Red Hat Advanced Cluster Security for Kubernetes 4.3

roxctl CLI

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Legal Notice

Abstract

This document describes how to install and use the roxctl command-line interface, including the roxctl syntax and operations. It provides some common command examples.

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CHAPTER 1. INSTALLING THE ROXCTL CLI

roxctl is a command-line interface (CLI) for running commands on Red Hat Advanced Cluster Security for Kubernetes (RHACS). You can install the **roxctl** CLI by downloading the binary or you can run the **roxctl** CLI from a container image.

1.1. INSTALLING THE ROXCTL CLI BY DOWNLOADING THE BINARY

You can install the **roxctl** CLI to interact with RHACS from a command-line interface. You can install **roxctl** on Linux, Windows, or macOS.

1.1.1. Installing the roxctl CLI on Linux

You can install the **roxctl** CLI binary on Linux by using the following procedure.

NOTE

roxctl CLI for Linux is available for **amd64**, **ppc64le**, and **s390x** architectures.

Procedure

1. Determine the **roxctl** architecture for the target operating system:

```
$ arch="$(uname -m | sed "s/x86_64//")"; arch="${arch:+-$arch}"
```

2. Download the **roxctl** CLI:

```
$ curl -f -o roxctl "https://mirror.openshift.com/pub/rhacs/assets/4.3.8/bin/Linux/roxctl${arch}"
```

3. Make the **roxctl** binary executable:

```
$ chmod +x roxctl
```

4. Place the **roxctl** binary in a directory that is on your **PATH**:
   To check your **PATH**, execute the following command:

```
$ echo $PATH
```

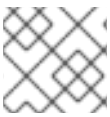
Verification

- Verify the **roxctl** version you have installed:

```
$ roxctl version
```

1.1.2. Installing the roxctl CLI on macOS

You can install the **roxctl** CLI binary on macOS by using the following procedure.



NOTE

roxctl CLI for macOS is available for the **amd64** architecture.

Procedure

1. Download the **roxctl** CLI:

```
$ curl -f -O https://mirror.openshift.com/pub/rhacs/assets/4.3.8/bin/Darwin/roxctl
```

2. Remove all extended attributes from the binary:

```
$ xattr -c roxctl
```

3. Make the **roxctl** binary executable:

```
$ chmod +x roxctl
```

4. Place the **roxctl** binary in a directory that is on your **PATH**:
   To check your **PATH**, execute the following command:

```
$ echo $PATH
```

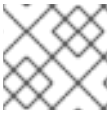
Verification

- Verify the **roxctl** version you have installed:

```
$ roxctl version
```

1.1.3. Installing the roxctl CLI on Windows

You can install the **roxctl** CLI binary on Windows by using the following procedure.



NOTE

roxctl CLI for Windows is available for the **amd64** architecture.

Procedure

- Download the **roxctl** CLI:

```
$ curl -f -O https://mirror.openshift.com/pub/rhacs/assets/4.3.8/bin/Windows/roxctl.exe
```

Verification

- Verify the **roxctl** version you have installed:

```
$ roxctl version
```

1.2. RUNNING THE ROXCTL CLI FROM A CONTAINER

The **roxctl** client is the default entry point in the RHACS **roxctl** image. To run the **roxctl** client in a container image:

Prerequisites

- You must first generate an authentication token from the RHACS portal.

Procedure

1. Log in to the **registry.redhat.io** registry.

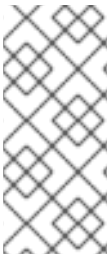
```
$ docker login registry.redhat.io
```

2. Pull the latest container image for the **roxctl** CLI.

```
$ docker pull registry.redhat.io/advanced-cluster-security/rhacs-roxctl-rhel8:4.3.8
```

After you install the CLI, you can run it by using the following command:

```
$ docker run -e ROX_API_TOKEN=$ROX_API_TOKEN \
  -it registry.redhat.io/advanced-cluster-security/rhacs-roxctl-rhel8:4.3.8 \
  -e $ROX_CENTRAL_ADDRESS <command>
```



NOTE

In Red Hat Advanced Cluster Security Cloud Service (RHACS Cloud Service), when using **roxctl** commands that require the Central address, use the **Central instance address** as displayed in the **Instance Details** section of the Red Hat Hybrid Cloud Console. For example, use **acs-ABCD12345.acs.rhcloud.com** instead of **acs-data-ABCD12345.acs.rhcloud.com**.

