

APC: 877

ISSUE DATE: Apr-2023

EXPIRATION DATE: 30-Apr-2024 Bulletin Type: Informational Only

Motorola Solutions Technical Notification (MTN)

TITLE: Failure to login to vCenter 6.5 due to certificates expired

TECHNOLOGY: ASTRO 25

SYMPTOMS:

- 1. Cannot login to the vCenter via vCenter web client.
- 2. UEM failed to login with MotoMaster account and caused UEM to generate commFailure alarms on all virtual servers managed by vCenter.

MODELS / SYSTEM RELEASES / KITS / DATECODES AFFECTED:

A2019.2 - systems with HA vCenter 6.5 installed

SEVERITY RECOMMENDATION:

High / Safety - Perform Immediately

The Astro system is working and there are no disruptions in voice services, however, fault management and any operational or maintenance action on the vCenter Appliance are not possible.

ROOT CAUSE:

Third-Party: VMware Security Token Service (STS) certificate is about to expire due to the default installation parameter set to 2 years.

DEFINITIVE TEST:

Prerequisites Obtain the root credentials for vCenter Appliance, Obtain the administrator credentials for vCenter Appliance Download the fixsts.sh and checksts.py script files. Download links listed in the section PARTS REQUIRED. Open SSH console to the vCenter Appliance (use root credentials) and execute the command shell Execution the date command and note the current date and time configured on the vCenter Appliance Guest OS. example output: root@z002vcs1 [~]# date Sat Jan 4 21:08:38 UTC 2025

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3 List certificates by executing the following command:

for i in \$(/usr/lib/vmware-vmafd/bin/vecs-cli store list); do echo STORE \$i; sudo /usr/lib/vmware-vmafd/bin/vecs-cli entry list --store \$i --text | egrep "Alias|Not After"; done

Verify that the output contains already expired certificates, in particular, the certificate referred by 'STORE machine'

example output:

root@z002vcs1 [~]# for i in \$(/usr/lib/vmware-vmafd/bin/vecs-cli store list); do echo
STORE \$i; sudo /usr/lib/vmware-vmafd/bin/vecs-cli entry list --store \$i --text | grep -E
"Alias|Not After"; done

