

System requirements - 2 vCPU, 4 GB RAM, 14 GB

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- An existing VC6.0 installation (VCSA or Windows). The H5 client appliance will need 4 GB RAM, 2 vCPUs and the hard disk will grow up to 14 GB.
- Recommended browsers: Chrome, Firefox, IE11. Others may work, with some functional or layout issues.
- Windows vCenter: Was tested with a vCenter on Windows Server 2012 R2, but should work with other versions as well. Please report any issues.

Step 1: Instructions to setup your instance of vSphere H5 client

Configure using Fling Appliance Management Interface (FAMI):

Supported Scenarios:

	Configuration using FAMI	Update using FAMI	Command Line Interface
Fling version \leq 1.16	NO	NO	YES
Fling (VCSA) version \geq 1.17	YES	YES	YES
Fling (Windows VC) version \geq 1.17	NO	YES	YES

- FAMI is **supported** only with **fling v1.17 and above**
- Configuration through FAMI is **not supported** for Windows vCenter
- Configuration through FAMI for external PSC needs additional steps, refer external PSC section.

1. Enable SSH on vCenter (VCSA) for setting up the appliance (you can disable ssh once setup is done).
2. For fling autoregistration commands to work, we have to enable bash as the default shell. Follow below steps set bash as default shell

```
'CHSH Method to change the shell on VCSA''
```

- a. Initiate an SSH connection to the vCenter Server Appliance.
- b. Provide the root username and password when prompted.
- c. If your screen looks like this, you are on the appliancesh, continue to the next step. If it looks like a normal shell prompt, skip to step (f)

```
Connected to service
```

```
* List APIs: "help api list"  
* List Plugins: "help pi list"  
* Enable BASH access: "shell.set --enabled True"  
* Launch BASH: "shell"  
Command>
```

- d. Run the following command to enable the Bash shell: **shell.set --enable True**
- e. Run the following command to access the Bash shell: **shell**
- f. In the shell, run the following command to change the default shell:
/usr/bin/chsh -s "/bin/bash" root
- g. (OPTIONAL):if you want to reset the default shell to appliancesh, run below command:
/usr/bin/chsh -s /bin/appliancesh root

3a. If you are doing a fresh OVA/OVF deploy

1. Deploy the OVA using **OVFTool** or **vSphere Web Client** or **ESXi Host Client** and power on the VM (**Desktop client may work as well**).
2. Power ON the VM
3. Go to the <https://<H5 Appliance IP Address>:5490>
4. Login with your credentials (root/demova).
5. You should see the configure page where you can provide the SSO server, username, password and NTP to configure your H5 against the desired VC
6. Click configure button.
7. You should see the progress of the configure process along with the logs.
8. You will see the URL to use the H5 client once the configure is successful.
9. You will see the stop server button on the page and this can be used to stop the H5 server whenever needed. Once the server is stopped, you will see the start server button which can be used to start the H5 client when needed.
10. Once a next version is released, you can see the update vSphere Client button enabled when you login to the FAMI.

3b. If you are updating using the BSX file

1. Go to the [https:// <H5 Appliance IP Address>:5490](https://<H5 Appliance IP Address>:5490). You should see the login page of the FAMI. Login with your credentials (root/demova).
2. You should see the current H5 client configuration details.
3. You will see the stop server button on the page and this can be used to stop the H5 server whenever needed. Once the server is stopped, you will see the start server button which can be used to start the H5 client when needed.
4. Once a next fling version is released, you can see the update vSphere Client button enabled when you login to the FAMI.

Known Issues:

1. TL; DR – Update through FAMI only works if you have the H5 client configured. Perform fresh OVF/OVA deploy and login to the FAMI. You will be seeing the configure page. On this page, you will find the update vSphere client button enabled. Clicking on this button will not update the H5 client. Please configure the H5 client and then click on the update button.
2. Currently FAMI does not list the current version of the H5 client in the UI. To get the current version, please log in to the H5 client.