Verification

- Verify the **roxctl** version you have installed.

```
$ docker run -it registry.redhat.io/advanced-cluster-security/rhacs-roxctl-rhel8:4.3.8 version
```

CHAPTER 2. USING THE ROXCTL CLI

2.1. PREREQUISITES

- You have configured the **ROX_ENDPOINT** environment variable using the following command:

```
$ export ROX_ENDPOINT=<host:port> 1
```

1 The host and port information that you want to store in the **ROX_ENDPOINT** environment variable.

2.2. GETTING AUTHENTICATION INFORMATION

The following procedure describes how to use the **roxctl central whoami** command to retrieve information about your authentication status and user profile in Central. The example output illustrates the data you can expect to see, including user roles, access permissions, and various administrative functions. This step allows you to review your access and roles within Central.

Procedure

- Run the following command to get information about your current authentication status and user information in Central:

```
$ roxctl central whoami
```

Example output

```
UserID:
    <redacted>
User name:
    <redacted>
Roles:
 APIToken creator, Admin, Analyst, Continuous Integration, Network Graph Viewer, None,
Sensor Creator, Vulnerability Management Approver, Vulnerability Management Requester,
Vulnerability Manager, Vulnerability Report Creator
Access:
  rw Access
  rw Administration
  rw Alert
  rw CVE
  rw Cluster
  rw Compliance
  rw Deployment
  rw DeploymentExtension
  rw Detection
  rw Image
  rw Integration
  rw K8sRole
  rw K8sRoleBinding
  rw K8sSubject
  rw Namespace
  rw NetworkGraph
```

```
rw NetworkPolicy
rw Node
rw Secret
rw ServiceAccount
rw VulnerabilityManagementApprovals
rw VulnerabilityManagementRequests
rw WatchedImage
rw WorkflowAdministration
```

Review the output to ensure that the authentication and user details are as expected.

2.3. AUTHENTICATING BY USING THE ROXCTL CLI

For authentication, you can use an API token, your administrator password, or the **roxctl central login** command.

Follow these guidelines for the effective use of API tokens:

- Use an API token in a production environment with continuous integration (CI). Each token is assigned specific access permissions, providing control over the actions it can perform. In addition, API tokens do not require interactive processes, such as browser-based logins, making them ideal for automated processes. These tokens have a time-to-live (TTL) value of 1 year, providing a longer validity period for seamless integration and operational efficiency.
- Use your administrator password only for testing purposes. Do not use it in the production environment.
- Use the **roxctl central login** command only for interactive, local uses.

2.3.1. Creating an API token

Procedure

1. In the RHACS portal, navigate to **Platform Configuration → Integrations**.
2. Scroll to the **Authentication Tokens** category, and then click **API Token**.
3. Click **Generate Token**.
4. Enter a name for the token and select a role that provides the required level of access (for example, **Continuous Integration** or **Sensor Creator**).
5. Click **Generate**.

IMPORTANT

Copy the generated token and securely store it. You will not be able to view it again.

2.3.2. Exporting and saving the API token

Procedure

1. After you have generated the authentication token, export it as the **ROX_API_TOKEN** variable by entering the following command:

```
$ export ROX_API_TOKEN=<api_token>
```

2. (Optional): You can also save the token in a file and use it with the **--token-file** option by entering the following command:

```
$ roxctl central debug dump --token-file <token_file>
```

Note the following guidelines:

- You cannot use both the **-password** (**-p**) and the **--token-file** options simultaneously.
- If you have already set the **ROX_API_TOKEN** variable, and specify the **--token-file** option, the **roxctl** CLI uses the specified token file for authentication.
- If you have already set the **ROX_API_TOKEN** variable, and specify the **--password** option, the **roxctl** CLI uses the specified password for authentication.

2.3.3. Using an authentication provider to authenticate with roxctl

You can configure an authentication provider in Central and initiate the login process with the **roxctl** CLI. Set the **ROX_ENDPOINT** variable, initiate the login process with the **roxctl central login** command, select the authentication provider in a browser window, and retrieve the token information from the **roxctl** CLI as described in the following procedure.

Prerequisite

- You selected an authentication provider of your choice, such as OpenID Connect (OIDC) with fragment or query mode.

Procedure

1. Run the following command to set the **ROX_ENDPOINT** variable to Central hostname and port:

```
export ROX_ENDPOINT=<central_hostname:port>
```

2. Run the following command to initiate the login process to Central:

```
$ roxctl central login
```

3. Within the **roxctl** CLI, a URL is printed as output and you are redirected to a browser window where you can select the authentication provider you want to use.

4. Log in with your authentication provider.
After you have successfully logged in, the browser window indicates that authentication was successful and you can close the browser window.

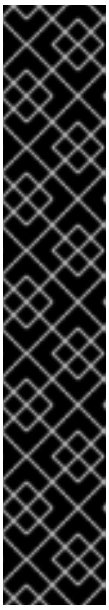
5. The **roxctl** CLI displays your token information including details such as the access token, the expiration time of the access token, the refresh token if one has been issued, and notification that these values are stored locally.

