Upgrade Health Checker docs

Upgrade Health Checker

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Release notes

What's new in Upgrade Health Checker

Learn what's new in Upgrade Health Checker. You can find additional enhancement information by navigating to the Upgrade Health Checker tile in the NetApp Console Automation Hub and viewing the latest Upgrade Health Checker download files.

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Upgrade Health Checker offers a new solution for generating comprehensive, onsite reports to enable you to complete a successful ONTAP upgrade. It can be used with existing automation and orchestration frameworks to enhance efficiency when upgrading single or multiple clusters. Upgrade Health Checker supports upgrades to ONTAP 9.11.1 and later.

Learn more about Upgrade Health Checker.

Get started

Learn about Upgrade Health Checker

Upgrade Health Checker is an upgrade advisory service tool that provides detailed information and recommendations to help you complete a successful ONTAP upgrade. It conducts onsite, comprehensive health checks that identify blockers and warnings that you must resolve before performing an upgrade.

Upgrade Health Checker can integrate into your existing automation and orchestration frameworks to aid in upgrading a single or multiple clusters. It uses your most recent AutoSupport data to generate a detailed, accurate report on risks associated with your clusters, information about new features and enhancements in the ONTAP version you're upgrading to, and any actions to take before attempting an ONTAP upgrade.

To learn more about Upgrade Health Checker, see the FAQ for Upgrade Health Checker.

Download and set up Upgrade Health Checker

You can download Upgrade Health Checker to generate onsite, comprehensive reports before upgrading to a newer version of ONTAP.

Before you begin

Set up a virtual machine for Upgrade Health Checker with the following specifications:

- Processing and memory: m5.large VM or equivalent with 2 vCPUs and 8 GiB RAM.
- Recommended operating system: Ubuntu 22.04 for optimal compatibility.
- Storage: Provide a root volume with a minimum of 100 GB and an additional NFS volume of at least 100 GB to ensure data preservation if the virtual machine is compromised.
- Hosting requirements: Place the VM in a location with cluster connectivity and internet access to allow for automatic tool updates. The machine should have access to the following endpoints through HTTPS to conduct automatic updates:
  - https://api.uhc.netapp.com
  - https://gql.aiq.netapp.com

    If internet access is unavailable, consult NetApp for guidance.
- Recommended packages: Install a web server to facilitate access.

Additionally, ensure the virtual machine can connect to the telemetry endpoint (https://support.netapp.com/) through HTTPS to enable NetApp to receive AutoSupport information about your upgrade plans.

Steps

1. Download the Upgrade Health Checker binary by navigating to the NetApp Console Automation Hub and finding the Upgrade Health Checker tile.
2. Set up the Upgrade Health Checker virtual machine and use SSH to place the binary in the location of your choice.
3. Verify the digital signature of Upgrade Health Checker.

Upgrade Health Checker has a public code signing certificate (`UHC-Linux-codesigning-certificate-public.pem`) and intermediate and root certificates chain (`UHC-Linux-chain-certificates-public.pem`).

a. (Optional) Verify the code signing certificate against the chain:

```
openssl verify -CAfile UHC-Linux-chain-certificates-public.pem UHC-Linux-codesigning-certificate-public.pem
```

An output of `OK` confirms a valid chain of trust.

b. Extract the public key from the code signing certificate:

```
openssl x509 -in UHC-Linux-codesigning-certificate-public.pem -pubkey -noout -out UHC-Linux-public.pub
```

c. Verify the signature file (`uhc.sig`) against the Upgrade Health Checker binary using the public key:

```
openssl dgst -sha256 -verify UHC-Linux-public.pub -signature uhc.sig uhc
```

An output of `Verified OK` confirms the signature is valid.

4. Configure a service account and role for ONTAP cluster access. For cluster access through Upgrade Health Checker, create the service role as a REST-role.

> ⓘ You can build an Ansible playbook to automate the deployment of the role and user to all ONTAP clusters.