Configure using Command Line Interface:

For VCSA with embedded PSC

1. Enable SSH on vCenter (VCSA) for setting up the appliance (you can disable ssh once setup is done).
2. For fling autoregistration commands (Step#6) to work, we have to enable bash as the default shell.
Follow below steps set bash as default shell

'CHSH Method to change the shell on VCSA''

- h. Initiate an SSH connection to the vCenter Server Appliance.
- i. Provide the root username and password when prompted.
- j. If your screen looks like this, you are on the appliancesh, continue to the next step. If it looks like a normal shell prompt, skip to step (f)

Connected to service

- * List APIs: "help api list"
 - * List Plugins: "help pi list"
 - * Enable BASH access: "shell.set --enabled True"
 - * Launch BASH: "shell"
- Command>

- k. Run the following command to enable the Bash shell: **shell.set --enable True**
- l. Run the following command to access the Bash shell: **shell**
- m. In the shell, run the following command to change the default shell:
/usr/bin/chsh -s "/bin/bash" root
- n. (OPTIONAL):if you want to reset the default shell to appliancesh, run below command:
/usr/bin/chsh -s /bin/appliancesh root

3. Deploy the OVA using **OVFTool** or **vSphere Web Client** or **ESXi Host Client** and power on the VM (**Desktop client may work as well**).
4. SSH as root into the H5 client appliance VM (Note: password is **demova**)
5. IF YOUR VC IS OPERATING BEHIND DNS, you will need to do the following steps
 - a) Add your dns server to **/etc/resolv.conf**
 - b) restart networking: **service network restart**
6. Register the appliance against your VC server (the command can take a few minutes to complete):

```
/etc/init.d/configui configure --start yes --user root --vc <IP_Address_Of_vCenter>
```

If you want to set a separate NTP server -

```
/etc/init.d/configui configure --start yes --user root --vc  
<IP_Address_Of_vCenter> --ntp <your_NTP_server>
```

Note: The configui command is used only to configure the appliance and it's communication with vcenter. To manage the h5client server, continue to use vsphere-client command (Refer: Appliance server commands section under 'Helpful Tips' in this document for details).

7. Check that the times match on the appliance and the SSO/PSC server (run 'date' on both. If they don't match check the Helpful Tips section of the PDF)

```
-bash-4.1$ date  
Mon Feb 29 11:29:01 PST 2016
```

- Optional: (If you changed the shell on VCSA for this configuration) Return to the Appliance Shell by running the following command on the VCSA:

```
/usr/bin/chsh -s /bin/appliancesh root
```

8. For fling **1.7 deployments ONLY**, please run below command after installation:

```
/etc/init.d/configui stop
```

For VCSA with external PSC:

1. Enable SSH on PSC for setting up the appliance (you can disable ssh once setup is done).
2. For fling autoregistration commands (Step#6) to work, we have to enable bash as the default shell. Follow below steps set bash as default shell

'CHSH Method to change the shell on VCSA''

- o. Initiate an SSH connection to the vCenter Server Appliance.
- p. Provide the root username and password when prompted.
- q. If your screen looks like this, you are on the appliancesh, continue to the next step. If it looks like a normal shell prompt, skip to step (f)

Connected to service

- * List APIs: "help api list"
- * List Plugins: "help pi list"
- * Enable BASH access: "shell.set --enabled True"
- * Launch BASH: "shell"

Command>

- r. Run the following command to enable the Bash shell: **shell.set --enable True**
- s. Run the following command to access the Bash shell: **shell**
- t. In the shell, run the following command to change the default shell:
/usr/bin/chsh -s "/bin/bash" root
- u. (OPTIONAL):if you want to reset the default shell to appliancesh, run below command:
/usr/bin/chsh -s /bin/appliancesh root

