



Red Hat Advanced Cluster Management for Kubernetes 2.1

Troubleshooting

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Abstract

Troubleshooting in Red Hat Advanced Cluster Management for Kubernetes

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CHAPTER 1. TROUBLESHOOTING

Before using the Troubleshooting guide, you can run the **oc adm must-gather** command to gather details, logs, and take steps in debugging issues.

Additionally, check your role-based access. See [Role-based access control](#) for details.

1.1. MUST-GATHER

To get started, learn about the troubleshooting scenarios for users to run the **must-gather** command to debug the issues.

- **Scenario one:** Use the [Documented troubleshooting](#) section to see if a solution to your problem is documented. The guide is organized by the major functions of the product. With this scenario, you check the guide to see if your solution is in the documentation. For instance, for trouble with creating a cluster, you might find a solution in the *Manage cluster* section.
- **Scenario two:** If your problem is not documented with steps to resolve, run the **must-gather** command and use the output to debug the issue.
- **Scenario three:** If you cannot debug the issue using your output from the **must-gather** command, then share your output with Red Hat Support.

See the following procedure to start using the **must-gather** command:

To get started with troubleshooting, learn about the troubleshooting scenarios for users to run the **must-gather** command to debug the issues, then see the procedures to start using the command.

Required access: Cluster administrator

1. Learn about the **must-gather** command and install the prerequisites that you need at [Red Hat OpenShift Container Platform: Gathering data](#).
2. Log in to your cluster. For the usual use-case, you should run the **must-gather** while you are logged into your *hub* cluster.

Note: If you want to check your managed clusters, find the **gather-managed.log** file that is located in the the **cluster-scoped-resources** directory:

```
<your-directory>/cluster-scoped-resources/gather-managed.log>
```

Check for managed clusters that are not set **True** for the JOINED and AVAILABLE column. You can run the **must-gather** command on those clusters that are not connected with **True** status.

3. Add the Red Hat Advanced Cluster Management for Kubernetes image that is used for gathering data and the directory. Run the following command, where you insert the image and the directory for the output:

```
oc adm must-gather --image=registry.redhat.io/rhacm2/acm-must-gather-rhel8:v2.1.0 --dest-dir=<directory>
```

4. Go to your specified directory to see your output, which is organized in the following levels:
 - Two peer levels: **cluster-scoped-resources** and **namespace** resources.

- Sub-level for each: API group for the custom resource definitions for both cluster-scope and namespace-scoped resources.
- Next level for each: YAML file sorted by **kind**.

1.2. RUNNING MUST-GATHER IN A DISCONNECTED ENVIRONMENT

Complete the following steps to run the **must-gather** command in a disconnected environment:

1. In a disconnected environment, mirror the RedHat operators catalog images into their mirror registry. For more information, see [Install on disconnected networks](#).
2. Run the following command to extract logs, which reference the image from their mirror registry:

```
REGISTRY=registry.example.com:5000
IMAGE=$REGISTRY/rhacm2/acm-must-gather-
rhel8@sha256:ff9f37eb400dc1f7d07a9b6f2da9064992934b69847d17f59e385783c071b9d8
oc adm must-gather --image=$IMAGE --dest-dir=./data
```

1.3. DOCUMENTED TROUBLESHOOTING

View the list of troubleshooting topics for Red Hat Advanced Cluster Management for Kubernetes:

Installation

To get to the original installing tasks, view [Installing](#).

- [Troubleshooting reinstallation failure](#)
- [Troubleshooting failed uninstallation because resources exist](#)

Cluster management

To get to the original cluster management tasks, view [Managing your clusters](#).

- [Troubleshooting an offline cluster](#)
- [Troubleshooting cluster with pending import status](#)
- [Troubleshooting imported clusters offline after certificate change](#)
- [Troubleshooting cluster status changing from offline to available](#)
- [Troubleshooting cluster creation on VMware vSphere](#)
- [Troubleshooting cluster in console with pending or failed status](#)
- [Troubleshooting OpenShift Container Platform version 3.11 cluster import failure](#)
- [Troubleshooting Klusterlet with degraded conditions](#)
- [Troubleshooting Klusterlet application manager on managed clusters](#)
- [Troubleshooting managedcluster resource](#)

- [Namespace remains after deleting a cluster](#)

Application management

To get to the original application management, view [Managing applications](#).

- [Troubleshooting application Kubernetes deployment version](#) .
- [Troubleshooting standalone subscription memory problem](#) .
- [Troubleshooting application Git server connection](#) .
- [Troubleshooting local cluster not selected](#) .

Governance and risk

To get to the original security guide, view [Security](#).

Console observability

Console observability includes Search and the Visual Web Terminal, along with header and navigation function. To get to the original observability guide, view [Observability in the console](#) .

- [Troubleshooting observability](#)
- [Troubleshooting OpenShift monitoring services](#)
- [Troubleshooting the metrics-collector](#)

1.4. TROUBLESHOOTING REINSTALLATION FAILURE

When reinstalling Red Hat Advanced Cluster Management for Kubernetes, the pods do not start.

1.4.1. Symptom: Reinstallation failure

If your pods do not start after you install Red Hat Advanced Cluster Management, it is likely that Red Hat Advanced Cluster Management was previously installed, and not all of the pieces were removed before you attempted this installation.

In this case, the pods do not start after completing the installation process.

1.4.2. Resolving the problem: Reinstallation failure

If you have this problem, complete the following steps:

1. Run the uninstallation process to remove the current components by following the steps in [Uninstalling](#).
2. Install the Helm CLI binary version 3.2.0, or later, by following the instructions at [Installing Helm](#).
3. Ensure that your Red Hat OpenShift Container Platform CLI is configured to run **oc** commands. See [Getting started with the CLI](#) in the OpenShift Container Platform documentation for more information about how to configure the **oc** commands.
4. Copy the following script into a file:

```
#!/bin/bash
ACM_NAMESPACE=<namespace>
oc delete mch --all -n $ACM_NAMESPACE
helm ls --namespace $ACM_NAMESPACE | cut -f 1 | tail -n +2 | xargs -n 1 helm delete --
namespace $ACM_NAMESPACE
oc delete apiservice v1beta1.webhook.certmanager.k8s.io v1.admission.cluster.open-cluster-
management.io v1.admission.work.open-cluster-management.io
oc delete clusterimageset --all
oc delete configmap -n $ACM_NAMESPACE cert-manager-controller cert-manager-
cainjector-leader-election cert-manager-cainjector-leader-election-core
oc delete consolelink acm-console-link
oc delete crd klusterletaddonconfigs.agent.open-cluster-management.io
placementbindings.policy.open-cluster-management.io policies.policy.open-cluster-
management.io userpreferences.console.open-cluster-management.io
searchservices.search.acm.com
oc delete mutatingwebhookconfiguration cert-manager-webhook cert-manager-webhook-
v1alpha1
oc delete oauthclient multicloudingress
oc delete rolebinding -n kube-system cert-manager-webhook-webhook-authentication-reader
oc delete scc kui-proxy-scc
oc delete validatingwebhookconfiguration cert-manager-webhook cert-manager-webhook-
v1alpha1
```

Replace **<namespace>** in the script with the name of the namespace where Red Hat Advanced Cluster Management was installed. Ensure that you specify the correct namespace, as the namespace is cleaned out and deleted.