Example output

```
Please complete the authorization flow in the browser with an auth provider of your choice.
If no browser window opens, please click on the following URL:
      http://127.0.0.1:xxxxx/login

INFO: Received the following after the authorization flow from Central:
INFO: Access token: <redacted> 1
INFO: Access token expiration: 2023-04-19 13:58:43 +0000 UTC 2
INFO: Refresh token: <redacted> 3
INFO: Storing these values under $HOME/.roxctl/login… 4
```

1. The access token.
2. The expiration time of the access token.
3. The refresh token.
4. The directory where values of the access token, the access token expiration time, and the refresh token are stored locally.



IMPORTANT

Ensure that you set the environment to determine the directory where the configuration is stored. By default, the configuration is stored in the **$HOME/.roxctl/roxctl-config** directory.

- If you set the **$ROX_CONFIG_DIR** environment variable, the configuration is stored in the **$ROX_CONFIG_DIR/roxctl-config** directory. This option has the highest priority.
- If you set the **$XDG_RUNTIME_DIR** environment variable and the **$ROX_CONFIG_DIR** variable is not set, the configuration is stored in the **$XDG_RUNTIME_DIR /roxctl-config** directory.
- If you do not set the **$ROX_CONFIG_DIR** or **$XDG_RUNTIME_DIR** environment variable, the configuration is stored in the **$HOME/.roxctl/roxctl-config** directory.

2.4. CONFIGURING AND USING THE ROXCTL CLI IN RHACS CLOUD SERVICE

Procedure

- Export the **ROX_API_TOKEN** by running the following command:

```
$ export ROX_API_TOKEN=<api_token>
```

- Export the **ROX_ENDPOINT** by running the following command:

```
$ export ROX_ENDPOINT=<address>:<port_number>
```

- You can use the **--help** option to get more information about the commands.

- In Red Hat Advanced Cluster Security Cloud Service (RHACS Cloud Service), when using **roxctl** commands that require the Central address, use the **Central instance address** as displayed in the **Instance Details** section of the Red Hat Hybrid Cloud Console. For example, use **acs-ABCD12345.acs.rhcloud.com** instead of **acs-data-ABCD12345.acs.rhcloud.com**.

CHAPTER 3. MANAGING SECURED CLUSTERS

To secure a Kubernetes or an OpenShift Container Platform cluster, you must deploy Red Hat Advanced Cluster Security for Kubernetes (RHACS) services into the cluster. You can generate deployment files in the RHACS portal by navigating to the **Platform Configuration → Clusters** view, or you can use the **roxctl** CLI.

3.1. PREREQUISITES

- You have configured the **ROX_ENDPOINT** environment variable using the following command:

```
$ export ROX_ENDPOINT=<host:port> 1
```

1 The host and port information that you want to store in the **ROX_ENDPOINT** environment variable.

3.2. GENERATING SENSOR DEPLOYMENT FILES

Generating files for Kubernetes systems

Procedure

- Generate the required sensor configuration for your Kubernetes cluster and associate it with your Central instance by running the following command:

```
$ roxctl sensor generate k8s --name <cluster_name> --central "$ROX_ENDPOINT"
```

Generating files for OpenShift Container Platform systems

Procedure

- Generate the required sensor configuration for your OpenShift Container Platform cluster and associate it with your Central instance by running the following command:

```
$ roxctl sensor generate openshift --openshift-version <ocp_version> --name
<cluster_name> --central "$ROX_ENDPOINT" 1
```

1 For the **--openshift-version** option, specify the major OpenShift Container Platform version number for your cluster. For example, specify **3** for OpenShift Container Platform version **3.x** and specify **4** for OpenShift Container Platform version **4.x**.

Read the **--help** output to see other options that you might need to use depending on your system architecture.

Verify that the endpoint you provide for **--central** can be reached from the cluster where you are deploying Red Hat Advanced Cluster Security for Kubernetes services.

IMPORTANT

If you are using a non-gRPC capable load balancer, such as HAProxy, AWS Application Load Balancer (ALB), or AWS Elastic Load Balancing (ELB), follow these guidelines:

- Use the WebSocket Secure (**wss**) protocol. To use **wss**, prefix the address with **wss:**//, and
- Add the port number after the address, for example:

```
$ roxctl sensor generate k8s --central wss://stackrox-central.example.com:443
```

3.3. INSTALLING SENSOR BY USING THE SENSOR.SH SCRIPT

When you generate the Sensor deployment files, **roxctl** creates a directory called **sensor-<cluster_name>** in your working directory. The script to install Sensor is located in this directory.

Procedure

- Run the sensor installation script to install Sensor:

```
$ ./sensor-<cluster_name>/sensor.sh
```

If you get a warning that you do not have the required permissions to install Sensor, follow the on-screen instructions, or contact your cluster administrator for help.