3. Deploy the OVA using **OVFTool** or **vSphere Web Client** or **ESXi Host Client** and power on the VM (**Desktop client may work as well**).
4. SSH as root into the H5 client appliance VM (Note: password is **demova**)
5. IF YOUR VC IS OPERATING BEHIND DNS, you will need to do the following steps
 - a. Add your dns server to **/etc/resolv.conf**
 - b. restart networking: **service network restart**
5. SSH to PSC with root and run below commands:

```
#mkdir -p /etc/vmware/vsphere-client/cmCatalog  
#mkdir -p /etc/vmware/vsphere-client/config
```

```
#scp -rp root@<VC_IP_ADDRESS>:/etc/vmware/vsphere-  
client/cmCatalog/*  
#scp -rp root@<VC_IP_ADDRESS>:/etc/vmware/vsphere-  
client/config/* /etc/vmware/vsphere-client/config/
```

6. Register the appliance against your VC server (the command can take a few minutes to complete):

```
/etc/init.d/configui configure --start yes --user root --vc <IP_Address_Of_PSC>
```

For windows VC with embedded PSC

1. Copy the provided 'server-configure.bat' to any directory on the vCenter for Windows. (This file is one of the Fling downloads on the top left)
2. **NOTE: If you have installed vCenter into any folder other than default (%PROGRAMFILES%), the script may not find the appropriate files.** You will need to edit the file and replace the two references to %PROGRAMFILES% with the appropriate path so that the "KEYTOOL" and "VECS_CLI" paths line up. These two variables are at the top of the file.

You may also need to change this at the end of the file to the correct path (this is for the ds.properties file):

```
SET CLIENT_DIR=%PROGRAMDATA%\VMware\CenterServer\cfg\vsphere-client
```

3. Open an Administrator Command Prompt and run the 'server-configure.bat' script. The following files will get generated:

```
i) store.jks  
ii) ds.properties  
iii) webclient.properties
```

4. Deploy the H5 client OVA using OVFTool or vSphere Web Client or ESXi Host Client and power on the VM (Desktop client may work as well).
5. SSH as root into the H5 client appliance VM (Note: password is demova)

```
mkdir /etc/vmware/vsphere-client/  
mkdir /etc/vmware/vsphere-client/config  
mkdir /etc/vmware/vsphere-client/vsphere-client/  
mkdir /etc/vmware/vsphere-client/vsphereFeatures
```

6. Copy the files to H5 client virtual appliance at the following locations:

```
i) /etc/vmware/vsphere-client/store.jks  
ii) /etc/vmware/vsphere-client/config/ds.properties  
iii) /etc/vmware/vsphere-client/vsphere-client/webclient.properties
```

If you want to set an NTP server - Add NTP servers using the following command, where NTP servers are comma separated, e.g., 0.pool.ntp.org,1.pool.ntp.org,2.pool.ntp.org,3.pool.ntp.org

```
/etc/init.d/configui ntp_servers <comma_separated_ntp_servers>
```

7. IF YOUR VC IS OPERATING BEHIND DNS, you will need to do the following steps
 - a) Add your dns server to **/etc/resolv.conf**
 - b) restart networking: **service network restart**

8. Check that the times match on the appliance and the SSO/PSC server (run 'date' on both. If they don't match check the Helpful Tips section of the PDF)

H5 appliance (Linux) or VCSA external PSC. **Note this is 24H UTC format**

```
-bash-4.1$ date -u  
Tue Mar 1 01:05:10 UTC 2016
```

Windows. **Note this is 12H localized format** (Here it is Pacific Time = UTC-8)

```
C:\> date /T & time /T  
Mon 02/29/2016  
05:05 PM
```

9. Log into the H5 appliance and run this command to start the server:

```
/etc/init.d/vsphere-client start
```

Step 2: Accessing vSphere H5 client

Once the installation steps above are completed, point your browser to this URL, and log in with your normal vCenter credentials:

```
https://<H5_Appliance_IP_Address>:9443/ui
```