STORE MACHINE_SSL_CERT
Alias : __MACHINE_CERT

Not After: Jan 5 04:43:28 2024 GMT

STORE TRUSTED_ROOTS

Alias: 5e48c7fcac8176e5a6a14a90b5b7f22fe7ca3e21

Not After : Dec 30 16:43:28 2031 GMT

STORE TRUSTED_ROOT_CRLS

Alias : c4bc0e928879d9e8a367b51aee0f90c54de4c2b2

STORE machine
Alias: machine

Not After: Jan 4 16:34:23 2024 GMT

STORE vsphere-webclient
Alias : vsphere-webclient

Not After: Jan 4 16:34:23 2024 GMT

STORE vpxd
Alias : vpxd

Not After: Jan 4 16:34:24 2024 GMT

STORE vpxd-extension
Alias : vpxd-extension

Not After: Jan 4 16:34:24 2024 GMT

STORE SMS

Alias: sms_self_signed



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```
Not After: Jan 4 16:49:56 2032 GMT
       root@z002vcs1 [ ~ ]#
4
       Upload the checksts.py scripts to vCenter Appliance
       To allow uploading files over scp protocol, the shell for root account needs to be changed first.
          a. Open SSH console to the vCenter Appliance (use root credentials)
          b. change the default shell on vCenter Appliance guest OS by executing the following command:
              root@z002vcs1 [ ~ ]# chsh -s /bin/bash root
             upload the checksts.py file to vCenter Appliance to /tmp directory using an SCP client,
5
      Verify STS certificate by executing the command on SSH console:
       root@z002vcs1 [ /tmp ]# python checksts.py
       Check if the output contains the following message:
       WARNING! You have expired STS certificates. Please follow the KB corresponding to your
       os
      Example output from the command:
       root@z002vcs1 [ /tmp ]# python checksts.py
      1 VALID CERTS
       ==========
               LEAF CERTS:
               None
               ROOT CERTS:
                [] Certificate 5E:48:C7:FC:AC:81:76:E5:A6:A1:4A:90:B5:B7:F2:2F:E7:CA:3E:21 will
      expire in 2551 days (6.0 years).
      1 EXPIRED CERTS
       ==========
               LEAF CERTS:
                [] Certificate: A3:40:F9:65:E5:26:B1:D4:42:7C:1B:9B:CE:B4:5C:DB:D3:0C:6D:48
      expired on 2024-01-04 16:33:43 GMT!
                ROOT CERTS:
               None
           WARNING!
```



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You have expired STS certificates. Please follow the KB corresponding to your OS:

VCSA: https://kb.vmware.com/s/article/76719

Windows: https://kb.vmware.com/s/article/79263

root@z002vcs1 [/tmp]#

WORKAROUNDS AND CORRECTIVE ACTIONS:

Not Applicable

RESOLUTIONS AND REPAIR PROCEDURES:

Warning:

This script interacts with the VMDIR's database. Take an offline snapshot for vCenter Servers before running the script. Failing to do so may result in an unrecoverable error and require redeploying vCenter Server.

1	Login do the ESXi Host Client on the VMS hosting the vCenter Appliance VM using the administrator's credential Note : vCenter Appliance VM might be hosted on VMS02 (default) or VMS01
2	Reenable snapshots if needed
	a. On the Navigator panel select
	b. On the list of Virtual Machines right-click the VCS VM
	c. On the context menu click the <i>Edit Settings</i>
	d. On the Edit Settings dialog select the VM Options tab
	e. Expand the <i>Advanced</i> section
	f. Click the <i>Edit Configuration</i> button
	g. Set the <i>snapshot.maxSnapshots</i> parameter to 1.If the parameter does not exist then create.
	h. Confirm the changes and exit the settings dialog
	Power Off the vCenter Appliance virtual machine.
3	a. Select the VCS VM by clicking on it
	b. Click the Shut down button on the VCS VM summary page.
	c. Wait for the VM to shut down. This may take a couple of minutes
4	Create snapshot
	A ations
	a. Click Actions on the VCS VM summary page
	b. On the context menu, select $Snapshots o Take snapshot$
	c. Enter a name for the snapshot and click <i>Take snapshot</i> button



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Power On the vCenter Appliance virtual machine by clicking the and wait for it to boot up.

Upload the fixsts.sh and checksts.py scripts to vCenter Appliance to the /tmp directory using an SCP client,

Note

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To allow uploading files over SCP protocol, the shell for the root account needs to be changed first.

- 1. Open SSH console to the vCenter Appliance (use root credentials)
- 2. change the default shell on vCenter Appliance guest OS by executing the following command:

```
root@z002vcs1 [ ~ ]# chsh -s /bin/bash root
```

- 3. upload the fixsts.sh file to vCenter Appliance to /tmp directory using an SCP client,
- 4. make the script executable by executing the following commands on SSH console:

```
root@z002vcs1 [ ~ ]# cd /tmp
root@z002vcs1 [ /tmp ]# chmod +x fixsts.sh
```

Execute the following script and provide the administrator's password when prompted:

```
root@z002vcs1 [ /tmp ]# ./fixsts.sh
```

example output:

```
root@z002vcs1 [ /tmp ]# bash fixsts.sh
NOTE: This works on external and embedded PSCs
This script will do the following
1: Regenerate STS certificate
What is needed?
1: Offline snapshots of VCs/PSCs
2: SSO Admin Password
IMPORTANT: This script should only be run on a single PSC per SSO domain
_____
Resetting STS certificate for z002vcs1.zone2 started on Sat Jan 4 21:37:33 UTC 2025
Detected DN: cn=z002vcs1.zone2,ou=Domain Controllers,dc=z002vcs1,dc=zone2
Detected PNID: z002vcs1.zone2
Detected PSC: z002vcs1.zone2
Detected SSO domain name: z002vcs1.zone2
Detected Machine ID: 500c0618-86ad-4b39-af30-a0a18e7ea974
Detected IP Address: 10.2.233.38
Domain CN: dc=z002vcs1,dc=zone2
______
```

Detected Root's certificate expiration date: 2031 Dec 30 Detected today's date: 2025 Jan 4

Exporting and generating STS certificate

2025-01-11T03:46:38.989Z

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```
Status : Success
      Using config file : /tmp/vmware-fixsts/certool.cfg
      Status : Success
      Enter password for administrator@z002vcs1.zone2:
      Highest tenant credentials index : 1
      Exporting tenant 1 to /tmp/vmware-fixsts
      Deleting tenant 1
      Highest trusted cert chains index: 1
      Exporting trustedcertchain 1 to /tmp/vmware-fixsts
      Deleting trustedcertchain 1
      Applying newly generated STS certificate to SSO domain
      adding new entry
      "cn=TenantCredential-1,cn=z002vcs1.zone2,cn=Tenants,cn=IdentityManager,cn=Services,dc=z002vcs1,dc=z
      adding new entry
      "cn=TrustedCertChain-1,cn=TrustedCertificateChains,cn=z002vcs1.zone2,cn=Tenants,cn=IdentityManager,
      cn=Services,dc=z002vcs1,dc=zone2"
      Replacement finished - Please restart services on all vCenters and PSCs in your SSO domain
      _____
      IMPORTANT: In case you're using HLM (Hybrid Linked Mode) without a gateway, you would need to
      re-sync the certs from Cloud to On-Prem after following this procedure
      Restart all services on vCenter server by executing:
8
      # service-control --stop --all
      # service-control --start --all
      Note: Restart of services will fail if there are other expired certificates like Machine SSL or Solution User. Even with the
      failed services, this step is necessary to replace the rest of the expired certificates.
      example output of failed service:
                                    Running command: ['/usr/bin/systemctl', 'unset-environment',
      2025-01-11T03:46:38.986Z
      'VMON_PROFILE']
```

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to start sca, vpxd-svcs, cm, vapi-endpoint services. Error: Operation timed out

Service-control failed. Error Failed to start vmon services.vmon-cli RC=1, stderr=Failed

Done running command



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#

Execute the following command to regenerate the rest of the expired certificates:

/usr/lib/vmware-vmca/bin/certificate-manager

- a. when prompted for Option[1 to 8]: select 4
- b. answer 'y' for the question if you wish to generate all certificates
- c. for the username enter the administrator's username, i.e.

administrator@z00<Zone>vcs<Instance>.zone<Zone>

where <Zone>: zone number; <Instance>: 1 for primary zone and 2 for DSR backup zone.

Example: administrator@z002vcs1.zone2

- d. enter the administrator's password
- e. for the 'Country' select the default value: US by pressing Enter
- f. for the 'Name' select the default value: CA by pressing Enter
- g. for 'Organization' select the default value: VMware by pressing Enter
- for 'OrgUnit' select the default value: VMware Engineering by pressing Enter
- i. for 'State' select the default value California by pressing Enter
- j. for 'Locality' select the default value Palo Alto by pressing Enter
- k. for 'IPAddress' do not provide any values by pressing Enter
- I. for 'Email' select the default value 'email@acme.com' by pressing Enter
- m. for 'Hostname' enter the Fully Qualified Domain Name(FQDN), i.e. z00<Zone>vcs<Instance>. zone<Zone> where <Zone>: zone number; <Instance>: 1 for primary zone and 2 for DSR backup zone.