3.4. DOWNLOADING SENSOR BUNDLES FOR EXISTING CLUSTERS

Procedure

- Run the following command to download Sensor bundles for existing clusters by specifying a **cluster name** or **ID**:

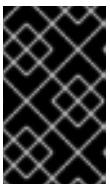
```
$ roxctl sensor get-bundle <cluster_name_or_id>
```

3.5. DELETING CLUSTER INTEGRATION

Procedure

- Before deleting the cluster, ensure you have the correct cluster name that you want to remove from Central:

```
$ roxctl cluster delete --name=<cluster_name>
```



IMPORTANT

Deleting the cluster integration does not remove the RHACS services running in the cluster, depending on the installation method. You can remove the services by running the **delete-sensor.sh** script from the Sensor installation bundle.

CHAPTER 4. CHECKING POLICY COMPLIANCE

You can use the **roxctl** CLI to check deployment YAML files and images for policy compliance.

4.1. PREREQUISITES

- You have configured the **ROX_ENDPOINT** environment variable using the following command:

```
$ export ROX_ENDPOINT=<host:port> 1
```

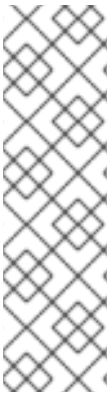
1 The host and port information that you want to store in the **ROX_ENDPOINT** environment variable.

4.2. CONFIGURING OUTPUT FORMAT

When you check policy compliance by using the **roxctl deployment check** or **roxctl image check** commands, you can specify the output format by using the **-o** option to the command and specifying the format as **json**, **table**, **csv**, or **junit**. This option determines how the output of a command is displayed in the terminal.

For example, the following command checks a deployment and then displays the result in **csv** format:

```
$ roxctl deployment check --file =<yaml_filename> -o csv
```



NOTE

When you do not specify the **-o** option for the output format, the following default behavior is used:

- The format for the **deployment check** and the **image check** commands is **table**.
- The default output format for the **image scan** command is **json**. This is the old JSON format output for compatibility with older versions of the CLI. To get the output in the new JSON format, specify the option with format, as **-o json**. Use the old JSON format output when gathering data for troubleshooting purposes.

Different options are available to configure the output. The following table lists the options and the format in which they are available.

Option	Description	Formats
--compact-output	Use this option to display the JSON output in a compact format.	**json**
--headers	Use this option to specify custom headers.	**table** and **csv**
--no-header	Use this option to omit the header row from the output.	**table** and **csv**

Option	Description	Formats
--row-jsonpath-expressions	Use this option to specify GJSON paths to select specific items from the output. For example, to get the **Policy name** and **Severity** for a deployment check, use the following command: `$ roxctl deployment check --file=<yaml_filename> \ -o table --headers POLICY-NAME,SEVERITY \ --row-jsonpath-expressions="{results..violatedPolicies..name,results..violatedPolicies..severity}"`	**table** and **csv**
--merge-output	Use this options to merge table cells that have the same value.	**table**
headers-as-comment	Use this option to include the header row as a comment in the output.	**csv**
--junit-suite-name	Use this option to specify the name of the JUnit test suite.	**junit**

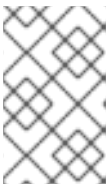
4.3. CHECKING DEPLOYMENT YAML FILES

Procedure

- Run the following command to check the build-time and deploy-time violations of your security policies in YAML deployment files:

```
$ roxctl deployment check --file=<yaml_filename>
```

The format is defined in the API reference. To cause Red Hat Advanced Cluster Security for Kubernetes (RHACS) to re-pull image metadata and image scan results from the associated registry and scanner, add the **--force** option.



NOTE

To check specific image scan results, you must have a token with both **read** and **write** permissions for the **Image** resource. The default **Continuous Integration** system role already has the required permissions.

This command validates the following items:

- Configuration options in a YAML file, such as resource limits or privilege options
- Aspects of the images used in a YAML file, such as components or vulnerabilities

4.4. CHECKING IMAGES

Procedure

- Run the following command to check the build-time violations of your security policies in images:

```
$ roxctl image check --image=<image_name>
```

The format is defined in the API reference. To cause Red Hat Advanced Cluster Security for Kubernetes (RHACS) to re-pull image metadata and image scan results from the associated registry and scanner, add the **--force** option.

NOTE

To check specific image scan results, you must have a token with both **read** and **write** permissions for the **Image** resource. The default **Continuous Integration** system role already has the required permissions.

Additional resources

- roxctl image command overiew

4.5. CHECKING IMAGE SCAN RESULTS

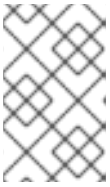
You can also check the scan results for specific images.

Procedure

- Run the following command to return the components and vulnerabilities found in the image in JSON format:

```
$ roxctl image scan --image <image_name>
```

The format is defined in the API reference. To cause Red Hat Advanced Cluster Security for Kubernetes (RHACS) to re-pull image metadata and image scan results from the associated registry and scanner, add the **--force** option.