5. Run the script to remove the artifacts from the previous installation.
6. Run the installation. See [Installing while connected online](#) .

1.5. TROUBLESHOOTING FAILED UNINSTALLATION BECAUSE RESOURCES EXIST

1.5.1. Symptom: Failed uninstallation because resources exist

When you uninstall Red Hat Advanced Cluster Management for Kubernetes, the installation fails with one of the following error messages:

Cannot delete MultiClusterHub resource because ManagedCluster resource(s) exist

Cannot delete MultiClusterHub resource because BareMetalAssets resource(s) exist

Cannot delete MultiClusterHub resource because MultiClusterObservability resource(s) exist

1.5.2. Resolving the problem: Failed uninstallation because resources exist

These errors occur when you try to uninstall the Red Hat Advanced Cluster Management for Kubernetes hub cluster while it is still managing clusters, hosting bare metal assets, or collecting observability data. All of these resources must be removed before uninstalling the hub cluster.

- To resolve the `ManagedCluster` error message, detach all clusters that are still being managed by the hub cluster and try to uninstall again.

For more information about detaching clusters, see the *Removing a cluster from management* section by selecting the information for your provider in [Creating a cluster](#).

- To resolve the `BareMetalAssets` resources error message, remove all of the bare metal assets from the hub cluster and try to uninstall again.

For more information about removing the bare metal assets, see [Removing a bare metal asset](#).

- To resolve the `MultiClusterObservability` resources error, remove all of the `MultiClusterObservability` resources from the hub cluster and try to uninstall again.

1.6. TROUBLESHOOTING AN OFFLINE CLUSTER

There are a few common causes for a cluster showing an offline status.

1.6.1. Symptom: Cluster status is offline

After you complete the procedure for creating a cluster, you cannot access it from the Red Hat Advanced Cluster Management console, and it shows a status of **offline**.

1.6.2. Resolving the problem: Cluster status is offline

1. Determine if the managed cluster is available. You can check this in the *Clusters* area of the Red Hat Advanced Cluster Management console.
If it is not available, try restarting the managed cluster.
2. If the managed cluster status is still offline, complete the following steps:
 - a. Run the `oc get managedcluster <cluster_name> -o yaml` command on the hub cluster.
Replace `<cluster_name>` with the name of your cluster.
 - b. Find the **status.conditions** section.
 - c. Check the messages for **type: ManagedClusterConditionAvailable** and resolve any problems.

1.7. TROUBLESHOOTING CLUSTER WITH PENDING IMPORT STATUS

If you receive *Pending import* continually on the console of your cluster, follow the procedure to troubleshoot the problem.

1.7.1. Symptom: Cluster with pending import status

After importing a cluster by using the Red Hat Advanced Cluster Management console, the cluster appears in the console with a status of *Pending import*.

1.7.2. Identifying the problem: Cluster with pending import status

1. Run the following command on the managed cluster to view the Kubernetes pod names that are having the issue:

```
kubectl get pod -n open-cluster-management-agent | grep klusterlet-registration-agent
```

2. Run the following command on the managed cluster to find the log entry for the error:

```
kubectl logs <registration_agent_pod>
```

Replace *registration_agent_pod* with the pod name that you identified in step 1.

3. Search the returned results for text that indicates there was a networking connectivity problem. Example includes: **no such host**.

1.7.3. Resolving the problem: Cluster with pending import status

1. Retrieve the port number that is having the problem by entering the following command on the hub cluster:

```
oc get infrastructure cluster -o yaml | grep apiServerURL
```

2. Ensure that the hostname from the managed cluster can be resolved, and that outbound connectivity to the host and port is occurring.

If the communication cannot be established by the managed cluster, the cluster import is not complete. The cluster status for the managed cluster is *Pending import*.

1.8. TROUBLESHOOTING CLUSTER CREATION ON VMWARE VSPHERE

If you experience a problem when creating a Red Hat OpenShift Container Platform cluster on VMware vSphere, see the following troubleshooting information to see if one of them addresses your problem.

1.8.1. Managed cluster creation fails with certificate IP SAN error

1.8.1.1. Symptom: Managed cluster creation fails with certificate IP SAN error

After creating a new Red Hat OpenShift Container Platform cluster on VMware vSphere, the cluster fails with an error message that indicates a certificate IP SAN error.

1.8.1.2. Identifying the problem: Managed cluster creation fails with certificate IP SAN error

The deployment of the managed cluster fails and returns the following errors in the deployment log:

```
time="2020-08-07T15:27:55Z" level=error msg="Error: error setting up new vSphere SOAP client:
Post https://147.1.1.1/sdk: x509: cannot validate certificate for xx.xx.xx.xx because it doesn't contain
any IP SANs"
time="2020-08-07T15:27:55Z" level=error
```

1.8.1.3. Resolving the problem: Managed cluster creation fails with certificate IP SAN error

Use the VMware vCenter server fully-qualified host name instead of the IP address in the provider connection. You can also update the VMware vCenter CA certificate to contain the IP SAN.

1.8.2. Managed cluster creation fails with unknown certificate authority

1.8.2.1. Symptom: Managed cluster creation fails with unknown certificate authority

After creating a new Red Hat OpenShift Container Platform cluster on VMware vSphere, the cluster fails because the certificate is signed by an unknown authority.

1.8.2.2. Identifying the problem: Managed cluster creation fails with unknown certificate authority

The deployment of the managed cluster fails and returns the following errors in the deployment log:

```
Error: error setting up new vSphere SOAP client: Post https://vspherehost.com/sdk: x509: certificate signed by unknown authority"
```

1.8.2.3. Resolving the problem: Managed cluster creation fails with unknown certificate authority

Ensure you entered the correct certificate from the certificate authority when creating the provider connection.

1.8.3. Managed cluster creation fails with expired certificate

1.8.3.1. Symptom: Managed cluster creation fails with expired certificate

After creating a new Red Hat OpenShift Container Platform cluster on VMware vSphere, the cluster fails because the certificate is expired or is not yet valid.