Example: z002vcs1.zone2

- n. for 'VMCA Name' enter the Fully Qualified Domain Name(FQDN) (see: the Hostname above)
- o. answer 'y' to the question if to continue the operation
- p. wait for the following message:

Status: 100% Completed [All tasks completed successfully]

Note: This operation may take several minutes to execute.

Note: You can also select Option 8 (Reset all Certificates). Both options perform the same functionality. (The difference is that option 8 does not perform automatic Rollback of the certificates). However, suggested is option 4.

example output:

root@z002vcs1 [/tmp]# /usr/lib/vmware-vmca/bin/certificate-manager

*** Welcome to the vSphere 6.5 Certificate Manager ***

-- Select Operation --

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```
1. Replace Machine SSL certificate with Custom Certificate
                       2. Replace VMCA Root certificate with Custom Signing
                          Certificate and replace all Certificates
                       3. Replace Machine SSL certificate with VMCA Certificate
                       4. Regenerate a new VMCA Root Certificate and
                          replace all certificates
                       5. Replace Solution user certificates with
                          Custom Certificate
                       6. Replace Solution user certificates with VMCA certificates
                       7. Revert last performed operation by re-publishing old
                          certificates
                       8. Reset all Certificates
Note: Use Ctrl-D to exit.
Option[1 to 8]: 4
Do you wish to generate all certificates using configuration file : Option[Y/N] ? : y
Please provide valid SSO and VC priviledged user credential to perform certificate operations.
Enter username [Administrator@vsphere.local]:Administrator@z002vcs1.zone2
Enter password:
Please configure certool.cfg with proper values before proceeding to next step.
Press Enter key to skip optional parameters or use Default value.
Enter proper value for 'Country' [Default value : US] :
Enter proper value for 'Name' [Default value : CA] :
Enter proper value for 'Organization' [Default value : VMware] :
Enter proper value for 'OrgUnit' [Default value : VMware Engineering] :
Enter proper value for 'State' [Default value : California] :
Enter proper value for 'Locality' [Default value : Palo Alto] :
Enter proper value for 'IPAddress' (Provide comma separated values for multiple IP addresses)
[optional]:
Enter proper value for 'Email' [Default value : email@acme.com] :
Enter proper value for 'Hostname' (Provide comma separated values for multiple Hostname entries)
[Enter valid Fully Qualified Domain Name(FQDN), For Example : example.domain.com] : z002vcs1.zone2
Enter proper value for VMCA 'Name' :z002vcs1.zone2
You are going to regenerate Root Certificate and all other certificates using VMCA
Continue operation : Option[Y/N] ? : y
```

STORE TRUSTED_ROOTS

STORE TRUSTED_ROOT_CRLS

STORE vsphere-webclient Alias : vsphere-webclient

STORE machine Alias: machine

Get site nameCompleted [Replacing Machine SSL Cert...]

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```
z002vcs1-zone2
      Lookup all services
      Update service d1b58901-3d0c-44f8-b44e-622d418aa717; spec: /tmp/svcspec_9yYg8c
      Updated 30 service(s)
      Status: 60% Completed [Replace vpxd-extension Cert...]
                                Updating certificate for "com.vmware.vim.eam" extension
      2025-01-11T03:57:56.259Z
      2025-01-11T03:57:56.453Z Updating certificate for "com.vmware.rbd" extension
      Status: 100% Completed [All tasks completed successfully]
      root@z002vcs1 [ /tmp ]#
     Execute the following command to verify that all certificates are valid:
10
     for i in $(/usr/lib/vmware-vmafd/bin/vecs-cli store list); do echo STORE $i; sudo
     /usr/lib/vmware-vmafd/bin/vecs-cli entry list --store $i --text | egrep "Alias|Not
     After"; done
     Verify that all lines starting with Not After: show the expiration date at least two years in the future.
     example output:
     root@z002vcs1 [ ~ ]# for i in $(/usr/lib/vmware-vmafd/bin/vecs-cli store list); do echo
     STORE $i; sudo /usr/lib/vmware-vmafd/bin/vecs-cli entry list --store $i --text | egrep
     "Alias|Not After"; done
     STORE MACHINE_SSL_CERT
     Alias : __MACHINE_CERT
```