NOTE

To check specific image scan results, you must have a token with both **read** and **write** permissions for the **Image** resource. The default **Continuous Integration** system role already has the required permissions.

Additional resources

- roxctl image command overiew

4.6. ROXCTL IMAGE COMMAND OVERVIEW

Commands that you can run on a specific image.

Usage

```
$ roxctl image [command] [flags]
```

Table 4.1. Available commands

Command	Description
check	Check images for build time policy violations, and report them.
scan	Scan the specified image, and return the scan results.

Table 4.2. Options

Option	Description
-t, **--timeout duration**	Set the timeout for API requests representing the maximum duration of a request. The default value is **10m0s**.

4.6.1. roxctl image command options inherited from the parent command

The **roxctl image** command supports the following options inherited from the parent **roxctl** command:

Option	Description
--ca string	Specify a custom CA certificate file path for secure connections. Alternatively, you can specify the file path by using the **ROX_CA_CERT_FILE** environment variable.
--direct-grpc	Set **--direct-grpc** for improved connection performance. Alternatively, by setting the **ROX_DIRECT_GRPC_CLIENT** environment variable to **true**, you can enable direct gRPC . The default value is **false**.
-e, **--endpoint string**	Set the endpoint for the service to contact. Alternatively, you can set the endpoint by using the **ROX_ENDPOINT** environment variable. The default value is **localhost:8443**.
--force-http1	Force the use of HTTP/1 for all connections. Alternatively, by setting the **ROX_CLIENT_FORCE_HTTP1** environment variable to **true**, you can force the use of HTTP/1. The default value is **false**.
--insecure	Enable insecure connection options. Alternatively, by setting the **ROX_INSECURE_CLIENT** environment variable to **true**, you can enable insecure connection options. The default value is **false**.

Option	Description
--insecure-skip-tls-verify	Skip the TLS certificate validation. Alternatively, by setting the **ROX_INSECURE_CLIENT_SKIP_TLS_VERIFY** environment variable to **true**, you can skip the TLS certificate validation. The default value is **false**.
--no-color	Disable the color output. Alternatively, by setting the **ROX_NO_COLOR environment variable** to **true**, you can disable the color output. The default value is **false**.
-p, **--password string**	Specify the password for basic authentication. Alternatively, you can set the password by using the **ROX_ADMIN_PASSWORD** environment variable.
--plaintext	Use an unencrypted connection. Alternatively, by setting the **ROX_PLAINTEXT** environment variable to **true**, you can enable an unencrypted connection. The default value is **false**.
-s, **--server-name string**	Set the TLS server name to use for SNI. Alternatively, you can set the server name by using the **ROX_SERVER_NAME** environment variable.
--token-file string	Use the API token provided in the specified file for authentication. Alternatively, you can set the token by using the **ROX_API_TOKEN** environment variable.

NOTE

These options are applicable to all the sub-commands of the **roxctl image** command.

4.6.2. roxctl image scan

Scan the specified image, and return the scan results.

Usage

```
$ roxctl image scan [flags]
```

Table 4.3. Options

Option	Description
--cluster string	Specify the cluster name or ID to which you want to delegate the image scan.

Option	Description
--compact-output	Print JSON output in a compact format. The default value is **false**.
-f, **--force**	Ignore Central's cache and force a fresh re-pull from Scanner. The default value is **false**.
--headers strings	Specify the headers to print in a tabular output. The default values include **COMPONENT**, **VERSION**,**CVE**,**SEVERITY**, and **LINK**.
--headers-as-comments	Print headers as comments in a CSV tabular output. The default value is **false**.
-i, **--image string**	Specify the image name and reference to scan. For example, **nginx:latest** or **nginx@sha256:...**.
-a, **--include-snoozed**	Include snoozed and unsnoozed CVEs in the scan results. The default value is **false**.
--merge-output	Merge duplicate cells in a tabular output. The default value is **true**.
--no-header	Do not print headers for a tabular output. The default value is **false**.
-o, **--output string**	Specify the output format. Output formats include **table**, **csv**, **json**, and **sarif**.
-r, **--retries int**	Specify the number of retries before exiting as an error. The default value is **3**.
-d, **--retry-delay int**	Set the time to wait between retries in seconds. The default value is **3**.
--row-jsonpath-expressions string	Specify JSON path expressions to create a row from the JSON object. For more details, run the **roxctl image scan --help** command.

4.6.3. roxctl image check

Check images for build time policy violations, and report them.