As of fling 1.7 and above, below URLs should work without opening up any ports via firewall configuration.

```
https://<H5_Appliance_IP_Address>:9443/vsphere-client  
https://<H5_Appliance_IP_Address>/ui  
https://<H5_Appliance_IP_Address>/vsphere-client
```

As of Fling v1.2 till fling 1.7, these link should also work:

```
https://<H5_Appliance_IP_Address>:9443/vsphere-client
```

If you want to avoid typing in the port number, you may have to run this script, then the following links would work:

```
/usr/lib/vmware-vmtoolsd/scripts/firewall.sh
```

```
https://<H5_Appliance_IP_Address>/vsphere-client  
https://<H5_Appliance_IP_Address>/ui
```

Helpful Tips

Upgrade Flow

- 1) Check the H5client build number (top right corner) Help -> About VMware vSphere.
- 2) `/etc/init.d/vsphere-client stop`
- 3) `wget [new installer-<version>.bsx file]`

NOTE:

You may need to use the '--no-check-certificate' flag if your wget fails due to certificate checks

You may also need to use '--execute https_proxy=<proxy-fqdn>:<proxy-port>' if you have a proxy to work through

- 4) `chmod 777 installer-<version>.bsx`
- 5) `./installer-<version>.bsx`
- 6) `/etc/init.d/vsphere-client start`

7) After the server starts, go to the H5client and check the build number again, and it should now read <new-buildnumber>, which indicates success!

8) (Optional) Let us know if you successfully upgraded by using Feedback tool (smiley face). Any workarounds for issues you encountered would be great to hear too! Please start these comments with "UPGRADE:" if you can.

Downgrade Flow

------(OPTIONAL) DOWNGRADE FLOW-----

The downgrade flow is very similar, but the 'rpm' command is slightly different (step 4 from above). Also this 'rpm' is still in process of being uploaded to the Fling site.

1) rpm -Uvh --oldpackage ./<old rpm>

NOTE: you may get some errors 'ln: failed to create symbolic link...'.
Ignore these.

Reinstall RPM

--replacepks

If during RPM deployment you run into issues or cancel the command, you may end up in an unknown state. Including this flag will force rpm to reinstall the package cleanly.

NTP servers - synchronizing time

- If you do not have NTP servers for time synchronization, set the date of the web client VM so that it is in sync (within a few seconds) with the SSO server.
- Please also keep in mind the timezone differences, e.g., the following two date/times are the equivalent:

Coordinated Universal Time (UTC)	Pacific Time (PT = UTC8)
1:05 AM Tuesday, March 1, 2016	5:05 PM Monday, February 29, 2016

1. Get the time from the SSO/PSC

VCSA. **Note the 24H UTC format**

```
# date  
Tue Mar 1 01:11:28 UTC 2016
```

Windows. **Note the 12H localized format:**

```
C:\> date /T & time /T  
Tue 03/01/2016  
05:11 PM
```

2. Set the time on the H5 appliance (**Note the 24H UTC format**)

```
date -s "01:11:28"
```

Or if you need to set the date as well

```
date -s "Mar 1 01:11:28"
```

Or if you know your local time zone which the PSC is synced to:

```
date -s "Feb 29 17:11:28 PST"
```

- NTP server inside vmware - **time.vmware.com**

OVFTool deploy sample command

- Sample command if using OVFTool (You can optionally use the **-dm=thin** option to deploy the appliance with thin provisioned disks.)
- Replace **<username>**, **<password>**, **<host>** and **<ova_file_location_from_labs_site>** in the command below as appropriate

```
./ovftool -dm=thin --net:'Network 1=Integration Test Network' -  
datastore='datastore1 (3)' --name='VM_UI' --acceptAllEulas --powerOn  
https://<ova_file_location_from_labs_site> vi://<username>:<password>@<host>
```