1.8.3.2. Identifying the problem: Managed cluster creation fails with expired certificate

The deployment of the managed cluster fails and returns the following errors in the deployment log:

```
x509: certificate has expired or is not yet valid
```

1.8.3.3. Resolving the problem: Managed cluster creation fails with expired certificate

Ensure that the time on your ESXi hosts is synchronized.

1.8.4. Managed cluster creation fails with insufficient privilege for tagging

1.8.4.1. Symptom: Managed cluster creation fails with insufficient privilege for tagging

After creating a new Red Hat OpenShift Container Platform cluster on VMware vSphere, the cluster fails because there is insufficient privilege to use tagging.

1.8.4.2. Identifying the problem: Managed cluster creation fails with insufficient privilege for tagging

The deployment of the managed cluster fails and returns the following errors in the deployment log:

```
time="2020-08-07T19:41:58Z" level=debug msg="vsphere_tag_category.category: Creating..."
time="2020-08-07T19:41:58Z" level=error
time="2020-08-07T19:41:58Z" level=error msg="Error: could not create category: POST"
```

```
https://vspherehost.com/rest/com/vmware/cis/tagging/category: 403 Forbidden"
time="2020-08-07T19:41:58Z" level=error
time="2020-08-07T19:41:58Z" level=error msg=" on ../tmp/openshift-install-436877649/main.tf line
54, in resource \"vsphere_tag_category\" \"category\":"
time="2020-08-07T19:41:58Z" level=error msg=" 54: resource \"vsphere_tag_category\" \"category\"
{"
```

1.8.4.3. Resolving the problem: Managed cluster creation fails with insufficient privilege for tagging

Ensure that your VMware vCenter required account privileges are correct. See [Image registry removed during information](#) for more information.

1.8.5. Managed cluster creation fails with invalid dnsVIP

1.8.5.1. Symptom: Managed cluster creation fails with invalid dnsVIP

After creating a new Red Hat OpenShift Container Platform cluster on VMware vSphere, the cluster fails because there is an invalid dnsVIP.

1.8.5.2. Identifying the problem: Managed cluster creation fails with invalid dnsVIP

If you see the following message when trying to deploy a new managed cluster with VMware vSphere, it is because you have an older OpenShift Container Platform release image that does not support VMware Installer Provisioned Infrastructure (IPI):

```
failed to fetch Master Machines: failed to load asset \"\"Install Config\"\": invalid \"\"install-
config.yaml\" file: platform.vsphere.dnsVIP: Invalid value: \"\": \"\" is not a valid IP
```

1.8.5.3. Resolving the problem: Managed cluster creation fails with invalid dnsVIP

Select a release image from a later version of OpenShift Container Platform that supports VMware Installer Provisioned Infrastructure.

1.8.6. Managed cluster creation fails with incorrect network type

1.8.6.1. Symptom: Managed cluster creation fails with incorrect network type

After creating a new Red Hat OpenShift Container Platform cluster on VMware vSphere, the cluster fails because there is an incorrect network type specified.

1.8.6.2. Identifying the problem: Managed cluster creation fails with incorrect network type

If you see the following message when trying to deploy a new managed cluster with VMware vSphere, it is because you have an older OpenShift Container Platform image that does not support VMware Installer Provisioned Infrastructure (IPI):

```
time="2020-08-11T14:31:38-04:00" level=debug msg="vsphereprivate_import_ova.import:
Creating..."
time="2020-08-11T14:31:39-04:00" level=error
time="2020-08-11T14:31:39-04:00" level=error msg="Error: rpc error: code = Unavailable desc =
transport is closing"
```



```
time="2020-08-11T14:31:39-04:00" level=error
time="2020-08-11T14:31:39-04:00" level=error
time="2020-08-11T14:31:39-04:00" level=fatal msg="failed to fetch Cluster: failed to generate asset
\"Cluster\": failed to create cluster: failed to apply Terraform: failed to complete the change"
```

1.8.6.3. Resolving the problem: Managed cluster creation fails with incorrect network type

Select a valid VMware vSphere network type for the specified VMware cluster.

1.8.7. Managed cluster creation fails with an error processing disk changes

1.8.7.1. Symptom: Adding the VMware vSphere managed cluster fails due to an error processing disk changes

After creating a new Red Hat OpenShift Container Platform cluster on VMware vSphere, the cluster fails because there is an error when processing disk changes.

1.8.7.2. Identifying the problem: Adding the VMware vSphere managed cluster fails due to an error processing disk changes

A message similar to the following is displayed in the logs:

```
ERROR
ERROR Error: error reconfiguring virtual machine: error processing disk changes post-clone: disk.0:
ServerFaultCode: NoPermission: RESOURCE (vm-71:2000), ACTION (queryAssociatedProfile):
RESOURCE (vm-71), ACTION (PolicyIDByVirtualDisk)
```

1.8.7.3. Resolving the problem: Adding the VMware vSphere managed cluster fails due to an error processing disk changes

Use the VMware vSphere client to give the user **All privileges** for *Profile-driven Storage Privileges*.

1.9. TROUBLESHOOTING OPENSIFT CONTAINER PLATFORM VERSION 3.11 CLUSTER IMPORT FAILURE

1.9.1. Symptom: OpenShift Container Platform version 3.11 cluster import failure

After you attempt to import a Red Hat OpenShift Container Platform version 3.11 cluster, the import fails with a log message that resembles the following content:

```
customresourcedefinition.apiextensions.k8s.io/klusterlets.operator.open-cluster-management.io
configured
clusterrole.rbac.authorization.k8s.io/klusterlet configured
clusterrole.rbac.authorization.k8s.io/open-cluster-management:klusterlet-admin-aggregate-clusterrole
configured
clusterrolebinding.rbac.authorization.k8s.io/klusterlet configured
namespace/open-cluster-management-agent configured
secret/open-cluster-management-image-pull-credentials unchanged
serviceaccount/klusterlet configured
deployment.apps/klusterlet unchanged
klusterlet.operator.open-cluster-management.io/klusterlet configured
```

```
Error from server (BadRequest): error when creating "STDIN": Secret in version "v1" cannot be
handled as a Secret:
v1.Secret.ObjectMeta:
v1.ObjectMeta.TypeMeta: Kind: Data: decode base64: illegal base64 data at input byte 1313, error
found in #10 byte of ...[dhruy45=],"kind":"...], bigger context
...[tye56u56u568yuo7i67i67i67o556574i"],"kind":"Secret","metadata":{"annotations":{"kube|...
```

1.9.2. Identifying the problem: OpenShift Container Platform version 3.11 cluster import failure

This often occurs because the installed version of the **kubectl** command-line tool is 1.11, or earlier. Run the following command to see which version of the **kubectl** command-line tool you are running:

```
kubectl version
```

If the returned data lists version 1.11, or earlier, complete one of the fixes in *Resolving the problem: OpenShift Container Platform version 3.11 cluster import failure*.