You must create the service account for the http application. Use the following CLI commands to configure the necessary permissions:

```
security login rest-role create -role uhctool -api /api -access readonly
-vserver

security login rest-role create -role uhctool -api
/api/support/autosupport -access read_create_modify -vserver

security login rest-role create -role uhctool -api
/api/support/autosupport/messages -access read_create_modify -vserver

vserver services web access create -name spi -role uhctool -vserver

security login create -user-or-group-name uhctool -role uhctool
-application http -authentication-method password

security login create -user-or-group-name uhctool -role uhctool
-application ssh -authentication-method password
```

5. Set up credential management to secure access to the application.

   For example, if you have CyberArk and Conjur, you can configure your environment to avoid passing credentials through a yaml file or command line.

   a. Create required CyberArk Safes:

      i. Create a Safe (Main-Conjur-Safe) that holds the application credentials and secrets

      ii. Create a Safe (API-Credentials-Safe) that holds the Conjur Host ID and API Key

      iii. Create a Safe (Conjur-SSL-Certificate) that holds the necessary certificate

   b. Create the configuration (Conjur.conf) and identity (Conjur.identity) files for this application:

      i. Conjur.conf

      ```
      account:
      plugins:[]
      appliance_url: https://FQDN
      cert_file: /etc/conjur.pem
      ```

      ii. Conjur.identity

      ```
      machine https://FQDN/authn
      login host /prodvault/devops/<Main-Conjur-Safe>/host1
      password XXXXXX
      ```

   Here is an example of how to use CyberArk and Conjur in an Ansible playbook:

   a. Install Conjur Ansible Collection, which includes the Conjur Ansible Lookup Plugin, on Ansible Host:

```
ansible-galaxy collection install cyberark.conjur
```

b. Create a task in a yaml file to fetch the username and password from CyberArk:

```
conjur_username: "{{ lookup('cyberark.conjur.conjur_variable',
'prodvault/devops/<Main-Conjur-Safe>/<Account name>/username',
validate_certs=false) }}"
conjur_password: "{{ lookup('cyberark.conjur.conjur_variable',
'prodvault/devops/<Main-Conjur-Safe>/<Account name>/password',
validate_certs=false) }}"
```

What’s next?

You can use Upgrade Health Checker to help you plan for an ONTAP upgrade by generating an upgrade report.

Use Upgrade Health Checker

Generate upgrade plan with Upgrade Health Checker

You can use Upgrade Health Checker to generate an upgrade plan for a single or multiple ONTAP clusters.

You can also automate generating upgrade reports to assist with maintaining up-to-date upgrade plans if you have a large, complex environment with multiple clusters.

Before you begin

To learn more about a specific Upgrade Health Checker parameter and the priority order for how the tool accepts input, refer to Learn about the input parameters for Upgrade Health Checker.

Steps

1. Set the execute permission on the binary before running it the first time:

   ```
   chmod +x uhc
   ```

   > ⓘ Upgrade Health Checker is a self-contained package and will need to unpack itself before executing. This can take a few seconds.

2. Before completing a full run of Upgrade Health Checker, perform a comprehensive check to ensure the tool can connect to the cluster and required endpoints:

   ```
   --test all
   ```

   The comprehensive check ensures the virtual machine hosting Upgrade Health Checker has:

   - Connectivity to the ONTAP cluster IP address through HTTPS
   - Connectivity to the telemetry endpoint (https://support.netapp.com/) through HTTPS
   - Connectivity to the auto-update endpoints (https://api.uhc.netapp.com and https://gql.aiq.netapp.com) through HTTPS
   - At least 4 GB of available `/tmp` space

3. (Optional) If you want to use a configuration file to store parameters, rename the `config.yaml.example` file located in the same location you downloaded the binary to `config.yaml`.

   Here is an example config.yaml file:

```
# Application Configuration
APP:
  RUNS_PATH: "/opt/uhc/runs"

# Cluster Credentials
CLUSTER:
  IP: "x.x.x.x"
  USERNAME: "admin"
  PASSWORD: "xyz"
  TARGET_ONTAP_VERSION: ""  # Optional: Specify target ONTAP version
(e.g., "9.16.1" or "current" to keep existing version). Leave empty to
prompt user.
  ACCEPT_EULA: false  # Optional: Set to true to accept EULA through
config. If false/empty, user will be prompted interactively.
```

4. Run Upgrade Health Checker by entering the ONTAP version you want to upgrade to and accepting the EULA, including additional parameters as needed.