Usage

```
$ roxctl image check [flags]
```

Table 4.4. Options

Option	Description
-c, **--categories strings**	List of the policy categories that you want to execute. By default, all the policy categories are used.
--cluster string	Define the cluster name or ID that you want to use as the context for evaluation.
--compact-output	Print JSON output in a compact format. The default value is **false**.
-f, **--force**	Bypass the Central cache for the image and force a new pull from the Scanner. The default value is **false**.
--headers strings	Define headers to print in a tabular output. The default values include **POLICY**, **SEVERITY**, **BREAKS BUILD**, **DESCRIPTION**, **VIOLATION**, and **REMEDIATION**.
--headers-as-comments	Print headers as comments in a CSV tabular output. The default value is **false**.
-i, **--image string**	Specify the image name and reference. For example, **nginx:latest** or **nginx@sha256:...)**.
--junit-suite-name string	Set the name of the JUnit test suite. Default value is **image-check**.
--merge-output	Merge duplicate cells in a tabular output. The default value is **false**.
--no-header	Do not print headers for a tabular output. The default value is **false**.
-o, **--output string**	Choose the output format. Output formats include **junit**, **sarif**, **table**, **csv**, and **json**. The default value is **table**.
-r, **--retries int**	Set the number of retries before exiting as an error. The default value is **3**.

Option	Description
-d, **--retry-delay int**	Set the time to wait between retries in seconds. The default value is **3**.
--row-jsonpath-expressions string	Create a row from the JSON object by using JSON path expression. For more details, run the **roxctl image check --help** command.
--send-notifications	Define whether you want to send notifications in the event of violations. The default value is **false**.

CHAPTER 5. DEBUGGING ISSUES

Central saves information to its container logs.

5.1. PREREQUISITES

- You have configured the **ROX_ENDPOINT** environment variable using the following command:

```
$ export ROX_ENDPOINT=<host:port> 1
```

1 The host and port information that you want to store in the **ROX_ENDPOINT** environment variable.

5.2. VIEWING THE LOGS

You can use either the **oc** or **kubectl** command to view the logs for the Central pod.

Procedure

- To view the logs for the Central pod by using **kubectl**, run the following command :

```
$ kubectl logs -n stackrox <central_pod>
```

- To view the logs for the Central pod by using **oc**, run the following command :

```
$ oc logs -n stackrox <central_pod>
```

5.3. VIEWING THE CURRENT LOG LEVEL

You can change the log level to see more or less information in Central logs.

Procedure

- Run the following command to view the current log level:

```
$ roxctl central debug log
```

Additional resources

- roxctl central debug command overview

5.4. CHANGING THE LOG LEVEL

Procedure

- Run the following command to change the log level:

```
$ roxctl central debug log --level=<log_level> 1
```

1 The acceptable values for **<log_level>** are **Panic**, **Fatal**, **Error**, **Warn**, **Info**, and **Debug**.

Additional resources

- roxctl central debug command overview

5.5. RETRIEVING DEBUGGING INFORMATION

Procedure

- Run the following command to gather the debugging information for investigating issues:

```
$ roxctl central debug dump
```

- To generate a diagnostic bundle with the RHACS administrator password or API token and central address, follow the procedure in Generating a diagnostic bundle by using the roxctl CLI .

Additional resources

- roxctl central debug command overview

5.6. ROXCTL CENTRAL DEBUG COMMAND OVERVIEW

Debug the Central service.

Usage

```
$ roxctl central debug [flags]
```

5.6.1. roxctl central debug command options inherited from the parent command

The **roxctl central debug** command supports the following options inherited from the parent **roxctl** command:

Option	Description
--ca string	Specify a custom CA certificate file path for secure connections. Alternatively, you can specify the file path by using the **ROX_CA_CERT_FILE** environment variable.
--direct-grpc	Set **--direct-grpc** for improved connection performance. Alternatively, by setting the **ROX_DIRECT_GRPC_CLIENT** environment variable to **true**, you can enable direct gRPC . The default value is **false**.

Option	Description
-e, **--endpoint string**	Set the endpoint for the service to contact. Alternatively, you can set the endpoint by using the **ROX_ENDPOINT** environment variable. The default value is **localhost:8443**.
--force-http1	Force the use of HTTP/1 for all connections. Alternatively, by setting the **ROX_CLIENT_FORCE_HTTP1** environment variable to **true**, you can force the use of HTTP/1. The default value is **false**.
--insecure	Enable insecure connection options. Alternatively, by setting the **ROX_INSECURE_CLIENT** environment variable to **true**, you can enable insecure connection options. The default value is **false**.
--insecure-skip-tls-verify	Skip the TLS certificate validation. Alternatively, by setting the **ROX_INSECURE_CLIENT_SKIP_TLS_VERIFY** environment variable to **true**, you can skip the TLS certificate validation. The default value is **false**.
--no-color	Disable the color output. Alternatively, by setting the **ROX_NO_COLOR environment variable** to **true**, you can disable the color output. The default value is **false**.
-p, **--password string**	Specify the password for basic authentication. Alternatively, you can set the password by using the **ROX_ADMIN_PASSWORD** environment variable.
--plaintext	Use an unencrypted connection. Alternatively, by setting the **ROX_PLAINTEXT** environment variable to **true**, you can enable an unencrypted connection. The default value is **false**.
-s, **--server-name string**	Set the TLS server name to use for SNI. Alternatively, you can set the server name by using the **ROX_SERVER_NAME** environment variable.
--token-file string	Use the API token provided in the specified file for authentication. Alternatively, you can set the token by using the **ROX_API_TOKEN** environment variable.

