

Feature Description

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1 Introduction

VMware vRealize Orchestrator allows administrators to develop complex automation tasks, then quickly access and launch workflows from the VMware vSphere client or various triggering mechanisms such as vROPs, vCAC, and so on.



Kemp have developed a plugin for Orchestrator which acts as a front-end for the Kemp Java API commands. When this plugin is installed, users can perform a number of tasks on the LoadMaster using the Orchestrator interface. The plugin allows Orchestrator to send commands (via workflows) to and receive information back from the Kemp LoadMaster and GEO products.

1.1 Document Purpose

The purpose of this document is to describe how to install and use the Kemp Orchestrator plugin. The document provides step-by-step instructions on how to run the various Kemp workflows which are added when the plugin is installed. 1 Introduction



1.2 Intended Audience

This document is intended to be used by anyone who would like to use Orchestrator to manage their LoadMasters.

1.3 Related Firmware Version

Published with LMOS version 7.2.48.3 LTS. This document has not required substantial changes since 7.2.48.3 LTS. However, the content is in sync with the latest LoadMaster LTS firmware.

1.4 Prerequisites

Below are some prerequisites to be aware of before using the Kemp Orchestrator plugin:

• If using the default self-signed certificate which is generated by the LoadMaster, please ensure it is registered properly with the systems and that it is trusted. Please refer to VMware documentation, or your Operating System documentation, for instructions on how to do this.

If the certificate is not trusted there may be issues running the workflows.

• If using an FQDN as opposed to an IP address, please ensure that the DNS is properly configured.

2 Install the Kemp Orchestrator Plugin



2 Install the Kemp Orchestrator Plugin

Before using Orchestrator to manage a Kemp LoadMaster, the Kemp Orchestrator plugin must be installed. To do that, first download the Kemp Orchestrator plugin from the <u>VMware Solution</u> Exchange. Then, follow the steps below:

1. In a web browser, navigate to the IP address of the Orchestrator server followed by the :8281 port.

Configure	the	Orchestrator	Server
-----------	-----	--------------	--------

To make additional configuration changes to the Orchestrator server, use the Orchestrator configuration interface:

- Orchestrator Configuration
- Orchestrator Control Center (Beta)
- 2. Click the Orchestrator Configuration link.

VMware vRealize [™] Orchestrator [™]		
Welcome Enter your username	and password to login in VMware vRealize Orchestrator Configuration	
Username: Password:	vmware	
	Login	

3. Enter the Orchestrator credentials and click Login.



2 Install the Kemp Orchestrator Plugin

Information Install Application Advan	nced Configuration Change Password		
4			
Install Application			

- 4. Select the Install Application tab.
- 5. Click the magnifying glass icon.

Install Application
Select a file to install: orchestrator-plugin.vmoapp
Insta

6. Browse to and select the Kemp Orchestrator plugin file (.vmo app file).

If you cannot see the plugin file, you may need to select **All Files** in the bottom-right corner.

7. Click Install in the bottom-right.

It might take a few seconds to upload the plugin before moving on to the next screen.





I accept the terms of the License Agreement I do NOT accept the terms of the License Agreement

8. To accept the license agreement, click I accept the terms of the License Agreement.



9. The plugin is now installed, but before it can be used the Orchestrator service needs to be restarted. To do this, click **Startup Options** on the left.



10. Click **Restart service**.



2 Install the Kemp Orchestrator Plugin



11. Wait for the service to restart.

Server startup options
✓ Server is restarted.

12. A message will appear when the service has been restarted.

The Kemp Orchestrator plugin should now be installed and ready to use.

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3 Using the Kemp Orchestrator Plugin

3.1 Inventory

There is an **Inventory** section in Orchestrator which will list any LoadMasters that have been added to Orchestrator. There are also a number of Kemp directories which are created when the Kemp Orchestrator plugin is installed. To view these, follow the steps below:



2. Select the **Inventory** tab (icon of a jigsaw puzzle piece with a page behind it).





When any Kemp files are uploaded to the Orchestrator, for example certificate or patch files, Kemp recommends saving those files in the relevant Kemp directories. The certificate and LoadMaster backups will automatically save into the relevant directories when the related workflows are run.

3.2 Workflows

After the plugin has been installed, a number of Kemp workflows will be available. These workflows can be used to perform various tasks in the LoadMaster.

The workflows can be accessed by following the steps below:



ITTP-REST

JDBC
 KEMP
 Files

HTTP-REST Samples

LoadMasters
 Real Servers
 Sub Virtual Services
 Virtual Services

- 3. Expand the **Library** directory.
- 4. Expand the **Kemp** directory.

5. Each of the sub-directories within the **Kemp** directory contain various workflows that can be run. To run a workflow:

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- a) Expand the relevant directory.
- b) Select the relevant workflow.



c) Click the green play icon (Start workflow) in the top-left.

d) A screen will then appear which will contain relevant fields relating to that workflow. Fill out the fields and click Submit.

The steps to run each of the workflows are the same, but the fields that appear on each of the screens will differ. Refer to the sections below for more information. The section names correspond to the directory names in Orchestrator.

3.3 Files

Files can be uploaded to and deleted from Orchestrator. For further details, refer to the sections below:

3.3.1 Delete Files

🧿 Start Workflow : Delete Files	
Common Parameters	* Select the files to be deleted Not set

1. Click Not set.



2. Click Insert value.



Select (KEMP:LoadMasterFile)	
🔻 K KEMP	
🕨 K Loadmaster	
D Certificate Backups	
 D Certificates 	
F Certificates > Certificate Pem	
D Load Master Backups	
D Patches	
Add Remove	

- 3. Expand the Kemp directory.
- 4. Expand the relevant directory where the file is located.
- 5. Select the relevant file to be deleted.
- 6. Click Add.

Inventory ID	File Name
F Certificates > certificate.pem	certificate.pem
	Cancel Select

7. Click Select.

3 Using the Kemp Orchestrator Plugin



Array of KEMP:LoadMasterFile		
New value : Insert value		
X ↑ ↓		
Inventory ID	File Name	
F Certificates > certificate.pem	certificate.pem	
	Cancel Accept	

8. Click Accept.

3 Using the Kemp Orchestrator Plugin



🧿 Start Workflow : Delete Files		—
Common parameters	files files > Ce]	8
		Cancel Submit
		Cancel Submit

9. Click Submit.



10. Wait for the deletion to complete.



3.3.2 Upload Files

🧿 Start Workflow : Upload Files	
Common Parameters	 * Select the files to be uploaded Not set * Select the directory to store these files Not set Replace existing files with the same name? Yes No

1. Click Not set in the Select files to be uploaded field.

🧿 Array of I	VimeAttachment	—
New value :	Not set	Insert value

- 2. Click Not set.
- 3. Browse to and select the relevant file to be uploaded.

O,	Array of N	/imeAttachment	—
Nev	w value :	certificate.pem (application/octet-stream)	Insert value

4. Click Insert value.

Multiple files can be uploaded at the same time, if needed. Simply browse to and select another file and click **Insert value** to add it to the list of files to be uploaded.

3 Using the Kemp Orchestrator Plugin



certificate.pem (application/octet-stream) 3.406 Kb	
	Cancel

5. Click Accept.

O Start Workflow : Upload Files	
Common Parameters	 * Select the files to be uploaded Array [testcert.crt (app] * Select the directory to store these files Not set Replace existing files with the same name? Yes No

6. Click Not set in the Select the directory to store these files field.



Select (KEMP:LoadMasterDirectory)	_		
		Load	MasterDirectory - Certificates
	General	Custom	properties
 KEMP Koadmaster Certificate Backups Certificates 	• Inventory	ID	Certificates
 D Load Master Backups D Patches 	Directory	Path	/var/lib/vco/app-server/temp/Im_ce
0	Directory	Contents	0
)),
			Cancel Select

- 7. Expand the Kemp directory.
- 8. Select the relevant directory to store the file in.
- 9. Click Select.

O Start Workflow : Upload Files	
Common Parameters	* Select the files to be uploaded Array [testcert.crt (app]
	* Select the directory to store these files
	Replace existing files with the same name? Ves No

10. If you want to replace an existing file of the same name, select Yes.

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11. Click **Submit** to upload.



The file will then be visible in the **Inventory** tab in the relevant directory.

3.3.2.1 Uploading Files which are Bigger than 2MB

There is a limit of 2MB on the file sizes that can be uploaded via the Kemp Orchestrator plugin. This means that firmware upgrade patch files are not able to be uploaded using the method listed in the section above. This section outlines a workaround that can be used to upload files greater than 2MB in size.

The following are valid LoadMaster directories on the Orchestrator server:

- lm_config_backups
- lm_certs
- lm_certs_backups
- lm_patches



You can use a number of options to copy/download the file to the Orchestrator Server. Two of the options - using SCP or using cURL, are outlined below.