   > ⓘ The EULA is a multi-page document. Enter `all` to see the entire document at once and enter `y` to accept it.

   After the AutoSupport log is downloaded for a cluster, processing generally takes one to two minutes depending on the number of cluster nodes. Because different ONTAP software versions handle AutoSupport collection differently, each Upgrade Health Checker run depends on the current load of the cluster and the current ONTAP version.

   a. Familiarize yourself with the available Upgrade Health Checker parameters, input priority order, and default values for certain parameters by referring to Learn about the input parameters for Upgrade Health Checker.

      The Input Parameters Guide also provides information for specifying a custom configuration file path and run path to streamline your workflow. The best practice is to create a custom output directory for each cluster to organize your reports and logs effectively.

   b. Run Upgrade Health Checker by accepting the EULA and entering the target ONTAP version and any additional parameters.

      ```
      ./uhc
      ```

5. After Upgrade Health Checker completes its checks, navigate to the `runs` folder to view the upgrade plan and cluster report.

   > ⓘ Each execution of the program is a "unique run" and will have all the associated data, logs and results in the associated `runs` folder.

6. Open the report file (named `uhc_<cluster-name>_<YYYYMMDDHHMMSS>.html`) in a web browser to view the report. If you are running it on a remote host, first download the report file to a machine where you

can view the report on a web browser.

The log path and report path are as follows:

- Log Path: `<output-path>/<unique-run-dir>/<cluster-name>/logs`
- Report Path: `<output-path>/<unique-run-dir>/<cluster-name>/results/uhc_<cluster-name>_<YYYYMMDDHHMMSS>.html`

Automate generating upgrade plans with Upgrade Health Checker

You can automate generating Upgrade Health Checker reports to reduce your manual effort when planning ONTAP upgrades in large, complex environments.

Steps

1. To ensure the successful creation of your upgrade reports, complete any necessary set up steps and one-time tasks outlined in Generate an ONTAP upgrade report.
2. Create a script to run Upgrade Health Checker with the appropriate parameters for your environment.

```
./uhc \
  --cluster-ip=<cluster-ip> \
  --cluster-username=<cluster-username> \
  --cluster-password=<cluster-password> \
  --target-ontap-version=<target-ontap-version> \
  --accept-eula=true
```

Here is an example of a cronjob that runs the tool Monday through Friday at 4AM. The binary and config.yaml files have been installed into /opt/uhc/tool/.

Bash script:

```
#!/bin/bash
cd /opt/uhc/tool
/opt/uhc/tool/uhc --accept-eula true --cluster-ip cluster-
mgmt1.example.com --target-ontap-version current --cluster-username
uhctool --cluster-password passw0rd
/opt/uhc/tool/uhc --accept-eula true --cluster-ip cluster-
mgmt2.example.com --target-ontap-version 9.14.1 --cluster-username
uhctool --cluster-password passw0rd
```

Cron job:

```
0 4 * * 1-5 /usr/local/bin/uhccron.sh
```

3. After Upgrade Health Checker completes its checks, navigate to the `runs` folder to view the upgrade plan and cluster report.

   > ⓘ Each execution of the program is a unique run and will have all the associated data, logs, and results in the associated `runs` folder.

4. Open the report file (named `uhc_<cluster-name>_<YYYYMMDDHHMMSS>.html`) in a web browser to view the report. If you are running Upgrade Health Checker on a remote host, first download the report file to a machine where you can view it on a web browser.

   The log path and report path are as follows:

   - Log Path: `<output-path>/<unique-run-dir>/<cluster-name>/logs`
   - Report Path: `<output-path>/<unique-run-dir>/<cluster-name>/results/uhc_<cluster-name>_<YYYYMMDDHHMMSS>.html`

Learn about the input parameters for Upgrade Health Checker

You can learn more about the input parameters for Upgrade Health Checker and how to provide them through CLI arguments, configuration files, or interactive prompts to assist you with generating an upgrade report for your ONTAP cluster.

