TeraVM Classic - Goal Seeking Controller Release Notes

TeraVM Classic Release 14.4.2

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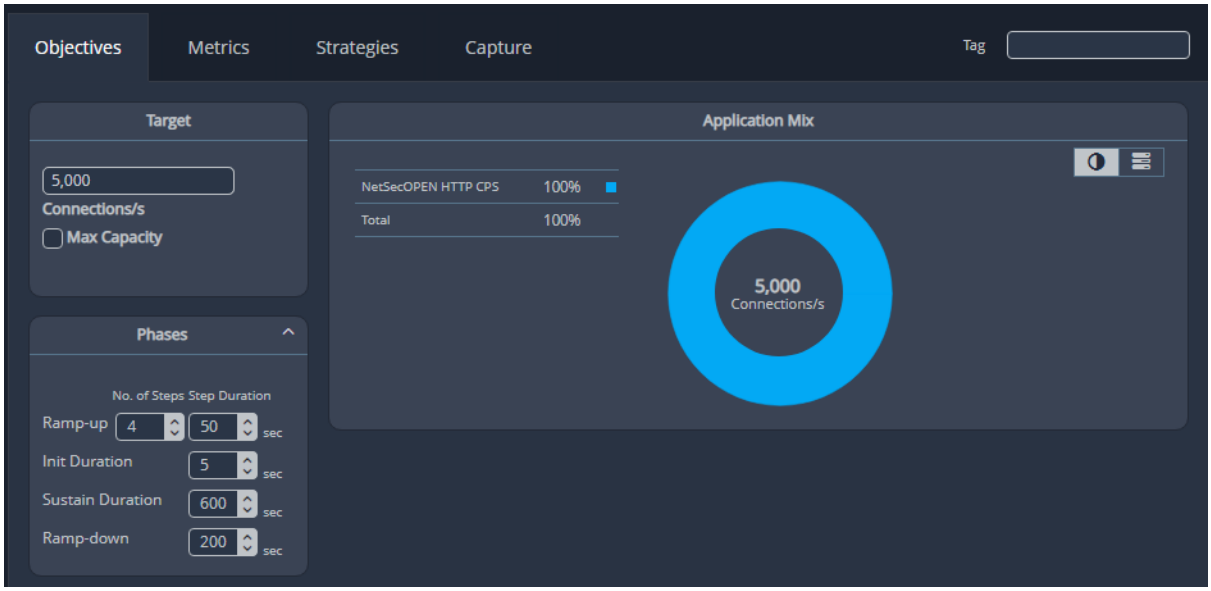
Chapter 1. What's New in this Release

This section details what is new in this release.

1.1 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



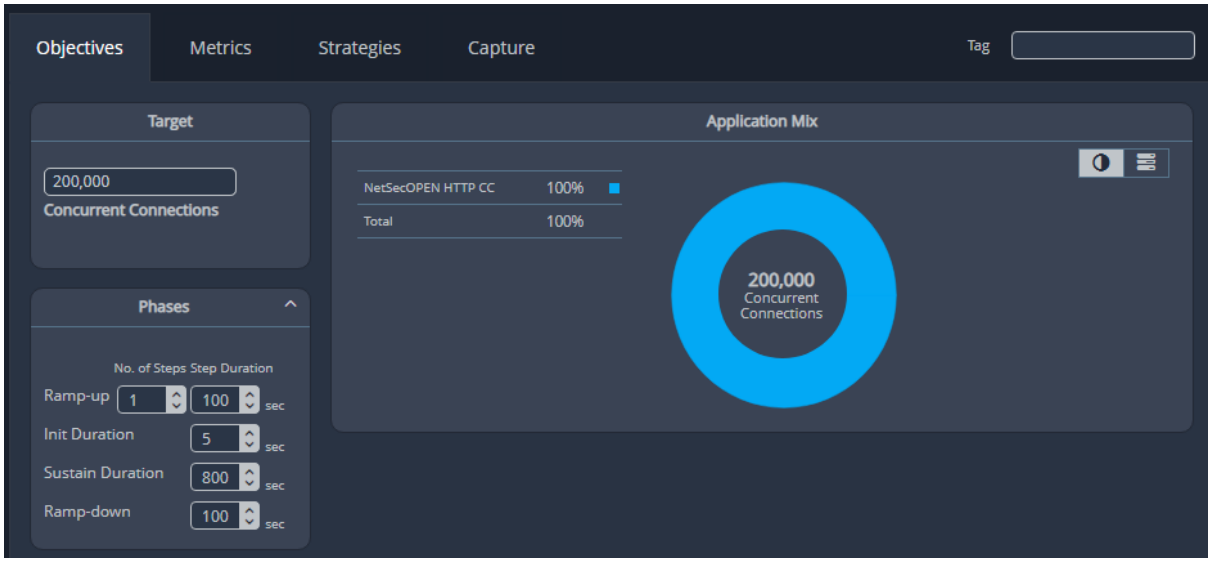
The following table shows the Test Phases for NetSecOPEN HTTP CPS.