Not After: Jan 11 03:46:15 2027 GMT

Not After: Dec 31 00:59:44 2031 GMT

Not After: Jan 6 03:56:15 2035 GMT

Not After: Jan 11 03:47:54 2027 GMT

Not After: Jan 11 03:47:55 2027 GMT

Alias: 69e585685fccaada4305ff0b84b27dbfe643a2a9

Alias: 573b78b425685b13ac505dca2d148ec8a134c55a

Alias : bf11f603e59dd8aaee4ce8ea365a5c9301f421c7 Alias : 61ae2f2cebc575c69780c675f962894378cad00d



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	STORE vpxd
	Alias : vpxd
	Not After : Jan 11 03:47:55 2027 GMT
	STORE vpxd-extension
	Alias : vpxd-extension
	Not After : Jan 11 03:47:55 2027 GMT
	STORE SMS
	Alias : sms_self_signed
	Not After : Jan 5 01:06:10 2032 GMT
	STORE BACKUP_STORE
	Alias : bkpMACHINE_CERT
	Not After: Jan 5 12:59:44 2024 GMT
	Alias : bkp_machine
	Not After : Jan 5 00:50:41 2024 GMT
	Alias : bkp_vsphere-webclient
	Not After: Jan 5 00:50:41 2024 GMT
	Alias : bkp_vpxd
	Not After : Jan 5 00:50:42 2024 GMT
	Alias: bkp_vpxd-extension
	Not After: Jan 5 00:50:42 2024 GMT
11	Reboot the vCenter Appliance by executing the following command:
	# reboot
	Wait for vCenter Appliance virtual machine to boot completely. This may take around 10 minutes.
12	Verify that you are able to login to vCenter Client via the vSphere web Client.
	https://=00.cZanas.vaa.cTnatanas.
	https://z00 <zone>vcs<instance>.zone<zone>/ui/</zone></instance></zone>
	where <i><zone></zone></i> : zone number; <i><instance></instance></i> : 1 for primary zone and 2 for DSR backup zone.
	Example: https://z002vcs1.zone2/ui/
13	Restore the original shell by executing the following command on the SSH console to the vCenter Appliance (use root
	credentials):"
	Waltala a (his /amiliaman) mast
	#chsh -s /bin/appliancesh root
14	
	Disable snapshots by setting the snapshot.maxSnapshots parameter to 0 for the VCS virtual machine.
	Step 2 describes a method of doing this.
	Note: Keep the snapshot for about a week to make sure that everything works.



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PARTS REQUIRED (HARDWARE/SOFTWARE):

Script *fixsts.sh* https://kb.vmware.com/s/article/76719
Script *checksts.py* https://kb.vmware.com/s/article/79248

ADDITIONAL INFORMATION:

Procedure for certificates regeneration case. https://kb.vmware.com/s/article/2112283 Issue description https://kb.vmware.com/s/article/76719

REFERENCE THE FOLLOWING DOCUMENTS/PROCESSES FOR INSTALLATION PROCEDURES:

WHEN TO APPLY RESOLUTION:

As instructed _X_ After failure _X_

LABOR ALLOWANCE:

This is an informational bulletin. No labor warranty is implied, intended or authorized for U.S. Domestic Partners/Customers. Other regions should follow their own standard procedures.

If, after attempting to perform the solution steps, you are having issues with the resolution in the MTN then please contact your MSI Technical support center.

https://www.motorolasolutions.com/en_us/support-topics.html

SW ORDER FORM IS AVAILABLE UNDER THE LINK:

http://www.motorolasolutions.com/content/dam/msi/docs/robots/motorola-technical-notification/SW order form.pdf