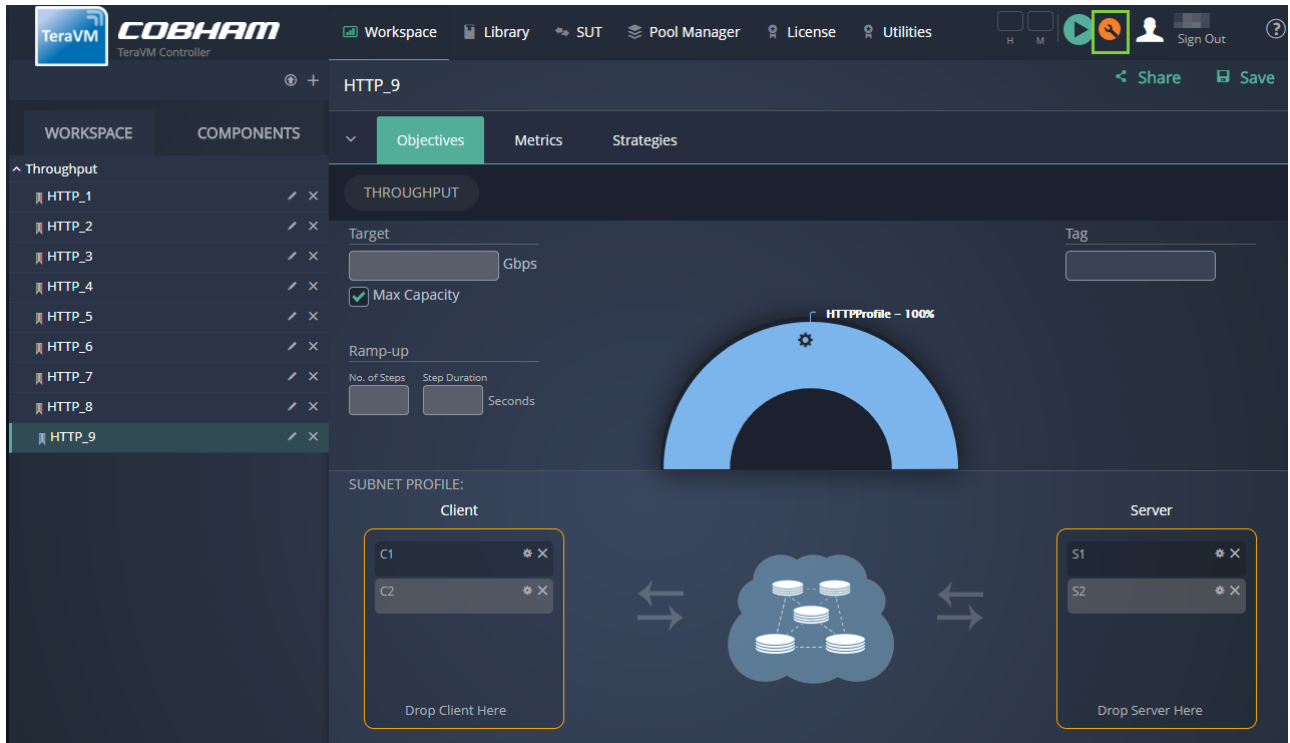
1.4. Troubleshooting Mode

The Troubleshooting mode can be used to assist in identifying problems where multiple network subnet configurations are used. With Troubleshooting activated, TeraVM runs a test with only the first subnet (client and server pair) configured, regardless of the number of subnets that are configured for the test. When Troubleshooting is enabled, the test is run as usual; however, no pass/fail result is available for the test apart from the Troubleshooting status. The following behavior occurs when running in Troubleshooting mode:

- There will be only one step executed in troubleshooting mode even if the test configuration would require multiple steps to be executed.
- The **No. of Steps** value, if the user control is visible and enabled for a test configuration, will be used only to determine the throughput of the first and only one step (Max Capacity / No. of Steps).
- The **Step Duration** is disabled, if the user control is visible and enabled for a test configuration, it is ignored.

- All configured client-server pairs, apart from the first pair, are ignored.
- The configuration of a test running in troubleshooting mode will be preserved.

Figure 1-5. TeraVM Troubleshooting button



Chapter 2. Patches

No new patches were made available in this release.

2.1. Patches from Previous Release

The following table includes the details of the patches made available in release 13.3 release.