1.9.3. Resolving the problem: OpenShift Container Platform version 3.11 cluster import failure

You can resolve this issue by completing one of the following procedures:

- Install the latest version of the **kubectl** command-line tool.
 1. Download the latest version of the **kubectl** tool from: [Install and Set Up kubectl](#) in the Kubernetes documentation.
 2. Import the cluster again after upgrading your **kubectl** tool.
- Run a file that contains the import command.
 1. Start the procedure in [Importing a managed cluster with the CLI](#).
 2. When you create the command to import your cluster, copy that command into a YAML file named **import.yaml**.
 3. Run the following command to import the cluster again from the file:

```
oc apply -f import.yaml
```

1.10. TROUBLESHOOTING IMPORTED CLUSTERS OFFLINE AFTER CERTIFICATE CHANGE

Installing a custom **apiserver** certificate is supported, but one or more clusters that were imported before you changed the certificate information can have an **offline** status.

1.10.1. Symptom: Clusters offline after certificate change

After you complete the procedure for updating a certificate secret, one or more of your clusters that were online are now displaying an **offline** status in the Red Hat Advanced Cluster Management for Kubernetes console.

1.10.2. Identifying the problem: Clusters offline after certificate change

After updating the information for a custom API server certificate, clusters that were imported and running before the new certificate are now in an **offline** state.

The errors that indicate that the certificate is the problem are found in the logs for the pods in the **open-cluster-management-agent** namespace of the offline managed cluster. The following examples are similar to the errors that are displayed in the logs:

Log of work-agent:

```
E0917 03:04:05.874759    1 manifestwork_controller.go:179] Reconcile work test-1-klusterlet-
addon-workmgr fails with err: Failed to update work status with err Get "https://api.aaa-
ocp.dev02.location.com:6443/apis/cluster.management.io/v1/namespaces/test-1/manifestworks/test-
1-klusterlet-addon-workmgr": x509: certificate signed by unknown authority
E0917 03:04:05.874887    1 base_controller.go:231] "ManifestWorkAgent" controller failed to sync
"test-1-klusterlet-addon-workmgr", err: Failed to update work status with err Get "api.aaa-
ocp.dev02.location.com:6443/apis/cluster.management.io/v1/namespaces/test-1/manifestworks/test-
1-klusterlet-addon-workmgr": x509: certificate signed by unknown authority
E0917 03:04:37.245859    1 reflector.go:127] k8s.io/client-go@v0.19.0/tools/cache/reflector.go:156:
Failed to watch *v1.ManifestWork: failed to list *v1.ManifestWork: Get "api.aaa-
ocp.dev02.location.com:6443/apis/cluster.management.io/v1/namespaces/test-1/manifestworks?
resourceVersion=607424": x509: certificate signed by unknown authority
```

Log of registration-agent:

```
I0917 02:27:41.525026    1 event.go:282] Event(v1.ObjectReference{Kind:"Namespace",
Namespace:"open-cluster-management-agent", Name:"open-cluster-management-agent", UID:"",
APIVersion:"v1", ResourceVersion:"", FieldPath:""}): type: 'Normal' reason:
'ManagedClusterAvailableConditionUpdated' update managed cluster "test-1" available condition to
"True", due to "Managed cluster is available"
E0917 02:58:26.315984    1 reflector.go:127] k8s.io/client-go@v0.19.0/tools/cache/reflector.go:156:
Failed to watch *v1beta1.CertificateSigningRequest: Get "https://api.aaa-
ocp.dev02.location.com:6443/apis/cluster.management.io/v1/managedclusters?
allowWatchBookmarks=true&fieldSelector=metadata.name%3Dtest-
1&resourceVersion=607408&timeout=9m33s&timeoutSeconds=573&watch=true": x509: certificate
signed by unknown authority
E0917 02:58:26.598343    1 reflector.go:127] k8s.io/client-go@v0.19.0/tools/cache/reflector.go:156:
Failed to watch *v1.ManagedCluster: Get "https://api.aaa-
ocp.dev02.location.com:6443/apis/cluster.management.io/v1/managedclusters?
allowWatchBookmarks=true&fieldSelector=metadata.name%3Dtest-
1&resourceVersion=607408&timeout=9m33s&timeoutSeconds=573&watch=true": x509: certificate
signed by unknown authority
E0917 02:58:27.613963    1 reflector.go:127] k8s.io/client-go@v0.19.0/tools/cache/reflector.go:156:
Failed to watch *v1.ManagedCluster: failed to list *v1.ManagedCluster: Get "https://api.aaa-
ocp.dev02.location.com:6443/apis/cluster.management.io/v1/managedclusters?
allowWatchBookmarks=true&fieldSelector=metadata.name%3Dtest-
1&resourceVersion=607408&timeout=9m33s&timeoutSeconds=573&watch=true": x509: certificate
signed by unknown authority
```

1.10.3. Resolving the problem: Clusters offline after certificate change

To manually restore your clusters after updating your certificate information, complete the following steps for each managed cluster:

1. Manually import the cluster again. Red Hat OpenShift Container Platform clusters that were created from Red Hat Advanced Cluster Management will resynchronize every 2 hours, so you can skip this step for those clusters.
 - a. On the hub cluster, display the import command by entering the following command:

```
oc get secret -n ${CLUSTER_NAME} ${CLUSTER_NAME}-import -
ojsonpath='{.data.import\.yaml}' | base64 --decode > import.yaml
```

Replace *CLUSTER_NAME* with the name of the managed cluster that you are importing.

- b. On the managed cluster, apply the **import.yaml** file:

```
oc apply -f import.yaml
```

1.11. NAMESPACE REMAINS AFTER DELETING A CLUSTER

When you remove a managed cluster, the namespace is normally removed as part of the cluster removal process. In rare cases, the namespace remains with some artifacts in it. In that case, you must manually remove the namespace.

1.11.1. Symptom: Namespace remains after deleting a cluster

After removing a managed cluster, the namespace is not removed.

1.11.2. Resolving the problem: Namespace remains after deleting a cluster

Complete the following steps to remove the namespace manually:

1. Run the following command to produce a list of the resources that remain in the `<cluster_name>` namespace:

```
oc api-resources --verbs=list --namespaced -o name | grep -E
'^secrets|^serviceaccounts|^managedclusteraddons|^roles|^rolebindings|^manifestworks|^lease:
|^managedclusterinfo|^appliedmanifestworks' | xargs -n 1 oc get --show-kind --ignore-not-
found -n <cluster_name>
```

Replace *cluster_name* with the name of the namespace for the cluster that you attempted to remove.