3.3.2.1.1 Using SCP to Copy a File to the Orchestrator Server

This process requires SSH access to be enabled when deploying the Orchestrator appliance. Follow the steps below:

- 1. Navigate to the directory containing the file to transfer on the source machine.
- 2. Run the following command:

scp <File_To_Transfer> root@<Orchestrator_Server_IP_Address>:/var/lib/vco/appserver/temp/<LoadMaster_Directory>/<Filename>

In order for the files to be visible in the Orchestrator client, one of the four directories listed in the **Uploading Files which are Bigger than 2MB** section must be used in place of <LoadMaster_Directory>.

3. After authenticating with the server, the file transfer should proceed.

3.3.2.1.2 Use cURL to Download the File

The file must then be downloaded using a cURL command:

1. Connect to the Orchestrator server via SSH.

Unless additional users have been configured on the server, you must log in as **root**.

2. Navigate to /var/lib/vco/app-server/temp/<LoadMasterDirectory>

Replace **<LoadMasterDirectory>** with one of the directories listed in the **Uploading Files which are Bigger than 2MB** section.

3. Invoke cURL with the **-o <Filename>** parameter to transfer the output of the command to a file, for example:

curl -u user:password -o <NewFilename> <URL>/<File_To_Download>



3.3.2.1.3 Configuring Permissions

After the file has been successfully transferred, the permissions of the file must be modified in order for it to be accessible to the Orchestrator client. To modify the permissions, run the following command:

chown vco <FileName>

If this step is not performed, the files in question will not be visible in the Orchestrator client.

3.4 LoadMasters

In the **LoadMasters** directory, there are a number of workflows that can be executed which relate to managing LoadMasters, such as adding and removing LoadMasters from Orchestrator. For details on each of the LoadMaster workflows, refer to the sections below.

Before any of the other LoadMaster workflows can be run on a LoadMaster, the relevant LoadMaster needs to be added to Orchestrator. The first section below provides details on the **Add LoadMaster** workflow.

3.4.1 Add LoadMaster

A LoadMaster can be added to Orchestrator using the **Add LoadMaster** workflow. A LoadMaster must be added to Orchestrator before any workflows can be run on that LoadMaster.

🥑 Start Workflow : Add LoadMaster	
1 Authentication 2 LoadMaster Configuration	* Enter the username for the LoadMaster
	* Enter the password for the LoadMaster
	Select the SSL certificate provided by the LoadMaster (optional)

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

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3. Click LoadMaster Configuration.

O Start Workflow : Add LoadMaster		×
 1 Authentication 2 LoadMaster Configuration 	Enter a unique identifier for the LoadMaster Example LoadMaster Enter the administrative IP address or host name of the LoadMaster 10.154.11.60 Enter the HTTPS port to use to conneect to the LM. 8443.0	

4. Enter a recognizable name in the **Enter a unique identifier for the LoadMaster** text box. This is a friendly name for the LoadMaster, which appears in Orchestrator.

- 5. Enter the IP address of the LoadMaster to be added.
- 6. Enter the HTTPS port to use to connect to the LoadMaster.

If you cannot see the port field, you may need to install the latest Kemp package. To do this, select the **Administer** option from the drop-down at the top, go to the **Packages** tab on the left, select the **com.kemptechnologies** package, click the **Import package** icon and import the latest Kemp package. Both the .dar and the .package files must be updated. The latest Kemp package is available on the Kemp website.

7. Click Submit.



8. Wait for the LoadMaster to be added.



1 🕹 🗏 🛃
SNMP
PowerShell
AMQP
► d SOAP
vRO Configuration
Dynamic Types
▶ 🚰 SSH
Active Directory
▶ O vRO Multi-Node
vCenter Server
🔻 K кемр
🕨 K Example Load Master
🕨 K Loadmaster
D Certificate Backups
D Certificates
D Load Master Backups
D Patches
MTTP-REST
▶ 🛃 SQL Plug-in

The LoadMaster will then be listed in the **Kemp** directory in the **Inventory** tab.

3.4.2 Add Certificate

Before uploading a certificate to the LoadMaster, the certificate file must first be uploaded to Orchestrator. For step-by-step instructions on how to upload a file, refer to the **Upload Files** section.



😑 testce	ert.ort 🗵
1	BEGIN CERTIFICATE
2	MIICyzCCAjQCCQD9Zrq+3HKfJDANBgkqhkiG9w0BAQsFADCBqTELMAkGA1UEBhMC
3	SUUxEDAOBgNVBAgMB011bnN0ZXIxETAPBgNVBAcMCExpbWVyaWNrMRowGAYDVQQK
4	DBFLRU1QIFR1Y2hub2xvZ211czEcMBoGA1UECwwTUHJvZHVjdCBEZXZ1bG9wbWVu
5	dDEOMAwGA1UEAwwFamFtZXMxKzApBgkqhkiG9w0BCQEWHGpvYnJpZW5Aa2VtcHR1
6	Y2hub2xvZ2llcy5jb20wHhcNMTUwNzI4MTU1MTQ4WhcNMTYwNzI3MTU1MTQ4WjCB
7	qTELMAkGA1UEBhMCSUUxEDAOBgNVBAgMB011bnN0ZXIxETAPBgNVBAcMCExpbWVy
8	aWNrMRowGAYDVQQKDBFLRU1QIFR1Y2hub2xvZ211czEcMBoGA1UECwwTUHJvZHVj
9	dCBEZXZ1bG9wbWVudDEOMAwGA1UEAwwFamFtZXMxKzApBgkqhkiG9w0BCQEWHGpv
10	YnJpZW5Aa2VtcHR1Y2hub2xvZ211cy5jb20wgZ8wDQYJKoZIhvcNAQEBBQADgY0A
11	MIGJAoGBAPZyfvEy+JeX4JT336h3IZqd022E8jsSMShZazcuI/GICrBbAGowhBtf
12	kVoESNpq7PsyaQR0PYfqJii41HUwqJo/Wr/8ulBoewYzoLAGzYfpAe6Rax+1KTc7
13	7mlKoQ3zheBk9Hj3fw1RToSgU9F5oiQJT3jT6zprt0sFuBp+UC8JAgMBAAEwDQYJ
14	KoZIhvcNAQELBQADgYEAeoGA22dXIVAIZ0G8uYOne/KOg7QhV+RX1B6a9j51QW6E
15	H72GzQaI3K11TgkP/UKUTCTjQgVw+4tHx3eU+7Dq9BXA4fx30bvgfONCxBHG8eXy
16	N6gw8BAapDftliwRCklZjBjRtdpP+G8kk7OmPh2ZZOvCY4ylSeWZPDgLcy0tYsw=
17	END CERTIFICATE
18	BEGIN RSA PRIVATE KEY
19	Proc-Type: 4, ENCRYPTED
20	DEK-Info: DES-EDE3-CBC,59951F4DADCDF43D
21	
22	/8x45hW4xrUpX6eDalZfNDFVN8AUx+saxRYnRYvPSuic463o5UhxRUXi+TUE6eeF
23	CqOB5k5ZeFn2n7x45AHRX1auVGvt4g6oaFZH+GXPvdWCSQWEsZTrcQp7KCXy7zth
24	+rn5qsFVqCIxsfdw2ZEV4intoysSj89Fxbqqs8BME9WETCu2w7NN21BS6ji3fv/f
25	uMSS/c00Uv2jPCpMAvaDGmqCKt0y8dKfJlySKhWFac0CjdGyU7uw+SrP/IpzljBV
26	YWyyxmxSXzmRdsN2d0L1Az8L3h921amHIRCmXs8Hc2vNGDnN9zdJ+SF3vKs256FN
27	OvmScty9zs362nl+nUWTPSqFhDsb6bWY7hMJMARGVTfi/Qjw75XoEQpj0jdDy4oq
28	hCvsliAwU+FC9I1j+bKUU4z3J7CSEkFdtJk4iRsfzk9oGC8gdj6zOfsV090SyIQs
29	2RxKXo1U0RrsAwmYdpQPK5TRLWDnyyIajsHjI2fH3wHOPcwTI1Wkv+VzOC1ohKzK
30	dExxW6GAoUgDbbsLuqT4y93x9E+IWA10BpJ4Z5s4LKkyaiD0jzSvP50G+Mo17+jg
31	dcKvyJcWuXqs6wI7m/hIeS4GhhqlJjDiuARX60Ws3NcyX4ntWXq8edx1PXvR2+cW
32	oesvuxzqFBncwgnBw01jryWt+7u8TIu0QVUjJ1MtaeSYifjofKPP3c/Xud0FE8ck
33	1SEKK+wDTQp8/j7iDxkfyz1h0Ti+NneY2TLsIF+YhLqSvbu2rHkITEBn6PLiTH5k
34	V789ENrdQJU50b+riVKyzZhh2YsWuD3xWK/5RAT83FSi5+N37PQIMA==
35	END RSA PRIVATE KEY
36	

When uploading a certificate file via Orchestrator (or via the Kemp API), both the certificate and key must be concatenated into the one file. The certificate file must be listed on top, followed by the private key at the bottom - this is the format which is required by the API which is what the Kemp Orchestrator plugin is based upon. An example file is shown in the screenshot above.