Table 2-1. Patch Deliverables from TeraVM 13.3

File Name	Location	Description
bug_24370_patch-98151-upload.tgz	13.2 release folder.	Failed to import Certificates Resource. Could not transfer data file to server. Upgrade on the Controller.
bug_24233_patch-98152-upload.tgz	12.0.2 release folder.	DNS Server - non DNS env prevents httpd daemon from starting up. Upgrade on the Executive.

2.2. Installing a Patch

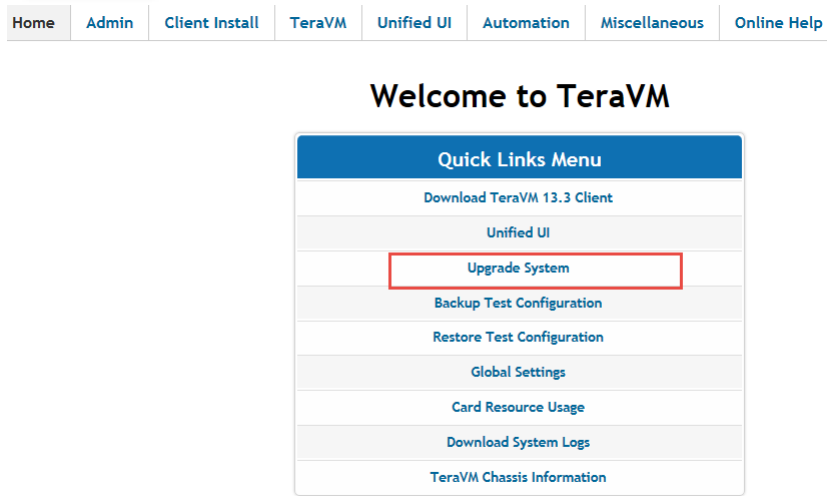
Use this procedure to install a patch using the HTML5 interface.

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: **diverAdmin**

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.

The sequence of actions for the upgrade are:

Required Upgrades

- TeraVM Executive (TeraVM) – see [Section 3.3.1 Download and Install Upgrades](#). 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 Upgrades](#).
- Delete the old Test Modules and then redeploy new Test Modules (TeraVM) – see the relevant platform set up guide.
- Upgrade Off Controller Repository (if using an Off Controller Repository) – see [Section 3.2 Upgrade 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

• Upgrading from 13.1

If upgrading from 13.1 to 13.2, 13.3, 13.4, 13.4.1 or 13.4.2 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 round 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 32GB by default. You can increase this by adding disks in vSphere (you cannot remove or resize existing disks).