Appliance server commands

- Start the virgo server

```
/etc/init.d/vsphere-client start
```

- Get the status of the server

```
/etc/init.d/vsphere-client status
```

- Stop the virgo server

```
/etc/init.d/vsphere-client stop
```

- Restart the virgo server

```
/etc/init.d/vsphere-client restart
```

- Tail the virgo server log file

```
/etc/init.d/vsphere-client tail_log
```

- Shows the virgo server log file

```
/etc/init.d/vsphere-client show_log
```

- Adds NTP servers to /etc/ntp.conf, comma separated, e.g.,
0.pool.ntp.org,1.pool.ntp.org,2.pool.ntp.org,3.pool.ntp.org

```
/etc/init.d/configui ntp_servers
```

Automatic start on boot-up of a configured Appliance

On boot-up of the Virtual Appliance it will automatically start the server, if it is configured, you can use the following commands to view the current status:

- While the server is being initialized, you will see the following output:

```
/etc/init.d/vsphere-client status  
vSphere Client Web Server application is being initialized
```

- When the server finishes initialization, you will see the following output:

```
/etc/init.d/vsphere-client status vSphere  
Client Web Server is started
```

Uninstall/unregister HTML5 web client:

When we configure the HTML5 web client appliance (referred as *appliance*) to connect to VC, certificates and properties files are created locally in the *appliance*. VC does not need to know about the HTML5 client's connection, so no entries are created in the VC. To uninstall/unregister the HTML5 web client, just power off the *appliance* VM and delete it.

Changing the default shell to Bash on VCSA

```
'CHSH Method to change the shell on VCSA''
```

1. Initiate an SSH connection to the vCenter Server Appliance.
2. Provide the root user user name and password when prompted.
3. Check your existing shell by running the command "ps -p \$\$"
If the returned value in the "CMD" column is not bash, then continue.
Otherwise return to deployment steps
4. Run the following command to enable the Bash shell:
shell: shell.set --enable
True
5. Run the following command to access the Bash shell:
shell: shell
6. In the Bash shell, run the following command to change the default shell to Bash: /usr/bin/chsh -s "/bin/bash" root

“[400] An error occurred while sending an authentication request to the vCenter Single Sign-On server - An error occurred when processing the metadata during vCenter Single Sign-On setup - null. Check the vSphere Web Client server logs for details.”

The most common cause for this issue is that the times on the appliance and the SSO/PSC server mismatch too much.

Check this by running the "date -u" command on both, and following the "NTP servers - synchronizing time" section above. Changing the time should take after ~30 seconds and not require a server stop/start.

“HTTP Status 400 – An error occurred while sending an authentication request to the vCenter Single Sign-On server – An error occurred when processing the metadata during vCenter Single Sign-On setup – java.net.UnknownHostException:

This error may be due to certificates combined with dns/fqdn issues. Try running this command on the H5client appliance:

```
/etc/init.d/vsphere-client tail_log
```

And see if you see an error like:

```
[ERROR] http-bio-9443-exec-5 70000035 100002 #####  
c.v.vsphere.client.security.websso.WebssoLoginRequestHandler  
javax.servlet.ServletException: An error occurred when processing the metadata  
during vCenter Single Sign-On setup – java.net.UnknownHostException:  
<vcenterdnsname>.
```

A user was able to work around this issue by doing these things on the H5 client appliance:

- 1) Add your dns server to `/etc/resolv.conf`
- 2) restart networking: **service network restart**
- 3) rerun the `'/etc/init.d/configui configure'` command using fqdn instead of IP address (this may not be necessary, restarting the server may be sufficient)

"HTTP Status 400 - An error occurred while sending an authentication request to the vCenter Single Sign-On server - An error occurred when processing the metadata during vCenter Single Sign-On setup - Keystore to be used for remote connections is null.."