NOTE

These options are applicable to all the sub-commands of the **roxctl central debug** command.

5.6.2. roxctl central debug db

Control the debugging of the database.

Usage

```
$ roxctl central debug db [flags]
```

Table 5.1. Options

Option	Description
-t, **--timeout duration**	Specify the timeout for API requests representing the maximum duration of a request. The default value is **1m0s**.

5.6.3. roxctl central debug log

Retrieve the current log level.

Usage

```
$ roxctl central debug log [flags]
```

Table 5.2. Options

Option	Description
-l, **--level string**	Specify the log level to which you want to set the modules. Valid values include **Debug**, **Info**, **Warn**, **Error**, **Panic**, and **Fatal**.
-m, **--modules strings**	Specify the modules to which you want to apply the command.
--retry-timeout duration	Specify the timeout after which API requests are retried. A value of zero means that the entire request duration is waited for without retrying. The default value is **20s**.
-t, **--timeout duration**	Specify the timeout for API requests, which is the maximum duration of a request. The default value is **1m0s**.

5.6.4. roxctl central debug dump

Download a bundle containing the debug information for Central.

Usage

```
$ roxctl central debug dump [flags]
```

Table 5.3. Options

Option	Description
--logs	If set to **true**, logs are included in the Central dump. The default value is **false**.
--output-dir string	Specify the output directory for the bundle content. The default value is an automatically generated directory name within the current directory.
-t, --timeout duration	Specify the timeout for API requests, which is the maximum duration of a request. The default value is **5m0s**.

5.6.5. roxctl central debug db stats

Control the statistics of the Central database.

Usage

```
$ roxctl central debug db stats [flags]
```

5.6.6. roxctl central debug authz-trace

Enable or disable authorization tracing in Central for debugging purposes.

Usage

```
$ roxctl central debug authz-trace [flags]
```

Table 5.4. Options

Option	Description
-t, --timeout duration	Specify the timeout for API requests representing the maximum duration of a request. The default value is **20m0s**.

5.6.7. roxctl central debug db stats reset

Reset the statistics of the Central database.

Usage

```
$ roxctl central debug db stats reset [flags]
```

5.6.8. roxctl central debug download-diagnostics

Download a bundle containing a snapshot of diagnostic information about the platform.

Usage

```
$ roxctl central debug download-diagnostics [flags]
```

Table 5.5. Options

Option	Description
--clusters strings	Specify a comma-separated list of the Sensor clusters from which you want to collect the logs.
--output-dir string	Specify the output directory in which you want to save the diagnostic bundle.
--since string	Specify the timestamp from which you want to collect the logs from the Sensor clusters.
-t, **--timeout duration**	Specify the timeout for API requests, which specifies the maximum duration of a request. The default value is **5m0s**.

CHAPTER 6. GENERATING BUILD-TIME NETWORK POLICIES

The build-time network policy generator is included in the **roxctl** CLI. For the build-time network policy generation feature, **roxctl** CLI does not need to communicate with RHACS Central so you can use it in any development environment.

6.1. USING THE BUILD-TIME NETWORK POLICY GENERATOR

IMPORTANT

Build-time network policy generation is a Technology Preview feature only. Technology Preview features are not supported with Red Hat production service level agreements (SLAs) and might not be functionally complete. Red Hat does not recommend using them in production. These features provide early access to upcoming product features, enabling customers to test functionality and provide feedback during the development process.

For more information about the support scope of Red Hat Technology Preview features, see Technology Preview Features Support Scope .

Prerequisites

1. The build-time network policy generator recursively scans the directory you specify when you run the command. Therefore, before you run the command, you must already have service manifests, config maps, and workload manifests such as **Pod**, **Deployment**, **ReplicaSet**, **Job**, **DaemonSet**, and **StatefulSet** as YAML files in the specified directory.

2. Verify that you can apply these YAML files as-is using the **kubectl apply -f** command. The build-time network policy generator does not work with files that use Helm-style templating.

3. Verify that the service network addresses are not hardcoded. Every workload that needs to connect to a service must specify the service network address as a variable. You can specify this variable by using the workload's resource environment variable or in a config map.