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After a certificate file has been uploaded to Orchestrator, it can then be uploaded to the LoadMaster using the **Add Certificate** workflow.

🥑 Start Workflow : Add Certificate	
1 Authentication	★ Enter the username for the LoadMaster
2 Certificate Configuration	bal
	* Enter the password for the LoadMaster

	Select the SSL certificate provided by the LoadMaster (optional)
	(Not set
	* Select the LoadMaster to add the certificate to
	(Not set

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

This is the certificate file used to authenticate to the LoadMaster - this is not the field used to upload a new certificate.

3. Click Not set in the Select the LoadMaster to add the certificate to field.



✓ Select (KEMP:LoadMaster)		×	
	LoadMaster	r - Example Load Master	
	General Custom prope	rties	
KEMP KEMP Kemple Load Master	•		
D Certificate Backups	Inventory ID	Example LoadMaster	
 D Certificates D Load Master Backups D Patches 	Administrative Access IP	10.154.11.60	
	Virtual Services	[VS 1 (10.154.11.61:80/tcp),	
	•		
		Cancel Select	

- 4. Expand the Kemp directory.
- 5. Select the relevant LoadMaster.
- 6. Click Select.



🥑 Start Workflow : Add Certificate	
1 Authentication	★ Enter the username for the LoadMaster
2 Certificate Configuration	bal
	* Enter the password for the LoadMaster

	Select the SSL certificate provided by the LoadMaster (optional)
	(Not set
	* Select the LoadMaster to add the certificate to
	🕕 Example Load Master

7. Click Certificate Configuration.

🧿 Start Workflow : Add Certificate	
 Authentication Certificate Configuration 	 * Select the certificate file to be added Not set * Enter the passphrase for this certificate * Enter a LoadMaster identifier for this certificate Replace any existing certificate that uses this identifier? Yes No

8. Click Not set.



Select (KEMP:LoadMasterFile)	
	LoadMasterFile - Certificates > Testcert Crt
	General Custom properties
🔻 K КЕМР	
Example Load Master	•
 K Loadmaster D Certificate Backups 	Inventory ID Certificates > testcert.crt
D Certificates F Certificates > Testcert Crt	File Name testcert.crt
 D Load Master Backups D Patches 	
	Cancel Select

- 9. Expand the Kemp directory.
- 10. Expand the **Certificates** directory.
- 11. Select the relevant certificate.
- 12. Click Select.

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O Start Workflow : Add Certificate	
 Authentication Certificate Configuration 	 ★ Select the certificate file to be added Image: Certificates > Testcert Crt Image: Certificates > Testcert Crt Image: Certificate identifier for this certificate Image: Certificate Image: Certificate Image: Certificate identifier is identifier? Image: Test Image: Test
	Cancel Back Next Submit

13. Enter the passphrase which was used when creating the certificate in the **Enter the passphrase for this certificate** text box.

14. Enter a recognizable name for the certificate in the **Enter a LoadMaster identifier for this certificate** text box. This is a friendly name for the certificate which will be displayed in the LoadMaster.

15. If replacing an existing certificate of the same name, select Yes.

16. Click Submit.

3.4.3 Backup Certificates

The certificates on a LoadMaster can be backed up via Orchestrator. To do this, run the **Backup Certificates** workflow.



G Start Workflow : Backup Certificates	
Common Parameters	* Enter the username for the LoadMaster
	bal
	* Enter the password for the LoadMaster

	Select the SSL certificate provided by the LoadMaster (optional)
	(Not set
	* Select the LoadMaster to perform the backup on.
	(Not set
	* Enter a passphrase to secure this backup file.

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the LoadMaster to perform the backup on field.



Select (KEMP:LoadMaster)		×
	LoadMaste	r - Example Load Master
	General Custom prope	rties
▼ К кемр		
Example Load Master Loadmaster	-	
D Certificate Backups	Inventory ID	Example LoadMaster
 D Certificates D Load Master Backups D Patches 	Administrative Access IP	10.154.11.60
	Virtual Services	[VS 1 (10.154.11.61:80/tcp),
		Cancel Select

- 4. Expand the **Kemp** directory.
- 5. Select the relevant LoadMaster.
- 6. Click Select.

3 Using the Kemp Orchestrator Plugin



O Start Workflow : Backup Certificate	;	×
Common Parameters	Enter the username for the LoadMaster bal Enter the password for the LoadMaster	
	Select the SSL certificate provided by the LoadMaster (optional) Not set	
	* Select the LoadMaster to perform the backup on. Example Load Master	8
	★ Enter a passphrase to secure this backup file.	

	Cancel	Submit

- 7. Enter a passphrase to secure this backup file.
- 8. Click Submit.



9. Wait for the backup to complete.





The backup will be saved to the LoadMaster Backups directory in the Inventory tab.

3.4.4 Backup LoadMaster

The LoadMaster configuration can be backed up via Orchestrator. To do this, run the **Backup LoadMaster** workflow.



G Start Workflow : Backup LoadMaste	r
Common Parameters	* Enter the username for the LoadMaster
	bal
	★ Enter the password for the LoadMaster

	Select the SSL certificate provided by the LoadMaster (optional)
	(Not set
	* Select the LoadMaster to perform this backup on.
	(Not set

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the LoadMaster to perform this backup on field.


Select (KEMP:LoadMaster)		×
	LoadMaste	r - Example Load Master
	General Custom prope	rties
KEMP		
Kample Load Master	-	
 D Certificate Backups 	Inventory ID	Example LoadMaster
 D Certificates D Load Master Backups 	Administrative Access IP	10.154.11.60
D Patches	Virtual Services	[VS 1 (10.154.11.61:80/tcp),
	-	
		Cancel Select

- 4. Expand the Kemp directory.
- 5. Select the relevant LoadMaster.
- 6. Click Select.

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O Start Workflow : Backup LoadMaste	r	
Common Parameters	* Enter the username for the LoadMaster	
	* Enter the password for the LoadMaster	
	Select the SSL certificate provided by the LoadMaster (optional)	
	* Select the LoadMaster to perform this backup on.	
	🕕 Example Load Master	8
		Cancel Submit

7. Click Submit.





The backup will be stored in the **LoadMaster Backups** directory in the **Inventory** tab. The backup can be restored to a LoadMaster via Orchestrator. For instructions on how to do this, refer to the **Reboot LoadMaster** section.

3.4.5 Delete Certificate

Certificates can be deleted from the LoadMaster by running the **Delete Certificates** workflow.



🥑 Start Workflow : Delete Certificate	
Common Parameters	* Enter the username for the LoadMaster bal
	* Enter the password for the LoadMaster

	Select the SSL certificate provided by the LoadMaster (optional)
	Not set
	* Select the LoadMaster to delete a certificate from Not set
	* Enter the identifier of the certificate to be deleted

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the LoadMaster to delete a certificate from field.



Select (KEMP:LoadMaster)		×
	LoadMaste	r - Example Load Master
	General Custom prope	rties
KEMP Example Load Master	•	
 K Loadmaster D Certificate Backups 	Inventory ID	Example LoadMaster
D Certificates F Certificates > Testcert Crt	Administrative Access IP	10.154.11.60
 D Load Master Backups D Patches 	Virtual Services	[VS 1 (10.154.11.61:80/tcp),
		Cancel Select

- 4. Expand the Kemp directory.
- 5. Select the relevant LoadMaster.
- 6. Click Select.

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O Start Workflow : Delete Certificate		×
Start Workflow : Delete Certificate Common Parameters	* Enter the username for the LoadMaster bal * Enter the password for the LoadMaster Select the SSL certificate provided by the LoadMaster (optional) Not set * Select the LoadMaster to delete a certificate from @ Example Load Master * Enter the identifier of the certificate to be deleted Example Certificate	
	Cancel Sub	mit

- 7. Enter the identifier of the certificate to be deleted.
- 8. Click Submit.



9. Wait for the deletion to finish.

3.4.6 Disable API

The API interface on the LoadMaster can be disabled via Orchestrator.

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If the API is disabled, most of the workflows will not work. The only workflows that will work when the API is disabled are **Add LoadMaster** and **Enable API**.

🧿 Start Workflow : Disable API	
Common Parameters	* Enter the username for the LoadMaster
	* Enter the password for the LoadMaster
	Select the SSL certificate provided by the LoadMaster (optional) Not set
	* Select the LoadMaster to disable the API of Not set

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the LoadMaster to disable the API of field.



Select (KEMP:LoadMaster)		×
	LoadMaster	- Example Load Master
	General Custom proper	ties
 KEMP Example Load Master 	•	
 K Loadmaster D Certificate Backups 	Inventory ID	Example LoadMaster
 D Certificates D Load Master Backups 	Administrative Access IP	10.154.11.60
D Patches	Virtual Services	[VS 1 (10.154.11.61:80/tcp),
		Cancel Select

- 4. Expand the **Kemp** directory.
- 5. Select the relevant LoadMaster.
- 6. Click Select.