Field	Description
Ramp-up	Gradually increase the traffic without overwhelming the system using the following: • *No. of Steps* Minimum value:1 Maximum value: 10, Default value: 4 steps. • *Step Duration* 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 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.

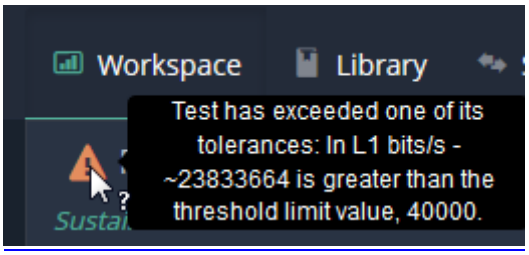
Field	Description
Ramp-up	Gradually increase the traffic without overwhelming the system using the following: • *No. of Steps* Minimum value:1 Maximum value: 10, Default value: 1 step. • *Step Duration* Minimum value: 10, Maximum value: 300, Default value: 100 seconds.
Init Duration	The initiate phase 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.

1.3 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.

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.

1.4 HTTP Payload Configurable as 1 Byte

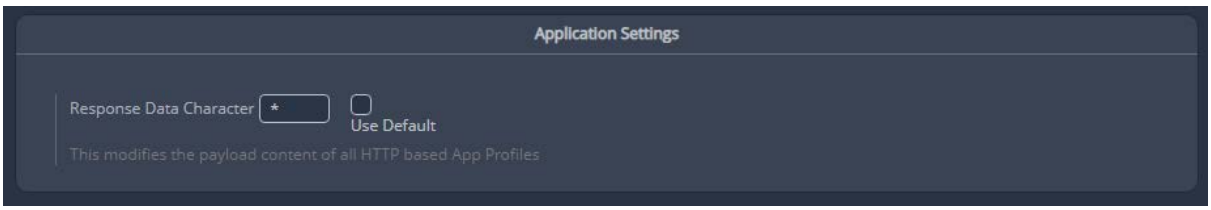
A payload can be configured as 1 Byte in an HTTP profile and can be used in an HTTP CPS test.

1.5 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.



1.6 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

```
vmgVmProp[1]="numCPUs=4"

vmgVmProp[2]="numCoresPerSocket=4"

vmgVmProp[3]="cpuAllocation.reservation=$((4 * 2694))"

vmgVmProp[4]="cpuAllocation.limit=-1"
```

Chapter 2. Release Compatibility

This section contains changes between this release and the last release.

2.1 New Test Names in 14.4.2

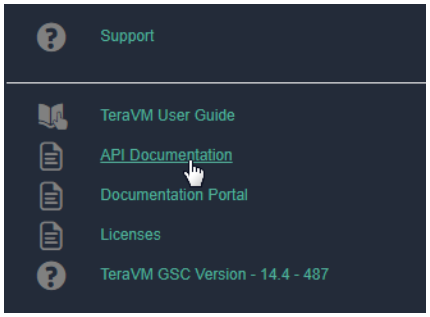
The following table lists the new test names in this release.

Test Name	App Mix Name	App Profile Name
NetSecOPEN HTTP CC	N/A	N/A
NetSecOPEN HTTP CPS	N/A	N/A