Input methods priority

Upgrade Health Checker provides several input options for all parameters. Its priority order for accepting inputs is:

1. CLI arguments (highest priority)
2. Configuration file (`config.yaml`)
3. Interactive prompts (lowest priority)

When a parameter is provided through multiple methods, the tool will use the value from the highest priority source.

Input parameters

Cluster IP

The `--cluster-ip` parameter specifies the IP address or hostname of the ONTAP cluster to connect to.

The priority order for providing this parameter is:

1. CLI argument: `--cluster-ip`
2. Config file: `CLUSTER.IP`
3. Interactive prompt

Examples

- CLI argument:

  ```
  ./uhc --cluster-ip 192.168.1.100
  ```

- Config.yaml:

  ```
  CLUSTER:
    IP: "192.168.1.100"
  ```

- Interactive mode (if not provided above):

  Tool will prompt: `Enter cluster IP address:`

Cluster username

The `--cluster-username` parameter specifies the username for authenticating with the ONTAP cluster.

The priority order for providing this parameter is:

1. CLI argument: `--cluster-username`
2. Config file: `CLUSTER.USERNAME`
3. Interactive prompt

Examples

- CLI argument:

  `./uhc --cluster-username admin`

- Config.yaml:

  ```
  CLUSTER:
    USERNAME: "admin"
  ```

- Interactive mode (if not provided above):

  Tool will prompt: `Enter cluster username:`

Cluster password

The `--cluster-password` parameter specifies the password for authenticating with the ONTAP cluster.

The priority order for providing this parameter is:

1. CLI argument: `--cluster-password`
2. Config file: `CLUSTER.PASSWORD`
3. Interactive prompt (secure input)

Examples

- CLI argument (not recommended for security):

  ```
  ./uhc --cluster-password mypassword
  ```

- Config.yaml (ensure file permissions are restricted):

  ```
  CLUSTER:
    PASSWORD: "mypassword"
  ```

- Interactive mode (recommended - password hidden):

  Tool will prompt: `Enter cluster password:`

Target ONTAP version

The `--target-ontap-version` parameter specifies the ONTAP version you want to upgrade to for analysis. Use "current" to keep the existing cluster ONTAP version.

The priority order for providing this parameter is:

1. CLI argument: `--target-ontap-version`
2. Config file: `CLUSTER.TARGET_ONTAP_VERSION`
3. Interactive selection menu

Examples

- CLI argument:

  Updated version of ONTAP: `./uhc --target-ontap-version 9.15.1`

  Keep current version of ONTAP: `./uhc --target-ontap-version current`

- Config.yaml:

  ```
  CLUSTER:
    TARGET_ONTAP_VERSION: "9.15.1"
  ```

- Interactive mode (if not provided above):

  Tool will display available versions and prompt for selection

Accept EULA

The `--accept-eula` parameter specifies whether to accept the End User License Agreement. Must be set to `true` to proceed.

The priority order for providing this parameter is:

1. CLI argument: `--accept-eula`
2. Config file: `CLUSTER.ACCEPT_EULA`
3. Interactive prompt

Examples

- CLI argument:

  ```
  ./uhc --accept-eula true
  ```

- Config.yaml:

  ```
  CLUSTER:
    ACCEPT_EULA: true
  ```

- Interactive mode (if not provided above):

  Tool will display EULA and prompt for acceptance

Configuration file path

The `--config-path` parameter specifies the path to a custom configuration YAML file.

The priority order for providing this parameter is:

1. CLI argument: `--config-path`
2. Default: `config.yaml`

Examples

- CLI argument:

  ```
  ./uhc --config-path /path/to/custom_config.yaml
  ```

- Default (if not provided):

  Tool will look for config.yaml in the current directory

Run output path

The `--runs-path` parameter specifies a custom directory for storing run outputs and reports.