O Start Workflow : Disable API	
Common Parameters	* Enter the username for the LoadMaster bal
	* Enter the password for the LoadMaster
	Select the SSL certificate provided by the LoadMaster (optional) Not set
	* Select the LoadMaster to disable the API of Example Load Master
	Cancel Submit

7. Click Submit.



8. Wait for the API to be disabled.

3.4.7 Enable API

The API interface of a LoadMaster which exists in Orchestrator can be enabled via Orchestrator. The API interface needs to be enabled on a LoadMaster for most of the workflows to run. To enable the API, run the **Enable API** command.



🧿 Start Workflow : Enable API	
Common Parameters	* Enter the username for the LoadMaster
	bal
	★ Enter the password for the LoadMaster

	Select the SSL certificate provided by the LoadMaster (optional)
	(Not set
	* Select the LoadMaster to enable the API of
	(Not set

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the LoadMaster to enable the API of field.



Select (KEMP:LoadMaster)		×
	LoadMaster	- Example Load Master
	General Custom prope	rties
KEMP		
 Example Load Master K Loadmaster 	-	
D Certificate Backups	Inventory ID	Example LoadMaster
 D Certificates D Load Master Backups 	Administrative Access IP	10.154.11.60
D Patches	Virtual Services	[VS 1 (10.154.178.151:80/tc
		Cancel Select

- 4. Expand the Kemp directory.
- 5. Select the relevant LoadMaster.
- 6. Click Select.

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🧿 Start Workflow : Enable API		×
Common Parameters	* Enter the username for the LoadMaster bal	
	* Enter the password for the LoadMaster	
	Select the SSL certificate provided by the LoadMaster (optional)	
	* Select the LoadMaster to enable the API of	
	Example Load Master	8
	Cancel	ubmit

7. Click Submit.

3.4.8 Get Parameter

The **Get Parameter** workflow can be used to retrieve a number of LoadMaster field values. For a list of parameter names that can be retrieved, refer to **Appendix A - Get and Set Parameters**.



🥑 Start Workflow : Get Parameter	
Common Parameters	* Enter the username for the LoadMaster
	* Enter the password for the LoadMaster

	Select the SSL certificate provided by the LoadMaster (optional)
	(Not set
	* Select the LoadMaster to be queried
	(Not set
	* Enter the name of the parameter to be read

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the LoadMaster to be queried field.



Select (KEMP:LoadMaster)		×
	LoadMaster	r - Example Load Master
	General Custom prope	rties
 KEMP Example Load Master 	-	
 K Loadmaster D Certificate Backups 	Inventory ID	Example LoadMaster
 D Certificates D Load Master Backups D Patches 	Administrative Access IP	10.154.11.60
	Virtual Services	[VS 1 (10.154.178.151:80/tc
	4	
		Cancel Select

- 4. Expand the Kemp directory.
- 5. Select the LoadMaster to retrieve the value from.
- 6. Click Select.



O Start Workflow : Get Parameter	
Start Workflow : Get Parameter Common Parameters	Enter the username for the LoadMaster bal * Enter the password for the LoadMaster ** select the SSL certificate provided by the LoadMaster (optional) Not set * Select the LoadMaster to be queried • Example Load Master * Enter the name of the parameter to be read motd
	Cancel Submit

7. Enter the relevant parameter name in the **Enter the name of the parameter to be read** field.

8. Click Submit.

General Variables Logs			
Name	Туре	Value	
username	string	bal	
password	SecureString		
certFile	KEMP:LoadMasterFile	Not set	
loadMaster	KEMP:LoadMaster	Example Load Master	
paramName	string	motd	
paramValue	string	Example Message of the Day	

- 9. To view the value, select the Variables tab at the bottom.
- 10. The parameters and their values will be displayed.

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3.4.9 Install Patch

The LoadMaster firmware can be updated with a firmware patch file via Orchestrator. Before uploading the firmware patch file to the LoadMaster, first it must be uploaded to Orchestrator. For step-by-step instructions on how to upload a file, refer to the **Upload Files** section.

After a firmware patch file has been uploaded to Orchestrator, run the **Install Patch** workflow to update the LoadMaster.

🧿 Start Workflow : Install Patch	
Common Parameters	* Enter the username for the LoadMaster
	* Enter the password for the LoadMaster
	Specify the SSL certificate provided by the LoadMaster (optional)
	(Not set
	* Select the LoadMaster to be patched
	(Not set
	* Select the patch to apply
	(Not set
	Reboot the LoadMaster after the patch is applied?

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the LoadMaster to be patched field.



✓ Select (KEMP:LoadMaster)			
	LoadMaster	r - Example Load Master	
	General Custom prope	rties	
▼ KEMP ► KEMP Example Load Master	•		
D Certificate Backups	Inventory ID	Example LoadMaster	
 D Certificates D Load Master Backups D Patches 	Administrative Access IP	10.154.11.60	
	Virtual Services	[VS 1 (10.154.11.61:80/tcp),	
	•		
		Cancel Select	

- 4. Expand the Kemp directory.
- 5. Select the LoadMaster to be patched.
- 6. Click Select.

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🥑 Start Workflow : Install Patch	
Common Parameters	* Enter the username for the LoadMaster bal
	★ Enter the password for the LoadMaster

	Specify the SSL certificate provided by the LoadMaster (optional)
	Not set
	* Select the LoadMaster to be patched
	🚯 Example Load Master
	* Select the patch to apply
	(Not set
	Reboot the LoadMaster after the patch is applied?
	🔘 Yes 💿 No

- 7. Click Not set in the Select the patch to apply field.
- 8. Expand the Kemp directory.
- 9. Expand the **Patches** directory.
- 10. Select the relevant patch file.
- 11. Click Select.
- 12. Select Yes to reboot the LoadMaster after the patch has been uploaded.

The LoadMaster must be rebooted after the patch file has been installed in order for the changes to be applied correctly.

- 13. Click Submit.
- 14. Wait for the installation and reboot to complete.

3.4.10 Reboot LoadMaster

A LoadMaster which exists in Orchestrator can be rebooted via Orchestrator. To reboot a LoadMaster, run the **Reboot LoadMaster** workflow.



🧿 Start Workflow : Reboot LoadMaste	r
Common Parameters	★ Enter the username for the LoadMaster
	bal
	* Enter the password for the LoadMaster

	Select the SSL certificate provided by the LoadMaster (optional)
	(Not set
	* Select the LoadMaster to be rebooted
	(Not set

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the LoadMaster to be rebooted field.



Select (KEMP:LoadMaster)		×
	LoadMaster	- Example Load Master
	General Custom prope	rties
 KEMP Example Load Master 	•	
 Mathematical Control Contro Control Control Control Control Control Control Control Contr	Inventory ID	Example LoadMaster
 D Certificates D Load Master Backups D Patches 	Administrative Access IP	10.154.11.60
	Virtual Services	[VS 1 (10.154.178.151:80/tc
	4	
		Cancel Select

- 4. Select the relevant LoadMaster to be rebooted.
- 5. Click Select.



🧿 Start Workflow : Reboot LoadMaste	r	×
Common Parameters	* Enter the username for the LoadMaster	
	* Enter the password for the LoadMaster	
	Select the SSL certificate provided by the LoadMaster (optional)	
	* Select the LoadMaster to be rebooted	
	🚯 Example Load Master	8
	Cancel Sub	mit

- 6. Click **Submit**.
- 7. Wait for the LoadMaster to reboot.

3.4.11 Remove LoadMaster

A LoadMaster can be removed from Orchestrator by running the **Remove LoadMaster** command.

O Start Workflow : Remove LoadMast	er
Common Parameters	* Select the LoadMaster to remove from the inventory
	(Not set

1. Click Not set.



O Select (KEMP:LoadMaster)			
	LoadMaster	r - Example Load Master	
	General Custom prope	rties	
 KEMP Example Load Master 	•		
 K Loadmaster D Certificate Backups 	Inventory ID	Example LoadMaster	
 D Certificates D Load Master Backups D Patches 	Administrative Access IP	10.154.11.60	
	Virtual Services	[VS 1 (10.154.178.151:80/tc	
	-		
		Cancel Select	

- 2. Select the relevant LoadMaster.
- 3. Click Select.

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✓ Start Workflow: Remove LoadMaster		
Common Parameters	* Select the LoadMaster to remove from the inventory Example Load Master	8
	Cancel	ubmit

4. Click Submit.



5. Wait for the LoadMaster to be removed.

3.4.12 Restore Certificates

If a certificate backup file exists in Orchestrator, it can be restored to a LoadMaster. To back up the certificates on a LoadMaster, refer to the **Backup Certificates** section. To restore the certificates, run the **Restore Certificates** command.