2. Delete each identified resource on the list that does not have a status of **Delete** by entering the following command to edit the list:

```
oc edit <resource_kind> <resource_name> -n <namespace>
```

Replace *resource_kind* with the kind of the resource. Replace *resource_name* with the name of the resource. Replace *namespace* with the name of the namespace of the resource.

3. Locate the **finalizer** attribute in the in the metadata.
4. Delete the non-Kubernetes finalizers by using the vi editor **dd** command.
5. Save the list and exit the **vi** editor by entering the **:wq** command.

6. Delete the namespace by entering the following command:

```
oc delete ns <cluster-name>
```

Replace *cluster-name* with the name of the namespace that you are trying to delete.

1.12. TROUBLESHOOTING CLUSTER STATUS CHANGING FROM OFFLINE TO AVAILABLE

The status of the managed cluster alternates between **offline** and **available** without any manual change to the environment or cluster.

1.12.1. Symptom: Cluster status changing from offline to available

When the network that connects the managed cluster to the hub cluster is unstable, the status of the managed cluster that is reported by the hub cluster cycles between **offline** and **available**.

1.12.2. Resolving the problem: Cluster status changing from offline to available

To attempt to resolve this issue, complete the following steps:

1. Edit your **ManagedCluster** specification on the hub cluster by entering the following command:

```
oc edit managedcluster <cluster-name>
```

Replace *cluster-name* with the name of your managed cluster.

2. Increase the value of **leaseDurationSeconds** in your **ManagedCluster** specification. The default value is 5 minutes, but that might not be enough time to maintain the connection with the network issues. Specify a greater amount of time for the lease. For example, you can raise the setting to 20 minutes.

1.13. TROUBLESHOOTING CLUSTER IN CONSOLE WITH PENDING OR FAILED STATUS

If you observe *Pending* status or *Failed* status in the console for a cluster you created, follow the procedure to troubleshoot the problem.

1.13.1. Symptom: Cluster in console with pending or failed status

After creating a new cluster by using the Red Hat Advanced Cluster Management for Kubernetes console, the cluster does not progress beyond the status of *Pending* or displays *Failed* status.

1.13.2. Identifying the problem: Cluster in console with pending or failed status

If the cluster displays *Failed* status, navigate to the details page for the cluster and follow the link to the logs provided. If no logs are found or the cluster displays *Pending* status, continue with the following procedure to check for logs:

- Procedure 1
 1. Run the following command on the hub cluster to view the names of the Kubernetes pods that were created in the namespace for the new cluster:

```
oc get pod -n <new_cluster_name>
```

Replace **new_cluster_name** with the name of the cluster that you created.

- If no pod that contains the string **provision** in the name is listed, continue with Procedure 2. If there is a pod with **provision** in the title, run the following command on the hub cluster to view the logs of that pod:

```
oc logs <new_cluster_name_provision_pod_name> -n <new_cluster_name> -c hive
```

Replace **new_cluster_name_provision_pod_name** with the name of the cluster that you created, followed by the pod name that contains **provision**.

- Search for errors in the logs that might explain the cause of the problem.
- Procedure 2
If there is not a pod with **provision** in its name, the problem occurred earlier in the process. Complete the following procedure to view the logs:

- Run the following command on the hub cluster:

```
oc describe clusterdeployments -n <new_cluster_name>
```

Replace **new_cluster_name** with the name of the cluster that you created. For more information about cluster installation logs, see [Gathering installation logs](#) in the Red Hat OpenShift documentation.

- See if there is additional information about the problem in the *Status.Conditions.Message* and *Status.Conditions.Reason* entries of the resource.

1.13.3. Resolving the problem: Cluster in console with pending or failed status

After you identify the errors in the logs, determine how to resolve the errors before you destroy the cluster and create it again.

The following example provides a possible log error of selecting an unsupported zone, and the actions that are required to resolve it:

```
No subnets provided for zones
```

When you created your cluster, you selected one or more zones within a region that are not supported. Complete one of the following actions when you recreate your cluster to resolve the issue:

- Select a different zone within the region.
- Omit the zone that does not provide the support, if you have other zones listed.
- Select a different region for your cluster.

After determining the issues from the log, destroy the cluster and recreate it.

See [Creating a cluster](#) for more information about creating a cluster.

1.14. TROUBLESHOOTING APPLICATION GIT SERVER CONNECTION

Logs from the **open-cluster-management** namespace display failure to clone the Git repository.

1.14.1. Symptom: Git server connection

The logs from the subscription controller pod **multicluster-operators-hub-subscription-<random-characters>** in the **open-cluster-management** namespace indicates that it fails to clone the Git repository. You receive a **x509: certificate signed by unknown authority** error, or **BadGateway** error.

1.14.2. Resolving the problem: Git server connection

Important: Upgrade to product version 2.1 if you are on a previous version.

1. Save [apps.open-cluster-management.io_channels_crd.yaml](#) as file named **apps.open-cluster-management.io_channels_crd.yaml**.
2. On the Advanced Cluster Management cluster, run the following command to apply the file:

```
oc apply -f apps.open-cluster-management.io_channels_crd.yaml
```

3. In the **open-cluster-management** namespace, edit the **advanced-cluster-management.v2.1.0** CSV, run the following command and edit:

```
oc edit csv advanced-cluster-management.v2.1.0 -n open-cluster-management
```

Find the following containers:

- **multicluster-operators-standalone-subscription**
- **multicluster-operators-hub-subscription**

Replace the container images with the following:

```
quay.io/open-cluster-management/multicluster-operators-subscription:2.2-PR337-91af6cb37d427d22160b2c055589a4418dada4eb
```

The update recreates the following pods in the **open-cluster-management** namespace:

- **multicluster-operators-standalone-subscription-<random-characters>**
- **multicluster-operators-hub-subscription-<random-characters>**

4. Check that the new pods are running with the new docker image. Run the following command, then find the new docker image:

```
oc get pod multicluster-operators-standalone-subscription-<random-characters> -n open-cluster-management -o yaml
oc get pod multicluster-operators-hub-subscription-<random-characters> -n open-cluster-management -o yaml
```

1. Update the images on managed clusters.

On the hub cluster, run the following command by replacing **CLUSTER_NAME** with the actual managed cluster name:

```
oc annotate klusterletaddonconfig -n CLUSTER_NAME CLUSTER_NAME klusterletaddonconfig-pause=true --overwrite=true
```

-
- 2. Run the following command, replacing **CLUSTER_NAME** with the actual managed cluster name:

```
oc edit manifestwork -n CLUSTER_NAME CLUSTER_NAME-klusterlet-addon-appmgr
```

- 3. Find **spec.global.imageOverrides.multicluster_operators_subscription** and set the value to:

```
quay.io/open-cluster-management/multicluster-operators-subscription:2.2-PR337-91af6cb37d427d22160b2c055589a4418dada4eb
```

This recreates the **klusterlet-addon-appmgr-`<random-characters>`** pod in **open-cluster-management-agent-addon** namespace on the managed cluster.