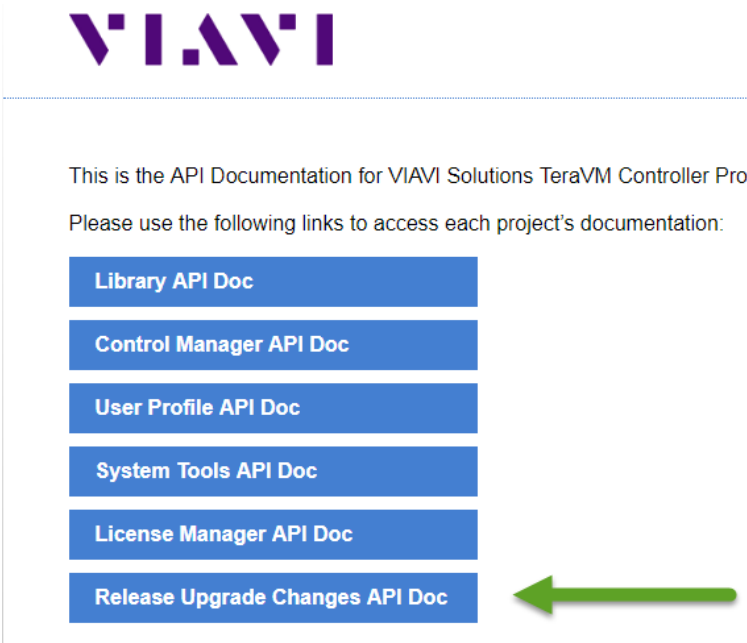
2.1.1 REST API Changes

Detail about the changes made to the REST APIs can be found at the API Documentation web page.

1. From TeraVM Controller, either Workspace or Library, click the help icon and select the API Documentation. *The Documentation Landing page opens.*



2. From the Landing page select *Release Upgrade Changes API Doc* button, shown below.



3. Select the link that details the changes you want to see. *The Changes to Release page opens.*

Chapter 3. Patches

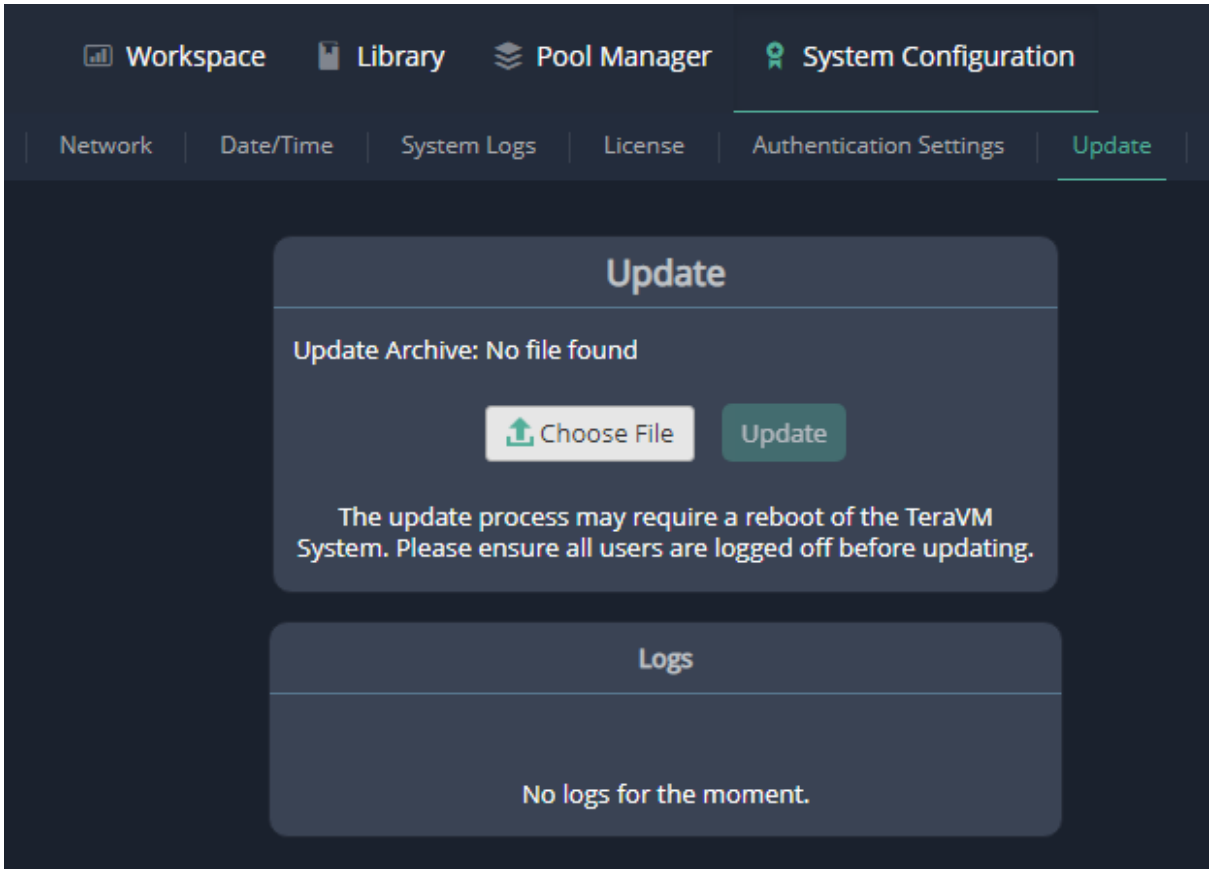
In the case where you need to apply a patch from VIAVI, please use the steps that follow. All previous patches between the last and current release are included in this release.