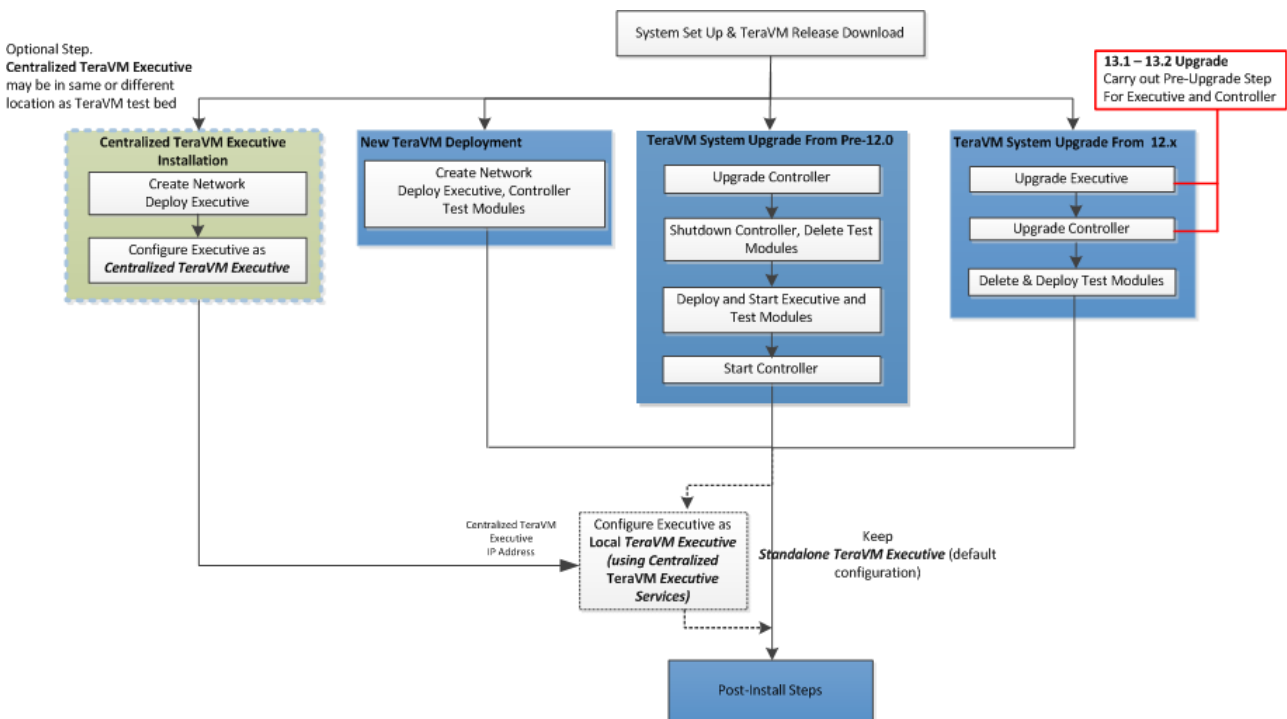
• **Cybersecurity Updates**

This release includes the addition of ETPro files, these files are only supported from TeraVM Controller version 13.3-4267 (this release) 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 Cobham.

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, 13.3, 13.4. or 13.4.1.

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:

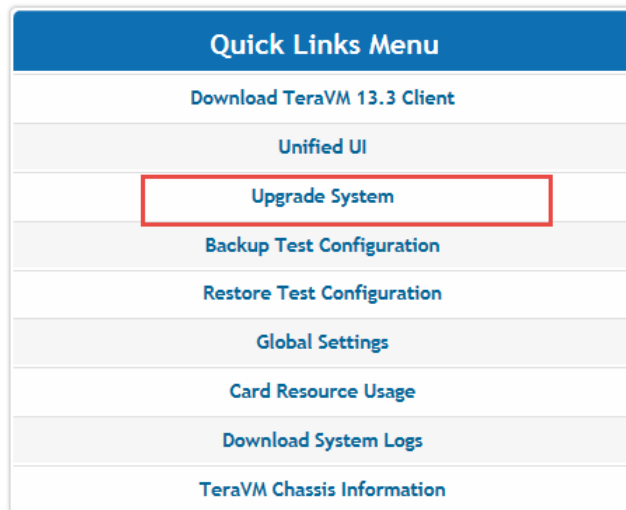
Username: **diverAdmin**

Password: **diversifEye**

Figure 3-2. Welcome to TeraVM

Home	Admin	Client Install	TeraVM	Unified UI	Automation	Miscellaneous	Online Help
------	-------	----------------	--------	------------	------------	---------------	-------------

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 Client Repository

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

- The Client Repository Off Controller upgrade process deletes all the pcaps stored on it.
- When upgrading TeraVM to 13.4.2 release, the pcaps stored on the Client Default Repository are 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

Table 3-1. Supported Off Controller Repository

1.2-161	1.3-329	1.4-417
1.5-525		

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**.



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 behavior.
 - 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 Cobham support.

Attention

If you are upgrading from a release prior to 11.0, please contact Cobham 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 3-2. 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	

Table 3-3. 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		

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 Cobham 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 3-3. Welcome to TeraVM

Chapter 4. Platforms

4.1. Hardware

Hardware Platforms

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

Cisco UCS		DELL	
Model	NIC	Model	NIC
C240	Cisco VIC 1285 PCIe Ethernet NIC (40Gig)	R630	Intel 82599EB 10-Gigabit SFP
			Intel 10-Gigabit X540-AT2
C220	Cisco Systems Inc VIC 1225 PCIe Ethernet NIC (10Gig)		Broadcom (1G)
		R620	Intel 82599EB 10-Gigabit SFP
			Broadcom (1G)

4.2. Hypervisors

This release has been tested with the following hypervisors :

Table 4-1. Hypervisors

Hypervisor	Hypervisor Version	TVM Version	TVM Types	vSwitch Type	Executive Version	Virtual NIC
ESXi *	ESXi 5.5_U1 and U3	3.0.39	See *	VMXNET3	1.7.2	VMware VMXNET3 virtual interface

* Additional ESXi Information

- ESXi supports TVM-2 to TVM-5, TVM-7, TVM-8 and TVM-16.
 - TVM-7 is supported for 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 5.5.x 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, but is not fully certified in performance tests.