- 4. Check that the new pod is running with the new docker image.
- 5. When you create an application through the console or the CLI, add ``insecureSkipVerify: true`` in the channel spec manually. See the following example:

```
apiVersion: apps.open-cluster-management.io/v1
kind: Channel
metadata:
labels:
  name: sample-channel
  namespace: sample
spec:
  type: GitHub
  pathname: <Git URL>
  insecureSkipVerify: true
```

1.15. TROUBLESHOOTING LOCAL CLUSTER NOT SELECTED WITH PLACEMENT RULE

The managed clusters are selected with a placement rule, but the **local-cluster** (hub cluster that is also managed) is not selected. The placement rule user is not granted to permission to create deployable resources in the **local-cluster** namespace.

1.15.1. Symptom: Troubleshooting local cluster not selected

All managed clusters are selected with a placement rule, but the **local-cluster** is not. The placement rule user is not granted permission to create the deployable resources in the **local-cluster** namespace.

1.15.2. Resolving the problem: Troubleshooting local cluster not selected

To resolve this issue, you need to grant the deployable administrative permission in the **local-cluster** namespace. Complete the following steps:

- 1. Confirm that the list of managed clusters does include **local-cluster**, and that the placement rule **decisions** list does not display the local cluster. Run the following command and view the results:

```
% oc get managedclusters
```


NAME	HUB ACCEPTED	MANAGED	CLUSTER	URLS	JOINED	AVAILABLE
local-cluster	true		True	True		56d
cluster1	true		True	True		16h

```

apiVersion: apps.open-cluster-management.io/v1
kind: PlacementRule
metadata:
  name: all-ready-clusters
  namespace: default
spec:
  clusterSelector: {}
status:
  decisions:
  - clusterName: cluster1
    clusterNamespace: cluster1

```

2. Create a **Role** in your **.yaml** file to grant the deployable administrative permission in the **local-cluster** namespace. See the following example:

```

apiVersion: rbac.authorization.k8s.io/v1
kind: Role
metadata:
  name: deployables-admin-user-zisis
  namespace: local-cluster
rules:
- apiGroups:
  - apps.open-cluster-management.io
  resources:
  - deployables
  verbs:
  - '*'

```

3. Create a **RoleBinding** resource to grant the placement rule user access to the **local-cluster** namespace. See the following example:

```

apiVersion: rbac.authorization.k8s.io/v1
kind: RoleBinding
metadata:
  name: deployables-admin-user-zisis
  namespace: local-cluster
roleRef:
  apiGroup: rbac.authorization.k8s.io
  kind: Role
  name: deployables-admin-user-zisis
  namespace: local-cluster
subjects:
- kind: User
  name: zisis
  apiGroup: rbac.authorization.k8s.io

```

1.16. TROUBLESHOOTING APPLICATION KUBERNETES DEPLOYMENT VERSION

A managed cluster with a deprecated Kubernetes **apiVersion** might not be supported. See the [Kubernetes issue](#) for more details about the deprecated API version.

1.16.1. Symptom: Application deployment version

If one or more of your application resources in the Subscription YAML file uses the deprecated API, you might receive an error similar to the following error:

```
failed to install release: unable to build kubernetes objects from release manifest: unable to recognize
"": no matches for
kind "Deployment" in version "extensions/v1beta1"
```

Or with new Kubernetes API version in your YAML file named **old.yaml** for instance, you might receive the following error:

```
error: unable to recognize "old.yaml": no matches for kind "Deployment" in version
"deployment/v1beta1"
```

1.16.2. Resolving the problem: Application deployment version

1. Update the **apiVersion** in the resource. For example, if the error displays for *Deployment* kind in the subscription YAML file, you need to update the **apiVersion** from **extensions/v1beta1** to **apps/v1**.

See the following example:

```
apiVersion: apps/v1
kind: Deployment
```

2. Verify the available versions by running the following command on the managed cluster:

```
kubectl explain <resource>
```

3. Check for **VERSION**.

1.17. TROUBLESHOOTING STANDALONE SUBSCRIPTION MEMORY

The **multicluster-operators-standalone-subscription** pod restarts regularly because of a memory issue.

1.17.1. Symptom: Standalone subscription memory

When Operator Lifecycle Manager (OLM) deploys all operators, not only the multicluster-subscription-operator, the **multicluster-operators-standalone-subscription** pod restarts because not enough memory is allocated to the standalone subscription container.

The memory limit of the **multicluster-operators-standalone-subscription** pod was increased to 2GB in the multicluster subscription community operator CSV, but this resource limit setting is ignored by OLM.

1.17.2. Resolving the problem: Standalone subscription memory

1. After installation, find the operator subscription CR that subscribes the multicluster subscription community operator. Run the following command:

```
% oc get sub -n open-cluster-management acm-operator-subscription
```

2. Edit the operator subscription custom resource by appending the **spec.config.resources** **.yaml** file to define resource limits.

Note: Do not create a new operator subscription custom resource that subscribes the same multicluster subscription community operator. Because two operator subscriptions are linked to one operator, the operator pods are **"killed"** and restarted by the two operator subscription custom resources.

See the following updated **.yaml** file example:

```
apiVersion: operators.coreos.com/v1alpha1
kind: Subscription
metadata:
  name: multicluster-operators-subscription-alpha-community-operators-openshift-
  marketplace
  namespace: open-cluster-management
spec:
  channel: release-2.1
  config:
    resources:
      limits:
        cpu: 750m
        memory: 2Gi
      requests:
        cpu: 150m
        memory: 128Mi
  installPlanApproval: Automatic
  name: multicluster-operators-subscription
  source: community-operators
  sourceNamespace: openshift-marketplace
```

3. After the resource is saved, ensure that the standalone subscription pod is restarted with 2GB memory limit. Run the following command:

```
% oc get pods -n open-cluster-management multicluster-operators-standalone-subscription-7c8cbf885f-c94kz -o yaml
```

```
apiVersion: v1
kind: Pod
...
spec:
  containers:
    - image: quay.io/open-cluster-management/multicluster-operators-subscription:community-2.1
    ...
  resources:
    limits:
      cpu: 750m
      memory: 2Gi
    requests:
      cpu: 150m
```

```

memory: 128Mi
...
status:
  qosClass: Burstable

```

1.18. TROUBLESHOOTING KLUSTERLET WITH DEGRADED CONDITIONS

The Klusterlet degraded conditions can help to diagnose the status of Klusterlet agents on managed cluster. If a Klusterlet is in the degraded condition, the Klusterlet agents on managed cluster might have errors that need to be troubleshooted. See the following information for Klusterlet degraded conditions that are set to **True**.