Prerequisites

- The *Update* page is not used for upgrading to a new version of TeraVM GSC, upgrades are carried-out using the Streamlined Upgrade process.

1. Click the *System Configuration* tab and select the *Update* page.
2. Use the **Choose file** button to browse for the update file
3. Click **Update** button.
4. Ensure that all users are logged off before saving your updated configuration

Once you have made an update it is recommended that you reboot the TeraVM Goal Seeking Controller to ensure any required changes are made.



Chapter 4. Upgrading to this Release

TeraVM Goal Seeking Controller uses the Streamlined Upgrade process for upgrading to the latest release.

4.1 Streamlined Upgrade Process

Use this procedure to upgrade the TeraVM GSC. The upgrade script considers all the TeraVM Virtual Machines that are powered on and on the same Comms network for upgrade.

Table 4-1. Supported TeraVM Controller Versions

14.3-313	14.3-358	14.3.1-406	14.4-487
14.4.2-544			

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/Upgrad
e/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-GSC[10.110.2.22]: 10.110.2.22
```

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

```
TVM-GSC User[teravm]:

TVM-GSC 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-GSC 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-GSC-001  1.7.2-1672         1.9-1893     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-GSC-001  OK        949

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 5. Platforms

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

5.1 Hardware Platforms

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

Table 5-1. 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
			Broadcom (1G)
		R620	Intel 82599EB 10-Gigabit SFP
			Broadcom (1G)

5.2 Hypervisors

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

Table 5-2. Hypervisors

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

** 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.

5.3 Virtual Machine Requirements

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

Virtual Machine	CPU	Memory
TeraVM GSC	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.

5.4 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. VIAVI will make every reasonable effort to support older versions.

Table 5-3. Web Browsers

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

Chapter 6. Bugs Fixed and Known Issues

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

6.1 Bugs Fixed

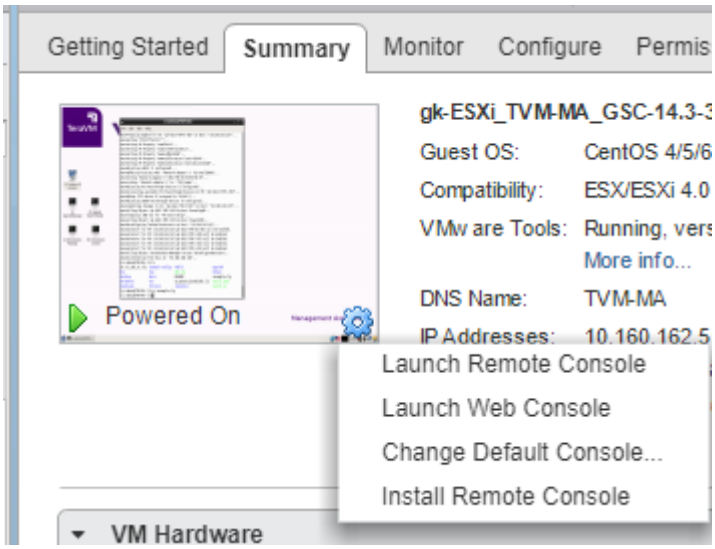
This is the first release of the TeraVM Goal Seeking Controller.

6.2 Known Issues

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

6.2.1 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 GSC Guides are available for download at the TeraVM documentation portal:

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

The complete TeraVM Goal Seeking Controller documentation set is listed below.

Table 6-1. TeraVM User Guides

User Guides	Description
Release Notes	New features / Changes in the latest release. (Includes supported versions).
TeraVM GSC User Guide	TeraVM overview includes setting up and running tests in the Goal Seeking Controller.
TeraVM GSC Licensing Guide	How to set up and configure licensing features, e.g. set up license servers and license reporting.

Table 6-2. Hypervisor/Cloud Specific TeraVM Setup Guides

Hypervisor/Cloud Environment	Document Name
ESXi	TeraVM GSC on VMWare Set Up Guide

Table 6-3. TeraVM Reference Guides

Reference Guides	Description
TeraVM Metrics Guide	Statistics/Metrics available with TeraVM

For further information please contact:

VIAVI Solutions:

www.viavisolutions.com/wirelessvalidation