O Start Workflow : Restore Certific	ates
1 Authentication 2 Backup Options	* Enter the username for the LoadMaster
2 Backup options	bal
	★ Enter the password for the LoadMaster

	Select the SSL certificate provided by the LoadMaster (optional)
	(Not set
	* Select the LoadMaster to restore
	(Not set

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set.



🧿 Select (KEMP:LoadMaster)		×
	LoadMaster	r - Example Load Master
	General Custom prope	rties
KEMP Kemple Load Master	•	
 D Certificate Backups 	Inventory ID	Example LoadMaster
 D Certificates D Load Master Backups D Patches 	Administrative Access IP	10.154.11.60
	Virtual Services	[VS 1 (10.154.178.151:80/tc
		Cancel Select

- 4. Expand the Kemp directory.
- 5. Select the relevant LoadMaster.
- 6. Click Select.



🧿 Start Workflow : Restore Certific	ates
1 Authentication 2 Backup Options	* Enter the username for the LoadMaster
	bal
	Select the SSL certificate provided by the LoadMaster (optional)
	* Select the LoadMaster to restore
	🕕 Example Load Master

7. Click Backup Options.

 Authentication Backup Options * Select the certificate backup to be restored Not set 	🧿 Start Workflow : Restore Certific	ates
* Enter the passphrase used to secure the backup file Restore Virtual Service certificates? Yes No Restore intermediate certificates? Yes No	 1 Authentication 2 Backup Options 	* Select the certificate backup to be restored Not set * Enter the passphrase used to secure the backup file Restore Virtual Service certificates? Yes No Restore intermediate certificates? Yes No

8. Click Not set.



Select (KEMP:LoadMasterFile)	
	LoadMasterFile - Certificate Backups > Exam
	General Custom properties
🔻 🔣 КЕМР	
K Example Load Master	•
 K Loadmaster D Certificate Backups 	Inventory ID Certificate Backups > Example LoadMas
 Certificate Backups > Example Load Master 201 D Certificates 	File Name Example LoadMaster 2015_08_21.10_1
D Load Master Backups	
D Patches	
	Cancel Select

- 9. Expand the Kemp directory.
- 10. Expand the **Certificate Backups** directory.
- 11. Select the relevant backup.
- 12. Click Select.

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- 13. Enter the passphrase used to secure the backup file.
- 14. Specify which certificates to restore.
- 15. Click Submit.



16. Wait for the certificates to restore.

3.4.13 Restore LoadMaster

Before restoring a LoadMaster configuration, a backup configuration must be available in Orchestrator. To back up a LoadMaster configuration in Orchestrator, refer to the **Backup**

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LoadMaster section.

When a backup configuration exists in Orchestrator, run the **Restore LoadMaster** workflow to restore the configuration.

A GEO LoadMaster backup configuration cannot be restored on a non-GEO LoadMaster configuration

🥑 Start Workflow : Restore LoadMaster		
1 Authentication	★ Enter the username for the LoadMaster	
	bal	
	★ Enter the password for the LoadMaster	

	Specify the SSL certificate provided by the LoadMaster (optional)	
	Not set	
	* Select the LoadMaster to restore	
	(Not set	

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the LoadMaster to restore field.



✓ Select (KEMP:LoadMaster)		—
	LoadMaster	r - Example Load Master
	General Custom prope	rties
🔻 候 кемр		
Example Load Master	-	
D Certificate Backups	Inventory ID	Example LoadMaster
 ▶ D Certificates ▶ D Load Master Backups 	Administrative Access IP	10.154.11.60
D Patches	Virtual Services	[VS 1 (10.154.11.61:80/tcp),
	•	
		Cancel Select

- 4. Expand the Kemp directory.
- 5. Select the relevant LoadMaster.
- 6. Click Select.



O Start Workflow : Restore LoadM	aster
1 Authentication	★ Enter the username for the LoadMaster
	bal
	* Enter the password for the LoadMaster

	Specify the SSL certificate provided by the LoadMaster (optional)
	(Not set
	* Select the LoadMaster to restore
	🕕 Example Load Master

7. Click Backup Options.

🥑 Start Workflow : Restore LoadMaster	
 Authentication Backup Options 	* Select the backup configuration to be restored Not set
	Restore the base LoadMaster configuration?
	Restore the Virtual Service configuration?
	Restore the GEO configuration?

8. Click Not set.



Select (KEMP:LoadMasterFile)	—
	LoadMasterFile - Load Master Backups > Loa
	General Custom properties
KEMP	
K Example Load Master	-
Certificate Backups	Inventory ID LoadMaster Backups > Loadmaster 201
 D Certificates D Load Master Backups 	File Name Loadmaster 2015_08_20.15_29
D Patches	
	Cancel Select

- 9. Expand the Kemp directory.
- 10. Expand the LoadMaster Backups directory.
- 11. Select the relevant backup.
- 12. Click Select.

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✓ Start Workflow : Restore LoadMaster		
 Start Workflow : Restore LoadMa 1 Authentication 2 Backup Options 	Master	
	Cancel Back Next Subr	nit

13. Specify the configurations to be restored by selecting Yes for the relevant options.

14. If restoring the base LoadMaster configuration, another field will appear asking if the LoadMaster should be rebooted after restoration. If restoring the base configuration, please set this to **Yes** as the LoadMaster needs to be rebooted for the changes to be applied.

- 15. Click Submit.
- 16. Wait for the restoration to complete.

3.4.14 Set Credentials

When a LoadMaster is added to Orchestrator via the **Add LoadMaster** command, the credentials are set. If, for any reason, the LoadMaster credentials which are saved in Orchestrator need to be updated (for example if the credentials have changed), the **Set Credentials** workflow can be run.



O Start Workflow : Set Credentials	
Common Parameters	* Select the LoadMaster to set the credentials of Not set
	★ Enter the username for the LoadMaster
	★ Enter the password for the LoadMaster
	Select the SSL certificate provided by the LoadMaster (optional) Not set

1. Click Not set in the Select the LoadMaster to set the credentials of field.

Select (KEMP:LoadMaster)		X
	LoadMaster	r - Example Load Master
	General Custom prope	rties
🔻 候 KEMP		
Example Load Master	-	
 D Certificate Backups 	Inventory ID	Example LoadMaster
 D Certificates D Load Master Backups 	Administrative Access IP	10.154.11.60
D Patches	Virtual Services	[VS 1 (10.154.178.151:80/tc
	•	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
		Cancel Select

2. Expand the **Kemp** directory.

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- 3. Select the relevant LoadMaster.
- 4. Click Select.

🧿 Start Workflow : Set Credentials			×
Start Workflow : Set Credentials Common Parameters	Select the LoadMaster to set the credentials of Example Load Master Enter the username for the LoadMaster bal Enter the password for the LoadMaster Select the SSL certificate provided by the LoadMaster (optional) Not set		
		Cancel Subn	nit

- 5. Enter the updated LoadMaster credentials.
- 6. Click Submit.

3.4.15 Set Parameter

The **Set Parameter** workflow can be used to set a number of LoadMaster field values. For a list of parameter names that can be set, refer to **Appendix A - Get and Set Parameters**.



🧿 Start Workflow : Set Parameter	
1 Authentication 2 Parameter Configuration	* Enter the username for the LoadMaster
	bal
	* Enter the password for the LoadMaster
	Select the SSL certificate provided by the LoadMaster (optional)
	* Select the LoadMaster to be modified
	Not set

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the LoadMaster to be modified field.


Select (KEMP:LoadMaster)		×
	LoadMaster	r - Example Load Master
	General Custom prope	rties
KEMP		
Example Load Master Loadmaster	•	
 D Certificate Backups 	Inventory ID	Example LoadMaster
 D Certificates D Load Master Backups 	Administrative Access IP	10.154.11.60
D Patches	Virtual Services	[VS 1 (10.154.178.151:80/tc
		,,.
		Cancel Select

- 4. Expand the **Kemp** directory.
- 5. Select the relevant LoadMaster.
- 6. Click Select.



🥑 Start Workflow : Set Parameter	
1 Authentication 2 Parameter Configuration	* Enter the username for the LoadMaster
	* Enter the password for the LoadMaster
	Select the SSL certificate provided by the LoadMaster (optional) Not set
	Example Load Master

7. Click Parameter Configuration.

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O Start Workflow : Set Parameter		×
 Authentication Parameter Configuration 	* Enter the parameter name to be modified motd * Enter the new value for the specified parameter Updated Example Message of the Day	
	Cancel Back Next Subm	it

- 8. Enter the name of the parameter to be modified.
- 9. Enter the new value for the specified parameter.
- 10. Click Submit.



11. Wait for the parameter to be set.



3.5 Virtual Services

A number of tasks can be performed in relation to Virtual Services, such as adding and removing them. Refer to the sections below for further details.

3.5.1 Add Virtual Service

A Virtual Service can be added to a LoadMaster via Orchestrator by running the **Add Virtual Service** command.

🧿 Start Workflow : Add Virtual Service	
1 Authentication 2 Virtual Service Configur	* Enter the username for the LoadMaster
	* Enter the password for the LoadMaster
	Select the SSL certificate provided by the LoadMaster (optional) Not set

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Virtual Service Configuration.