The priority order for providing this parameter is:

1. CLI argument: `--runs-path`
2. Config file: `APP.RUNS_PATH`
3. Default: `./runs`

Examples

- CLI argument:

  ```
  ./uhc --runs-path /custom/output/path
  ```

- Config.yaml:

  ```
  APP:
    RUNS_PATH: "/custom/output/path"
  ```

- Default (if not provided):

  Tool will use `./runs` directory

Skip compatibility check

The `--skip-compatibility-check` parameter bypasses hardware compatibility checks and uses the specified version of ONTAP you want to upgrade to.

> ! Only use this option if you are certain the target ONTAP version is compatible with your hardware.

The priority order for providing this parameter is:

1. CLI argument: `--skip-compatibility-check`
2. Config file: `CLUSTER.SKIP_COMPATIBILITY_CHECK`
3. Default: `false`

Examples

- CLI argument:

  ```
  ./uhc --skip-compatibility-check true
  ```

- Config.yaml:

  ```
  CLUSTER:
    SKIP_COMPATIBILITY_CHECK: true
  ```

Disable telemetry

To disable telemetry, add the following to your `config.yaml` file:

```
TELEMETRY:
  ENABLED: false
```

Disable automatic updates

To disable automatic updates for Upgrade Health Checker, add the following to your `config.yaml` file:

```
AUTO_UPDATE:
  ENABLED: false
```

Examples using each input method

Combined CLI arguments

```
./uhc \
  --cluster-ip 192.168.1.100 \
  --cluster-username admin \
  --cluster-password mypassword \
  --target-ontap-version 9.15.1 \
  --accept-eula true \
  --config-path /path/to/custom_config.yaml \
  --runs-path /custom/output \
  --skip-compatibility-check false
```

Config.yaml file

```
CLUSTER:
  IP: "192.168.1.100"
  USERNAME: "admin"
  PASSWORD: "mypassword"
  TARGET_ONTAP_VERSION: "9.15.1"
  ACCEPT_EULA: true
  SKIP_COMPATIBILITY_CHECK: false

APP:
  RUNS_PATH: "/custom/output"
```

Interactive mode

To prompt all required input parameters interactively, run Upgrade Health Checker without arguments:

```
./uhc
```

Additional commands

These commands provide some additional capabilities beyond the full run of the tool:

- Display help

  ```
  ./uhc --help
  ```

- Display version

  ```
  ./uhc --version
  ```

- Test cluster connectivity

  ```
  ./uhc --test-connectivity cluster
  ```

- Test telemetry connectivity

  ```
  ./uhc --test-connectivity telemetry
  ```

- Test auto-update connectivity

  ```
  ./uhc --test-connectivity autoupdate
  ```

- Run all tests

  ```
  ./uhc --test all
  ```

FAQ for Upgrade Health Checker

Frequently asked questions (FAQ) for Upgrade Health Checker.

How does Upgrade Health Checker differ from Upgrade Advisor?

Upgrade Health Checker is an onsite tool suitable for users with large or complex environments, limited access to the internet, or existing automation and orchestration frameworks. Upgrade Advisor is suitable for users with a smaller environment who prefer a cloud-based, UI-centered experience.

You can learn more about about Upgrade Health Checker and Upgrade Advisor to determine which tool best fits your needs.

What information does an Upgrade Health Checker report include?

Upgrade Health Checker reports provide detailed information on potential blockers and warnings that need to be addressed before upgrading your ONTAP clusters, risks associated with your clusters, and information about new features and enhancements in the ONTAP version you're upgrading to.

Can Upgrade Health Checker be used without an internet connection?

You don't need an internet connection to run Upgrade Health Checker. It generates upgrade plans and reports onsite using your ONTAP cluster's current configuration data.

However, internet access is required for automatic tool updates. If your environment lacks internet connectivity, you can manually download the latest version of the tool from the Upgrade Health Checker tile on the NetApp Console Automation Hub.

What versions of ONTAP does Upgrade Health Checker support?

Upgrade Health Checker supports upgrades to ONTAP 9.11.1 and later.

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