   - Example 1: using an environment variable
   - Example 2: using a config map
   - Example 3: using a config map

4. Service network addresses must match the following official regular expression pattern:

   ```
   (http(s)?://)?<svc>(.<ns>(.svc.cluster.local)?)?(:<portNum>)? 1
   ```

   1 In this pattern,

   - <svc> is the service name.
   - <ns> is the namespace where you defined the service.
   - <portNum> is the exposed service port number.

   Following are some examples that match the pattern:

- **wordpress-mysql:3306**
- **redis-follower.redis.svc.cluster.local:6379**
- **redis-leader.redis**
- **http://rating-service.**

Procedure

1. Verify that the build-time network policy generation feature is available by running the help command:

```
$ roxctl netpol generate -h
```

2. Generate the policies by using the **netpol generate** command:

```
$ roxctl netpol generate <folder-path> 1
```

1 Specify the path of the folder that has the Kubernetes manifests.

The **roxctl netpol generate** command supports the following options:

Option	Description
-h, --help	View the help text for the **netpol** command.
-d, --output-dir <dir>	Save the generated policies into a target folder. One file per policy.
-f, --output-file <filename>	Save and merge the generated policies into a single YAML file.
--fail	Fail on the first encountered error. The default value is **false**.
--remove	Remove the output path if it already exist.
--strict	Treat warnings as errors. The default value is **false**.

CHAPTER 7. IMAGE SCANNING BY USING THE ROXCTL CLI

You can scan images stored in image registries, including cluster local registries such as the OpenShift Container Platform integrated image registry by using the **roxctl** CLI.

7.1. SCANNING IMAGES BY USING A REMOTE CLUSTER

By specifying the appropriate cluster in the delegated scanning configuration or through the cluster parameter described in the following procedure, you can scan images from cluster local registries by using a remote cluster.

IMPORTANT

For more information about how to configure delegated image scanning, see Configuring delegated image scanning.

Procedure

- Run the following command to scan the specified image in a remote cluster:

```
$ roxctl image scan \
  --image=<image_registry>/<image_name> \ 1
  --cluster=<cluster_detail> \ 2
  [flags] 3
```

1. For **<image_registry>**, specify the registry where the image is located, for example, **image-registry.openshift-image-registry.svc:5000**/. For **<image_name>**, specify the name of the image you want to scan, for example, **default/image-stream:latest**.
2. For **<cluster_detail>**, specify the name or ID of the remote cluster. For example, specify the name **remote**.
3. Optional: For **[flags]**, you can specify parameters to modify the behavior of the command.

   For more information about optional parameters, see roxctl image scan command options .

Example output

```
{
  "Id":
"sha256:3f439d7d71adb0a0c8e05257c091236ab00c6343bc44388d091450ff58664bf9", 1
  "name": { 2
    "registry": "image-registry.openshift-image-registry.svc:5000", 3
    "remote": "default/image-stream", 4
    "tag": "latest", 5
    "fullName": "image-registry.openshift-image-registry.svc:5000/default/image-stream:latest"
6
  },
[...]
```

1. A unique identifier for the image that serves as a fingerprint for the image. It helps ensure the integrity and authenticity of the image.

2. Contains specific details about the image.
3. The location of the image registry where the image is stored.
4. The remote path to the image.
5. The version or tag associated with this image.
6. The complete name of the image, combining the registry, remote path, and tag.

7.2. ROXCTL IMAGE SCAN COMMAND OPTIONS

The **roxctl image scan** command supports the following options:

Option	Description
--cluster string	Delegate image scanning to a specific cluster.
--compact-output	Print the JSON output in a compact format. The default value is **false**.
-f, **--force**	Ignore Central's cache for the scan and force a fresh re-pull from Scanner. The default value is **false**.
--headers strings	Print the headers in a tabular format. Default values include **COMPONENT**,**VERSION**,**CVE**,**SEVERITY**, and **LINK**.
--headers-as-comments	Print the headers as comments in a CSV tabular output. The default value is **false**.
-h, **--help**	View the help text for the **roxctl image scan** command.
-i, **--image string**	Specify the image name and reference you want to scan.
-a, **--include-snoozed**	Return both snoozed and unsnoozed common vulnerabilities and exposures (CVEs). The default value is **false**.
--merge-output	Merge duplicate cells in a tabular output. The default value is **true**.
--no-header	Do not print headers for tabular format. The default value is **false**.

Option	Description
-o, **--output string**	Specify the output format. You can select a format to customize the display of results. Formats include **table**, **CSV**, **JSON**, and **SARIF**.
-r, **--retries int**	Set the number of retries before the operation is aborted with an error. The default value is **3**.
-d, **--retry-delay int**	Set the time in seconds to wait between retries. The default value is **3**.
--row-jsonpath-expressions string	Use the JSON path expressions to create rows from the JSON object. For more details, run the **roxctl image scan --help** command.