Start Workflow : Add Virtual Service	
 Authentication Virtual Service Configur 	Select the LoadMaster to add the Virtual Service to Not set Enter the IP address of the Virtual Service
	* Enter the port of the Virtual Service * Select the protocol of the Virtual Service TCP V

4. Click Not set.



O Select (KEMP:LoadMaster)			×	
		LoadMaste	r - Example Load Master	
	Gener	al Custom prope	rties	
KEMP				
Kample Load Master	-			
 D Certificate Backups D Certificates D Load Master Backups D Patches 	Invent	ory ID	Example LoadMaster	
	Administrative	istrative Access IP		
	Virtual Services		[VS 1 (10.154.178.151:80/tc	
	-			
			Cancel Select	

- 5. Expand the **Kemp** directory.
- 6. Select the relevant LoadMaster.
- 7. Click Select.



Start Workflow : Add Virtual Service	•••••••••••••••••••••••••••••••••••••
 Authentication Virtual Service Configur 	* Select the LoadMaster to add the Virtual Service to Example Load Master
	* Enter the IP address of the Virtual Service 10.154.11.61
	* Enter the port of the Virtual Service 80
	* Select the protocol of the Virtual Service TCP
	Cancel Back Next Submit

8. Enter a valid IP address in the Enter the IP address of the Virtual Service text box.

9. Enter the desired port in the **Enter the port of the Virtual Service** text box.

- 10. Select the relevant protocol from the drop-down list.
- 11. Click Submit.

3.5.2 Assign Virtual Service Certificates

Certificates can be assigned to a Virtual Service via Orchestrator. To do this, run the **Assign Virtual Service Certificates** command.



Start Workflow : Assign Virtual Servi	ce Certificates
Common Parameters	* Enter the username for the LoadMaster
	bal
	* Enter the password for the LoadMaster

	Select the SSL certificate provided by the LoadMaster (optional)
	(Not set
	* Select the Virtual Service to assign certificates to
	(Not set
	Enter the certificate identifiers to assign to the Virtual Service
	(Not set

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the Virtual Service to assign certificates to field.



Select (KEMP:VirtualService)			
	VirtualService - Example Load Master > Vs 3		
	General Custom properties		
 KEMP Kemple Load Master V Example Load Master > Vs 1 (10 154 178 151) 	*		
V Example Load Master > Vs 3 (10 154 11 61)	Inventory ID Example LoadMaster > VS 3 (
 D Certificate Backups D Certificates D Load Master Backups D Patches 	Service Name		
	LoadMaster ID 3		
	Real Servers []		
	Service Status Down		
	Service IP 10.154.11.61		
	Service Port 80		
	Consider Directorical ten		
	Cancel Select		

- 4. Expand the Kemp directory.
- 5. Expand the relevant LoadMaster.
- 6. Select the relevant Virtual Service.
- 7. Click Select.



🥑 Start Workflow : Assign Virtual Service Certificates			
Common Parameters	* Enter the username for the LoadMaster		
	* Enter the password for the LoadMaster		
	Select the SSL certificate provided by the LoadMaster (optional) Not set		
	* Select the Virtual Service to assign certificates to Example Load Master > Vs 3 (10 154 11 61)		
	Enter the certificate identifiers to assign to the Virtual Service Not set		

8. Click Not set in the Enter the certificate identifiers to assign to the Virtual Service field.



O Array of string	×
New value :	Insert value
X ↑ ↓	
Example Certificate	
Cano	Accept

9. In the **New value** text box, enter the certificate identifier (friendly name) of the certificate to be assigned.

10. Click Insert value.

11. Click Accept.



🧿 Start Workflow : Assign Virtual Serv	ice Certificates		×
Common Parameters	* Enter the username for the LoadMaster		
	* Enter the password for the LoadMaster		
	Select the SSL certificate provided by the LoadMaster (optional)		
	* Select the Virtual Service to assign certificates to		
	Example Load Master > Vs 3 (10 154 11 61) Enter the certificate identifiers to assign to the Virtual Service		8
	Array [Example Certificate]		8
		Cancel	Submit

12. Click Submit.

3.5.3 Modify Virtual Service Name

The name of a Virtual Service can be modified using the **Modify Virtual Service Name** workflow.





🧿 Start Workflow : Modify Virtual Serv	ice Name
Common Parameters	★ Enter the username for the LoadMaster
	bal
	★ Enter the password for the LoadMaster

	Select the SSL certificate provided by the LoadMaster (optional)
	(Not set
	* Select the Virtual Service to be renamed
	(Not set
	Enter the new name for the Virtual Service

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the Virtual Service to be renamed field.



Select (KEMP:VirtualService)		×		
	VirtualService - Example Load Master > Vs 3			
	General Custom properties			
 KEMP KEMP Example Load Master V Example Load Master > Vs 1 (10 154 178 151) 	•			
 V Example Load Master > Vs 3 (10 154 11 61) ▶ D Certificate Backups ▶ D Certificates 	Inventory ID Service Name	Example LoadMaster > VS 3 (
 D Load Master Backups D Patches 	LoadMaster ID	3		
	Real Servers	0		
	Service Status	Down		
	Service IP	10.154.11.61		
	Service Port	80		
	Convice Protocol	ton V		
		Cancel Select		

- 4. Expand the Kemp directory.
- 5. Expand the relevant LoadMaster.
- 6. Select the relevant Virtual Service.
- 7. Click Select.



O Start Workflow : Modify Virtual Serv	rice Name
Common Parameters	* Enter the username for the LoadMaster
	* Enter the password for the LoadMaster
	Select the SSL certificate provided by the LoadMaster (optional) Not set
	* Select the Virtual Service to be renamed Example Load Master > Vs 3 (10 154 11 61)
	Enter the new name for the Virtual Service
	Cancel Submit

- 8. Enter the new name for the Virtual Service.
- 9. Click Submit.

3.5.4 Remove Virtual Service

A Virtual Service can be deleted via Orchestrator by running the **Remove Virtual Service** workflow.



🧿 Start Workflow : Remove Virtual Ser	vice
Common Parameters	* Enter the username for the LoadMaster
	* Enter the password for the LoadMaster
	Select the SSL certificate provided by the LoadMaster (optional)
	Not set Select the Virtual Service to be removed
	(Not set

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the Virtual Service to be removed field.



✓ Select (KEMP:VirtualService)				
	VirtualService - Example Load Master > Vs 3			
	General Custom properties			
 KEMP KEMP K Example Load Master V Example Load Master > Vs 1 (10 154 178 151) V Example Load Master > Vs 3 (10 154 11 61) D Certificate Backups D Certificates D Load Master Backups D Patches 	Inventory ID Example LoadMaster > VS Service Name			
	Service Port	80 ton		
		Cancel Select		

- 4. Expand the Kemp directory.
- 5. Expand the relevant LoadMaster.
- 6. Select the relevant Virtual Service.
- 7. Click Select.

VMware vRealize Orchestrator

3 Using the Kemp Orchestrator Plugin



🧿 Start Workflow : Remove Virtual Ser	vice		×
Start Workflow : Remove Virtual Ser Common Parameters	<pre>vice * Enter the username for the LoadMaster bal * Enter the password for the LoadMaster * Enter the password for the LoadMaster * Select the SSL certificate provided by the LoadMaster (optional) Not set * Select the Virtual Service to be removed # Select the Virtual Service to be removed # Example Load Master > Vs 3 (10 154 11 61)</pre>		
		Cancel Sul	omit

8. Click Submit.

3.6 Sub Virtual Services

A number of tasks can be performed in relation to SubVSes, such as adding and removing a SubVS. Refer to the sections below for further details.

3.6.1 Add SubVS

A SubVS can be added by running the **Add SubVS** workflow.



🥑 Start Workflow : Add SubVS	
Common Parameters	* Enter the username for the LoadMaster
	* Enter the password for the LoadMaster

	Select the SSL certificate provided by the LoadMaster (optional)
	Not set
	★ Select the Virtual Service to add a SubVS to
	Not set

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the Virtual Service to add a SubVS to field.



Select (KEMP:VirtualService)		×		
	VirtualService - Example Load Master > Vs 1			
	General Custom p	properties		
🔻 候 кемр		A		
Example Load Master	-			
 V Example Load Master > Vs 1 (10 154 178 151) D Certificate Backups D 0. US at 	Inventory ID	Example LoadMaster > VS 1 (
D Certificates D Load Master Backups D certificates	Service Name	Top Level		
D Patches	LoadMaster ID	1		
	Real Servers	0		
	Service Status	Down		
	Service IP	10.154.178.151		
	Service Port	80		
	Convice Protocol			
		Cancel Select		

- 4. Expand the **Kemp** directory.
- 5. Expand the relevant LoadMaster.
- 6. Select the relevant Virtual Service.
- 7. Click Select.