Note

- vSphere/vCentre v6.0 supports Direct Path and vSwitch only. (SR-IOV is not supported).

4.3. Operating Systems

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

Table 4-2. Operating Systems

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

4.4. 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. Cobham will make every reasonable effort to support older versions.

Table 4-3. Web Browsers

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

Chapter 5. Bugs Fixed and Known Issues

5.1. Bugs Fixed

There were no bugs fixed in this release.

5.2. Known Issues

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

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.

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.

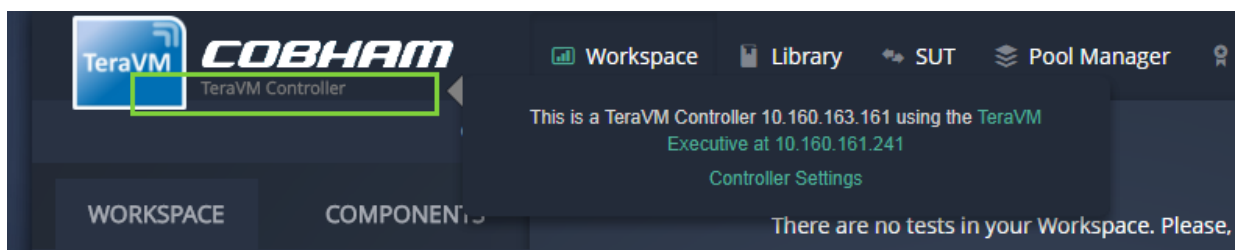
Setting the Executive IP Address

A new **Controller Settings** link can be accessed under the Cobham 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:

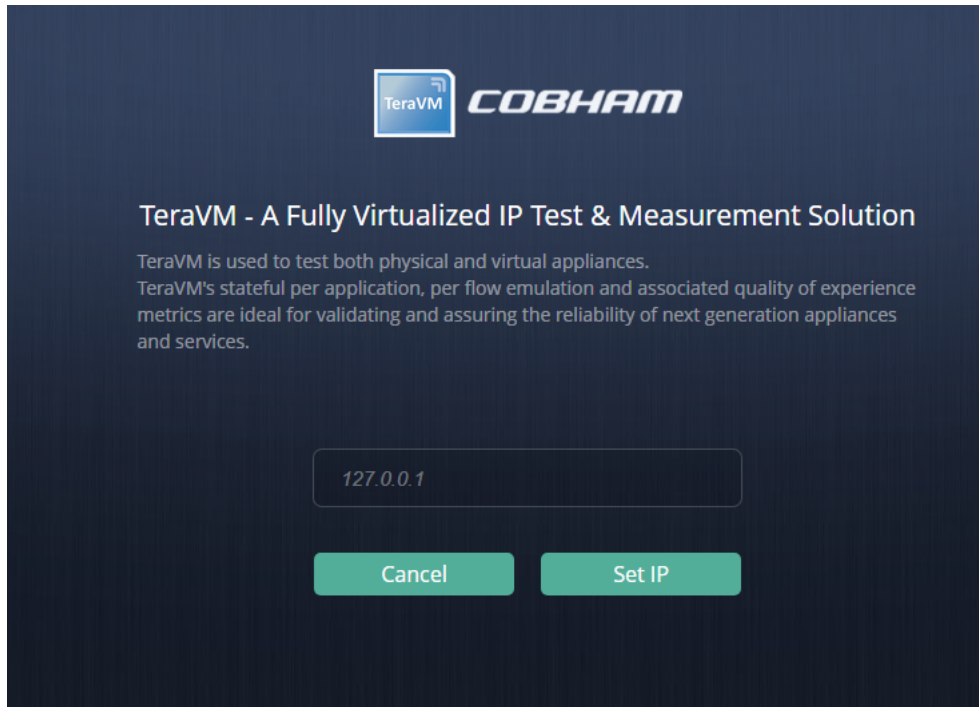
1. Click the **TeraVM Controller** link under the Cobham logo, in your TeraVM Controller UUI, to open the **Controller Settings** dialog box.

Figure 5-1. Controller Settings



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

Figure 5-2. Set Executive IP Address



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

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 A-1. 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 / Cobham 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 A-2. Hypervisor/Cloud Specific TeraVM Set Up 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 A-3. TeraVM Reference Guides

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

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