1.18.1. Symptom: Klusterlet is in the degraded condition

After deploying a Klusterlet on managed cluster, the **KlusterletRegistrationDegraded** or **KlusterletWorkDegraded** condition displays a status of *True*.

1.18.2. Identifying the problem: Klusterlet is in the degraded condition

1. Run the following command on the managed cluster to view the Klusterlet status:

```
kubectl get klusterlets klusterlet -oyaml
```

2. Check **KlusterletRegistrationDegraded** or **KlusterletWorkDegraded** to see if the condition is set to **True**. Proceed to *Resolving the problem* for any degraded conditions that are listed.

1.18.3. Resolving the problem: Klusterlet is in the degraded condition

See the following list of degraded statuses and how you can attempt to resolve those issues:

- If the **KlusterletRegistrationDegraded** condition with a status of *True* and the condition reason is: *BootstrapSecretMissing*, you need create a bootstrap secret on **open-cluster-management-agent** namespace.
- If the **KlusterletRegistrationDegraded** condition displays *True* and the condition reason is a *BootstrapSecretError*, or *BootstrapSecretUnauthorized*, then the current bootstrap secret is invalid. Delete the current bootstrap secret and recreate a valid bootstrap secret on **open-cluster-management-agent** namespace.
- If the **KlusterletRegistrationDegraded** and **KlusterletWorkDegraded** displays *True* and the condition reason is *HubKubeConfigSecretMissing*, delete the Klusterlet and recreate it.
- If the **KlusterletRegistrationDegraded** and **KlusterletWorkDegraded** displays *True* and the condition reason is: *ClusterNameMissing*, *KubeConfigMissing*, *HubConfigSecretError*, or *HubConfigSecretUnauthorized*, delete the hub cluster kubeconfig secret from **open-cluster-management-agent** namespace. The registration agent will bootstrap again to get a new hub cluster kubeconfig secret.
- If the **KlusterletRegistrationDegraded** displays *True* and the condition reason is *GetRegistrationDeploymentFailed*, or *UnavailableRegistrationPod*, you can check the condition message to get the problem details and attempt to resolve.

- If the **KlusterletWorkDegraded** displays *True* and the condition reason is *GetWorkDeploymentFailed*, or *UnavailableWorkPod*, you can check the condition message to get the problem details and attempt to resolve.

1.19. TROUBLESHOOTING KLUSTERLET APPLICATION MANAGER ON MANAGED CLUSTERS

When you upgrade from Red Hat Advanced Cluster Management for Kubernetes, the **klusterlet-addon-appmgr** pod on Red Hat OpenShift Container Platform managed clusters version 4.5 and 4.6 are **OOMKilled**.

1.19.1. Symptom: Klusterlet application manager on managed cluster

You receive an error for the **klusterlet-addon-appmgr** pod on Red Hat OpenShift Container Platform managed clusters version 4.5 and 4.6: **OOMKilled**.

1.19.2. Resolving the problem: Klusterlet application manager on managed cluster

For Red Hat Advanced Cluster Management for Kubernetes 2.1.x, you need to manually increase the memory limit of the pod to **8Gb**. See the following steps:

1. On your hub cluster, annotate the **klusterletaddonconfig** to pause replication. See the following command:

```
oc annotate klusterletaddonconfig -n ${CLUSTER_NAME} ${CLUSTER_NAME}
klusterletaddonconfig-pause=true -- overwrite=true
```

2. On your hub cluster, scale down the **klusterlet-addon-operator**. See the following command:

```
oc edit manifestwork ${CLUSTER_NAME}-klusterlet-addon-operator -n ${CLUSTER_NAME}
```

3. Find the **klusterlet-addon-operator** Deployment and add **replicas: 0** to the spec to scale down.

```
- apiVersion: apps/v1
  kind: Deployment
  metadata:
    labels:
      app: cluster1
      name: klusterlet-addon-operator
      namespace: open-cluster-management-agent-addon
  spec:
    replicas: 0
```

On the managed cluster, the **open-cluster-management-agent-addon/klusterlet-addon-operator** pod will be terminated.

4. Log in to the managed cluster to manually increase the memory limit in the **appmgr** pod. Run the following command:

```
% oc edit deployments -n open-cluster-management-agent-addon klusterlet-addon-appmgr
```

For example, if the limit is 5G, increase the limit to 8G.

```
resources:
  limits:
    memory: 2Gi -> 8Gi
  requests:
    memory: 128Mi -> 256Mi
```

1.20. TROUBLESHOOTING OBSERVABILITY

After you install the observability component, the component might be stuck and an **Installing** status is displayed.

1.20.1. Symptom: MultiClusterObservability resource status stuck

If the observability status is stuck in an **Installing** status after you install and create the Observability CustomResourceDefinition (CRD), it is possible that there is no value defined for the **spec:storageConfigObject:statefulSetStorageClass** parameter. Alternatively, the observability component automatically finds the default **storageClass**, but if there is no value for the storage, the component remains stuck with the **Installing** status.

1.20.2. Resolving the problem: MultiClusterObservability resource status stuck

If you have this problem, complete the following steps:

1. Verify that the observability components are installed:
 - a. To verify that the **multicluster-observability-operator**, run the following command:

```
kubectl get pods -n open-cluster-management|grep observability
```

- b. To verify that the appropriate CRDs are present, run the following command:

```
kubectl get crd|grep observ
```

The following CRDs must be displayed before you enable the component:

```
multiclusterobservabilities.observability.open-cluster-management.io
observabilityaddons.observability.open-cluster-management.io
observatoria.core.observatorium.io
```

2. If you create your own storageClass for a Bare Metal cluster, see [How to create an NFS provisioner in the cluster or out of the cluster](#).
3. To ensure that the observability component can find the default storageClass, update the **storageClass** parameter in the **multicluster-observability-operator** CRD. Your parameter might resemble the following value:

```
storageclass.kubernetes.io/is-default-class: "true"
```

The observability component status is updated to a *Ready* status when the installation is complete. If the installation fails to complete, the *Fail* status is displayed.