🧿 Start Workflow : Add SubVS			×
Start Workflow : Add SubVS Common Parameters	 * Enter the username for the LoadMaster bal * Enter the password for the LoadMaster ******** Select the SSL certificate provided by the LoadMaster (optional) Not set * Select the Virtual Service to add a SubVS to () Example Load Master > Vs 1 (10 154 178 151) 		
		Cancel	Submit

8. Click Submit.

3.6.2 Modify SubVS Name

The name of a SubVS can be modified using the **Modify SubVS Name** workflow.



🧿 Start Workflow : Modify SubVS Nam	ie in the second se
Common Parameters	* Enter the username for the LoadMaster
	* Enter the password for the LoadMaster

	Select the SSL certificate provided by the LoadMaster (optional)
	(Not set
	* Select the SubVS to be renamed
	(Not set
	Enter the new name for the SubVS

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the SubVS to be renamed field.



Select (KEMP:SubVirtualService)		—	
	SubVirtualService - Example Load Master >		
	General	Custom properties	
 KEMP KExample Load Master 	•		
V Example Load Master > Vs 1 (10 154 178 151) S Example Load Master > Vs 1 (10 154 178 15	Inventory ID	Example LoadMaster > VS 1 (10.154.)	
S Example Load Master > Vs 1 (10 154 178 15 D Certificate Backups	Service Nan	ne Sub VS	
 D Certificates D Load Master Backups D Patches 	LoadMaster	2 ID	
	Real Server	s ()	
	Service Stat	us Down	
		, , , , , , , , , , , , , , , , , , , ,	
		Cancel Select	

- 4. Expand the Kemp directory.
- 5. Expand the relevant LoadMaster.
- 6. Select the relevant SubVS.
- 7. Click Select.



🥑 Start Workflow : Modify SubVS Nan	ne		×
Common Parameters	* Enter the username for the LoadMaster		
	* Enter the password for the LoadMaster		
	Select the SSL certificate provided by the LoadMaster (optional) Not set		
	* Select the SubVS to be renamed		8
	Enter the new name for the SubVS		
	Example SubVS Name		
		Cancel	Submit

- 8. Enter the new name for the SubVS.
- 9. Click Submit.

3.6.3 Remove SubVS

A SubVS can be deleted via Orchestrator by running the **Remove SubVS** command.



🧿 Start Workflow : Remove SubVS	
Common Parameters	* Enter the username for the LoadMaster bal * Enter the password for the LoadMaster ******* Select the SSL certificate provided by the LoadMaster (optional) Not set Select the SubVS to be removed Not set

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the SubVS to be removed field.



Select (KEMP:SubVirtualService)		X
	SubVirtualSe	rvice - Example Load Master >
	General Cust	tom properties
 KEMP KEMP Example Load Master V Example Load Master > Vs 1 (10 154 178 151) 	•	
S Example Load Master > Vs 1 (10 154 178 15	Inventory ID	Example LoadMaster > VS 1 (10.154.
 S Example Load Master > Vs 1 (10 154 178 15 D Certificate Backups D Certificates D Load Master Backups D Patches 	Service Name	
	LoadMaster ID	3
	Real Servers	0
	Service Status	Down
		,
		Cancel Select

- 4. Expand the Kemp directory.
- 5. Expand the relevant LoadMaster.
- 6. Expand the relevant Virtual Service.
- 7. Select the relevant SubVS.
- 8. Click Select.

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🧿 Start Workflow : Remove SubVS			×
Common Parameters	* Enter the username for the LoadMaster		
	* Enter the password for the LoadMaster		
	Select the SSL certificate provided by the LoadMaster (optional)		
	Select the SubVS to be removed		
	Example Load Master > Vs 1 (10 154 178 151) > Sub Vs 3		8
		Cancel	Submit

9. Click Submit.

3.7 Real Servers

A number of tasks can be performed in relation to Real Servers, such as adding a Real Server to a Virtual Service or removing a Real Server. Refer to the sections below for further details.

3.7.1 Add Real Server to Sub Virtual Service

A Real Server can be added to a SubVS by running the **Add Real Server to Sub Virtual Service** workflow.



🥑 Start Workflow : Add Real Server To SubVS	
1 Authentication 2 Real Server Configuration	* Enter the username for the LoadMaster bal
	* Enter the password for the LoadMaster
	Select the SSL certificate provided by the LoadMaster (optional) Not set

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Real Server Configuration.

🧿 Start Workflow : Add Real Server To SubVS	
 Authentication Real Server Configuration 	* Select the SubVS to add this Real Server to
2 Real Server Sonngaration	Not set
	* Enter the port of the Real Server

4. Click Not set.



Select (KEMP:SubVirtualService)	
	SubVirtualService - Example Load Master >
	General Custom properties
 KEMP KEMP Kexample Load Master V Example Load Master > Vs 1 (10 154 178 151) <u>S Example Load Master > Vs 1 (10 154 178 15</u> S Example Load Master > Vs 1 (10 154 178 15 D Certificate Backups D Certificates D Load Master Backups D Patches 	▼ Inventory ID Example LoadMaster > VS 1 (10.154.) Service Name Sub VS LoadMaster ID 2 Real Servers [] Service Status Down
	Cancel Select

- 5. Expand the Kemp directory.
- 6. Expand the relevant LoadMaster.
- 7. Expand the relevant Virtual Service.
- 8. Select the relevant **SubVS**.
- 9. Click Select.

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🧭 Start Workflow : Add Real Server To SubVS		x
 Authentication Real Server Configuration 	<pre>* Select the SubVS to add this Real Server to Example Load Master > Vs 1 (10 154 178 151) > Sub Vs 2 * Enter the IP address of the Real Server 10.154.11.62 * Enter the port of the Real Server 80 </pre>	
	Cancel Back Next Submi	t

- 10. Enter the IP address of the Real Server to be added.
- 11. Enter the port of the Real Server.
- 12. Click Submit.

3.7.2 Add Real Server to Virtual Service

A Real Server can be added to a Virtual Service via Orchestrator by running the **Add Real Server to Virtual Service** workflow.





🧭 Start Workflow : Add Real Server To Virtual Service		
1 Authentication 2 Real Server Configuration	★ Enter the username for the LoadMaster	
	bal	
	* Enter the password for the LoadMaster	

	Select the SSL certificate provided by the LoadMaster (optional)	
	(Not set	

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Real Server Configuration.

🥑 Start Workflow : Add Real Server To Virtual Service		
 Authentication 2 Real Server Configuration 	Select the Virtual Service to add the Real Server to Not set Enter the IP address of the Real Server Enter the port of the Real Server	

4. Click Not set.



✓ Select (KEMP:VirtualService)		
	VirtualService - Ex	ample Load Master > Vs 1
	General Custom p	properties
🔻 K KEMP		*
Example Load Master	•	
 V Example Load Master > Vs 1 (10 154 178 151) D Certificate Backups D 0 utrational 	Inventory ID	Example LoadMaster > VS 1 (
 D Certificates D Load Master Backups D Patches 	Service Name	Top Level
	LoadMaster ID	1
	Real Servers	0
	Service Status	Down
	Service IP	10.154.178.151
	Service Port	80
	Convice Protocol	* <u>*</u>
		Cancel Select

- 5. Expand the Kemp directory.
- 6. Expand the relevant LoadMaster.
- 7. Select the relevant Virtual Service.
- 8. Click Select.



🍯 Start Workflow : Add Real Server To Virtual Service		
 Start Workflow : Add Real Server To Virtual Ser 1 Authentication 2 Real Server Configuration 	vice * Select the Virtual Service to add the Real Server to Example Load Master > Vs 1 (10 154 178 151) * Enter the IP address of the Real Server 10.154.11.63 * Enter the port of the Real Server 80	
	Cancel Back Next Submit	

- 9. Enter the IP address of the Real Server.
- 10. Enter the port of the Real Server.
- 11. Click Submit.

3.7.3 Remove Real Server

A Real Server can be removed by running the **Remove Real Server** workflow.



🥑 Start Workflow : Remove Real Serve	r
Common Parameters	* Enter the username for the LoadMaster
	bal
	* Enter the password for the LoadMaster

	Select the SSL certificate provided by the LoadMaster (optional)
	(Not set
	* Select the Real Server to be removed
	(Not set

1. Enter the username and password to access the LoadMaster.

2. Specifying the SSL certificate is optional - this is the certificate file used to authenticate to the LoadMaster (the root LoadMaster certificate).

3. Click Not set in the Select the Real Server to be removed field.



Select (KEMP:RealServer)		—
	RealServer - Ex	ample Load Master > Vs 1 (10
	General Custo	om properties
 KEMP KEMP KExample Load Master V Example Load Master > Vs 1 (10 154 178 151) S Example Load Master > Vs 1 (10 154 178 15 R Example Load Master > Vs 1 (10 154 178 15 C Example Load Master > Vs 1 (10 154 178 15 D Certificate Backups D Certificates D Load Master Backups D Patches 	Inventory ID Owning Service Server IP	Example LoadMaster > VS 1 (10.154 VS 1 (10.154.178.151:80/tcp) > SubV 10.154.11.62
	Server Port	80
	Server Status	Down
•	•	Cancel Select

- 4. Expand the Kemp directory.
- 5. Expand the relevant LoadMaster.
- 6. Expand the Virtual Service and/or SubVS.
- 7. Select the relevant Real Server.
- 8. Click Select.