Check the `/etc/vmware/vsphere-client/vsphere-client/webclient.properties` file for the line `"keystore.jks.path="` and confirm that the file pointed to exists (it is a binary file, and should be at least a few kb)

If this file exists and is correctly pointed to, try stopping and starting the server

```
/etc/init.d/vsphere-client restart
```

Wait till the command finishes, then reconnect to the Web Client It's possible the 'start' command will report a failure, but the server has started successfully (ie. you can connect to the client). This is a known bug.

"HTTP Status 401 : (description) This request requires HTTP authentication."

This can be caused by the same time sync issue as above. Check the time on both the PSC and the appliance and make sure they are close to each other (no more than a few minutes off). If syncing the times does not fix the problem, try rerunning the configuration command, or regenerating the files on the Windows vCenter

(PowerCLI) Import-VApp : ... Import-VApp The certificate used to sign the OVF package is not valid.

When importing using PowerCLI, you may run into this error. You can bypass this by using the “-force” flag

“mkdir not found” when running ‘configure’ command for VCSA install flow

This occurs because the shell on the VCSA has not been set to be ‘bash’, and is likely ‘applianceash’. Please see “Changing the default shell to Bash on VCSA” tip for instructions.

HTTP Status 400 - An error occurred while sending an authentication request to the vCenter Single Sign-On server - An error occurred when processing the metadata during vCenter Single Sign-On setup - javax.net.ssl.SSLHandshakeException: sun.security.validator.ValidatorException: PKIX path building failed: sun.security.provider.certpath.SunCertPathBuilderException: unable to find valid certification path to requested target.

This was reported specifically when a user was making an Embedded PSC -> External PSC migration. To fix this problem, just repeat the appliance configuration steps against the vCenter again (Windows or VCSA, and specifically not the now external PSC).

Fling 1.7 ova has a bug which is causing the server to become unresponsive after some time. If your HTML5 Web Client gives connection refused error, please restart the appliance and after the restart, run below command through a SSH session.

```
/etc/init.d/configui stop
```

If you don't see any inventory in the HTML5 client after you connect it with the vCenter, check if you are running any adBlockers in your browsers. Disabling adBlockers might resolve the issue with the display of inventory.

If you see labels appear with texts (code formatted strings) like summaryView.guestFullName, this happens (very rarely) when the

server boots and a connection is made very quickly. The browser is probably caching some file that doesn't have the labels. Chrome is especially bad at this (caching and not refreshing things even when requested).

This usually solves itself, but other ways to try it:

- 1) Incognito tab
- 2) another browser
- 3) restart the h5client server and wait 30sec after the 'started successfully' message before connecting

If you add a 2nd vCenter in the enhanced linked mode after the HTML5 web client is configured with the 1st vCenter, you need to run the configure command again for the HTML5 web client to pull the new certificates.

```
/etc/init.d/configui    configure    --start    yes    --user    root    --vc  
<IP_Address_of_vCenter> --ntp <ntp_server_IP_Address>
```

Certain version of IE (10 and 11) will not load HTML5 web client due to below issues.

IE 10: An exception is thrown when we try to access the local storage on IE10 because of what seems to be Windows security setting. The issue is documented in detail here - <http://stackoverflow.com/questions/13102116/access-denied-for-localstorage-in-ie10> .

There is a workaround to access HTML5 web client in IE10. Execute below command from the windows machine:

```
icacls %userprofile%\Appdata\LocalLow /t /setintegritylevel (OI)(CI)L
```

IE 11: IE11 throws a set of javascript errors in the browser console and does not load HTML5 web client. Accessing HTML5 web client in an InPrivate session fixes this problem.

[400] An error occurred while sending an authentication request to the vCenter Single Sign-On server - An error occurred when processing the metadata during vCenter Single Sign-On setup - java.net.SocketTimeoutException: connect timed out. Check the vSphere Web Client server logs for details.

If H5 appliance is sitting behind the firewall talking to public VC then, adding host entry for this appliance should resolve the issue.