1.21. TROUBLESHOOTING OPENSIFT MONITORING SERVICE

Observability service in a managed cluster needs to scrape metrics from the OpenShift Container Platform monitoring stack. The **metrics-collector** is not installed if the OpenShift Container Platform monitoring stack is not ready.

1.21.1. Symptom: OpenShift monitoring service is not ready

The **endpoint-observability-operator-x** pod checks if the **prometheus-k8s** service is available in the **openshift-monitoring** namespace. If the service is not present in the **openshift-monitoring** namespace, then the **metrics-collector** is not deployed. You might receive the following error message: **Failed to get prometheus resource**.

1.21.2. Resolving the problem: OpenShift monitoring service is not ready

If you have this problem, complete the following steps:

1. Log in to your OpenShift Container Platform cluster.
2. Access the **openshift-monitoring** namespace to verify that the **prometheus-k8s** service is available.
3. Restart **endpoint-observability-operator-x** pod in the **open-cluster-management-addon-observability** namespace of the managed cluster.

1.22. UNDESIRED LABEL VALUE IN MANAGEDCLUSTER RESOURCE

When you import a managed cluster, the observability components are installed by default. Your placement rule might resemble the following information:

```
status:
  decisions:
  - clusterName: sample-managed-cluster
    clusterNamespace: sample-managed-cluster
```

If the managed cluster is not included in the placement rule, the observability components are not installed.

1.22.1. Symptom: Undesired label value in managedcluster resource

If you find that the imported cluster is not included, the observability service for your managed cluster resource might be disabled.

Remember: When you enable the service, the **vendor:OpenShift** label is added to represent the target managed cluster. Observability service is only supported on OpenShift Container Platform managed cluster.

1.22.2. Resolving the problem: Undesired label value in managedcluster resource

If you have this problem, enable the observability service for the target managed cluster and update labels in the **managedcluster** resource.

Complete the following steps:

1. Log in to your Red Hat Advanced Cluster Management cluster.

2. Change the **observability** parameter value to **enabled** by updating the placement rule. Run the following command:

```
oc edit placementrule -n open-cluster-management-observability
```

3. Verify that OpenShift is listed as vendor for the target managed cluster by running the following command:

```
oc get managedcluster <CLUSTER NAME> -o yaml
```

Update the **metadata.labels.vendor** parameter value to **OpenShift**.

1.23. TROUBLESHOOTING THE METRICS-COLLECTOR

The metrics collector might fail to push metrics to the {product-short} hub cluster

1.23.1. Symptom 1: Certification is invalid

After you import your managed cluster, you might receive the following error message due to invalid certification for the **metrics-collector-deployment-<pod_name>**:

```
x509: certificate signed by unknown authority
```

You might receive the error if the **observability-managed-cluster-certs** secret is deleted or recreated after the **metrics-collector-deployment-<pod_name>** pod restarted. The certificates are not updated in the secret.

1.23.2. Resolving the problem: Certification is invalid

If you have this problem, complete the following steps:

1. Log in to your {product-short} hub cluster.
2. Restart **multicluster-observability-operator-<pod_name>** pod.
3. Access the **open-cluster-management-addon-observability** namespace and restart the **metrics-collector-deployment-<pod_name>** pod on your managed cluster.

1.23.3. Symptom 2: Storage in mounted persistent volume is used up

If the storage of the mounted persistent volume on the **data-observability-observatorium-thanos-receive-default-<pod_name>** pod reaches capacity, the metrics collector fails to send metrics to the hub cluster.

You might receive the following error message in the logs of **metrics-collector-deployment-<your_pod_name>** pod: **no space left on device**.

1.23.4. Resolving the problem: Storage in mounted persistent volume is used up

If you have this problem, complete the following steps:

1. Log in to your OpenShift Container Platform managed cluster.

2. Access the **data-observability-observatorium-thanos-receive-default-`<pod_name>`** pod and increase the persistent volume claim.
3. Restart **data-observability-observatorium-thanos-receive-default-`<pod_name>`** pod in the **open-cluster-management-observability** namespace.

1.24. CURRENT DATA ON THE GRAFANA DASHBOARD DISAPPEARS

Current data from the Grafana dashboards in the Red Hat Advanced Cluster Management console disappears.

1.24.1. Symptom 1: Current data on the Grafana dashboard disappears

Data from the Red Hat Advanced Cluster Management cluster overview dashboard is empty, however historical data is still available.

1.24.2. Symptom 2: PVC does not change after editing `statefulSetSize`

Additionally, on your managed clusters you might receive a message in the logs for any **metrics-collector-deployment-x** pods that are running in the **open-cluster-management-addon-observability** namespace. You might receive the following error message, along with text that references that the disk is full:

```
HTTP 500
```

1.24.3. Resolving the problem: Expand the PVC size

If you have this problem, complete the following steps:

1. Confirm if the disk space is full by running a query.
 - a. Log in to the Red Hat OpenShift Container Platform console.
 - b. From the navigation menu, click **Monitoring > Metrics**.
 - c. Enter the following query in the *Expression* window and sort the query to ascend by the *Volume* column:

```
kubelet_volume_stats_available_bytes{namespace="open-cluster-management-observability"}/kubelet_volume_stats_capacity_bytes{namespace="open-cluster-management-observability"}
```

Note: If the value is 0, then the disk is full. If the disk is full continue with the following tasks.

2. Expand the **data-observability-observatorium-thanos-receive-default-x** PVC to update the **storage** parameter to a greater value than the **statefulSetSize** value from the MultiClusterObservability (mco) CR. Run the following command for each **data-observability-observatorium-thanos-receive-default-x** PVC:

```
kubectl get pvc data-observability-observatorium-thanos-receive-default-0 -o yaml
```

Your **data-observability-observatorium-thanos-receive-default-x** PVC might resemble the following content:

```
spec:  
  accessModes:  
    - ReadWriteOnce  
  resources:  
    requests:  
      storage:
```

This might take some time to work. Your changes go into effect when the value of **storage** and **status** match. Run the previous command to check.

3. Verify the fix by completing the following steps:
 - a. Log in to your Red Hat Advanced Cluster Management console.
 - b. From the navigation menu, select **Observe environments** > **Overview**.
 - c. Click the Grafana link that is near the console header to view the metrics from your managed clusters.
 - d. Check the **metrics-collector-deployment-x** pod logs. When the error is fixed in the logs, the following message appears: **Metrics pushed successfully**.
 - e. Confirm if the disk space is no longer full by running a query from your Red Hat OpenShift Container Platform console. Enter the following query in the *Expression* window and sort the query to ascend by the *Volume* column:

```
kubelet_volume_stats_available_bytes{namespace="open-cluster-management-observability"}/kubelet_volume_stats_capacity_bytes{namespace="open-cluster-management-observability"}
```