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🧿 Start Workflow : Remove Real Server	r	×
Common Parameters	* Enter the username for the LoadMaster	
	* Enter the password for the LoadMaster	
	Select the SSL certificate provided by the LoadMaster (optional)	
	★ Select the Real Server to be removed ● Example Load Master > Vs 1 (10 154 178 151) > Sub Vs 2 > 10 154 11 62 80	8
	Cancel	Submit

9. Click Submit.



4 Uninstall the Kemp Orchestrator Plugin

There are three steps that need to be completed in order to uninstall the Kemp Orchestrator plugin. Refer to the sections below for step-by-step instructions.

4.1 Uninstall the Workflows

The first step is to uninstall the workflows. To do this, follow the steps below:



1. Select **Design** from the drop-down menu in the top-left of the screen.

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2. Select the packages tab (orange icon).

		🗘 😫 🖸	Q 🥖
😫 🄅 🗟	🛃 🚺 🌉	General W	orkflows Policy Templates Actions
om.kemptechnologie	P)
com.vmware.library	🔾 Export package		
om.vmware.library.a	👫 Expand package to folde	r	
om.vmware.library.	🔄 Rebuild Package		com.kemptechnologies
om.vmware.library.ł	Locking	►	KEMP Technologies
com.vmware.library.r	Validate workflows		KEMP LoadMaster workflow package
com.vmware.library.g	X Delete		
om.vmware.library.p	X Delete element with cont	ent	
com.vmware.library.s	Tools		
com.vmware.library.s			-
om.vmware.library.s	Synchronize		-
com.vmware.library.t	🥖 Edit	Ctrl+E	


- 4 Uninstall the Kemp Orchestrator Plugin
 - 3. Right-click com.kemptechnologies and select Delete element with content.

Delete confirmation	
	Delete element with content.
?	Do you really want to remove this element with all its content ? Warning, elements shared with others packages will be deleted.
	Cancel Keep shared DELETE ALL !

4. Click **DELETE ALL**.

ing, pleas	se wait			
a alamant 4				
g element 40	8/52			

5. Wait for the deletion to complete.

Now that the workflows have been uninstalled, the Kemp plugin can be uninstalled. Follow the steps in the next section to do this.

4.2 Remove the Kemp Orchestrator Plugin

Then, after uninstalling the workflows - follow these steps:

- 1. Remotely connect to the Orchestrator server.
- 2. Navigate to the Orchestrator plugins folder:

cd /var/lib/vco/app-server/plugins

3. Remove the Kemp Orchestrator plugin by running the following command:

rm <KempPluginFilename>.dar

Now that the Kemp Orchestrator plugin has been removed, the service needs to be restarted for the changes to be applied.

4 Uninstall the Kemp Orchestrator Plugin



4.3 Restart the Service

After uninstalling, restart the service to complete the uninstallation. To do that, follow the steps below:

1. In a web browser, navigate to the IP address of the Orchestrator server followed by the :8281 port.

Configure the Orchestrator Server

To make additional configuration changes to the Orchestrator server, use the Orchestrator configuration interface:

- Orchestrator Configuration
- Orchestrator Control Center (Beta)

2. Click the Orchestrator Configuration link.

VMware vRealize [®] Orchestrator [®]			
Welcome Enter your username	and password to login in VMware vRealize Orchestrator Configuration		
Username:	vmware		
Password:	Login		

3. Enter the Orchestrator credentials and click Login.

4 Uninstall the Kemp Orchestrator Plugin



General General
Network
Authentication
Database
Rerver Certificate
Licenses
Startup Options
Server Availability

4. Click Startup Options on the left.

Server startup options				
vRO Server				
Status	Running	C Refresh		
Start service				
Stop service				
Restart service				
vRO Configuration Server				

5. Click Restart service.



6. Wait for the service to restart.

4 Uninstall the Kemp Orchestrator Plugin



Server startup options

A message will appear when the service has been restarted.

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5 Appendix A - Get and Set Parameters

A number of LoadMaster fields can be retrieved and set using the **Get Parameter** and **Set Parameter** workflows. The fields are retrieved and set using API parameters. The list of API parameters that can be used are listed below. For descriptions of what each of the parameters correspond to, please refer to the **Java API**, **Interface Description** or the **RESTful API**, **Interface Description**.

- dfltgw
- dfltgwv6
- admingw
- snat
- hatimeout
- hawait
- haprefered
- hamode
- haif
- havhid
- hastyle
- hainitial
- tcpfailover
- cookieupdate
- vmac
- sshaccess
- sshport
- sshv1prot

5 Appendix A - Get and Set Parameters



- wuiaccess
- mcast
- wuiiface
- wuiport
- sshiface
- hoverhelp
- routefilter
- transparent
- alwayspersist
- expect100
- localbind
- addcookieport
- subnetoriginating
- nonlocalrs
- multigw
- addforwardheader
- conntimeout
- authtimeout
- finalpersist
- tcptimestamp
- paranoia
- cachesize
- hostcache
- resetclose
- rfcconform
- keepalive

5 Appendix A - Get and Set Parameters



- backupday
- backupenable
- backuphost
- backuphour
- backupminute
- backuppassword
- backuppath
- backupuser
- backupuser
- emailuser
- emaildomain
- emailpassword
- emailserver
- emailsslmode
- emailport
- emailcritical
- emailemergency
- emailerror
- emailinfo
- emailnotice
- emailwarn
- addvia
- allowupload
- dropatdrainend
- droponfail
- closeonerror

5 Appendix A - Get and Set Parameters



• limitinput

rsarelocal

slowstart

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- subnetorigin
- syslogcritical
- syslogemergency
- syslogerror
- sysloginfo
- syslognotice
- syslogwarn
- sslrenegotiate
- emailenable
- irqbalance
- snmpenable
- snmpV3enable
- snmpv3user
- snmpv3userpasswd
- snmpcontact
- snmpcommunity
- snmplocation
- snmpHaTrap
- snmpv1sink
- snmpv2sink
- snmpclient
- snmptrapenable
- motd

5 Appendix A - Get and Set Parameters



- wuidisplaylines
- linearesplogs
- onlydefaultroutes
- sessionauthmode
- sessionidletime
- sessionmaxfailattempts
- sessioncontrol
- sessionlocalauth
- ntphost
- netconsole
- netconsoleinterface
- namserver
- radiusbackupport
- radiusbackupsecret
- radiusbackupserver
- radiusport
- radiussecret
- radiusserver
- radiusrevalidateinterval
- ldapserver
- Idapbackupserver
- Idapsecurity
- Idaprevalidateinterval
- geoclients
- geopartners
- geosshport

5 Appendix A - Get and Set Parameters



- ha1hostname
- ha2hostname
- hostname
- searchlist
- timezone
- admincert
- localcert
- time
- ntphost
- version
- Tethering
- multihomedwui
- logsplitinterval
- allowemptyposts
- OCSPPort
- OCSPUseSSL
- OCSPOnServerFail
- OCSPServer
- OCSPUrl
- SSLStapling
- SSLRefreshInterval
- L7LimitInput
- sdnstatsmode

6 Appendix B - Memory and CPU Usage Details



6 Appendix B - Memory and CPU Usage Details

The memory and CPU utilization details relating to the Kemp Orchestrator plugin are summarized in the tables below.

The below table shows the specifications of the Orchestrator server that was used when running the tests.

Specification	Туре
Hypervisor	VMware vSphere
Memory	3GB
CPU	Dual-core @ 2.0GHz

The below table shows the approximate range of memory usage when the plugin is and is not installed.

Plugin Installed?	Memory Usage
Without plugin installed	381MB -> 395MB
With plugin installed	394MB -> 410MB
With plugin installed (load: ~600 objects)	454MB -> 463MB

The below table shows the CPU usage percentages in various states.

State	CPU Usage
Without plugin installed	~1%
With plugin installed	~1%
Expanding tree view (load: ~100 objects)	~8%
Expanding tree view (load: ~500 objects)	~19%
Empty workflow	~13%

6 Appendix B - Memory and CPU Usage Details



Configure Server Availability workflow	~17%
Add LoadMaster workflow (load: 0 objects)	~17%
Add LoadMaster workflow (load: ~500 objects)	~40%
Remove LoadMaster workflow (load: 0 objects)	~17%
Remove LoadMaster workflow (load: ~500 objects)	~28%

References





Unless otherwise specified, the following documents can be found at http://kemptechnologies.com/loadmaster-documentation.

Java API, Interface Description

RESTful API, Interface Description



Last Updated Date

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