Interactive-Based Installation/Upgrade with Terminal UI

Version: 2023.1.0 FP4

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Preface

Revision History

Revision	Description	Date
v1.0	Interactive-Based AppViewX Installation and Upgrade with Terminal UI for Release 2023.1.0 FP4	May 2025

About this Guide

The document describes the steps to install AppViewX using an interactive terminal-based UI.

Audience

The document is intended for the internal users and the customers of AppViewX to support the AppViewX installation.

Third-Party Software Acknowledgements

This section serves as a placeholder to document the third-party components referenced in this guide, along with their associated trademark information.

For example,

- This document includes software details developed by VMware, Inc. (www.vmware.com).

Text Conventions

The following text conventions are used in this document:

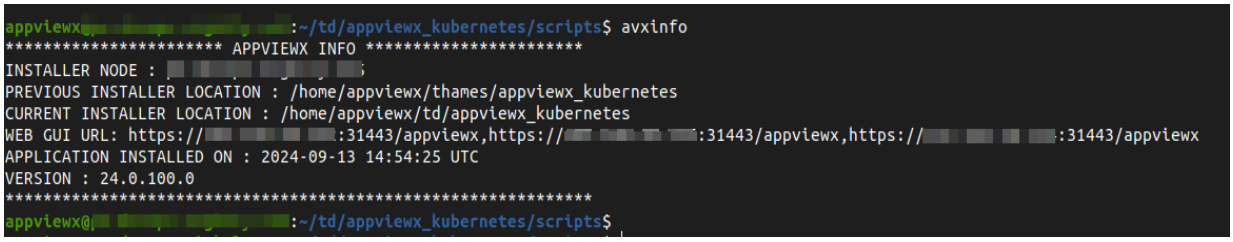
Convention	Description
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`codeblock`	Indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Chapter 1: Overview

This section outlines several new features designed to simplify the AppViewX installation process and enhance the overall user experience. The most notable addition is the introduction of an interactive terminal-based installation UI, which enables users to generate the *appviewx.conf* file without manual steps. Other key improvements include enhanced prerequisite configuration, encrypted backup support, and better log management.

Key Features

- *User-Friendly Installation*: The interactive terminal UI guides users through the installation process step-by-step, making it easier for users of all technical backgrounds.
- *Automated Prerequisite Configuration*: A prerequisite check and configure option helps users avoid common dependency issues, creating a more seamless installation experience.
- *Secure Backup*: MongoDB and Vault backups now feature encryption, ensuring sensitive data remains secure during transfers to external servers such as Windows SFTP. Additionally, backup success or failure alerts will be visible in the AppViewX infrastructure alerts section, with options to configure email notifications.
- *Enhanced Log Management*: Configurable *logrotate* has been introduced for MongoDB and plugin logs, streamlining log management and preventing disk space overuse through automatic log cleanup.
- *Avxinfo*: A new command, avxinfo, has been introduced to retrieve details such as the installer node and installation location. This command can be executed from any node within the cluster.



- *Auto Remediation*: This feature automatically conducts checks on the Kubernetes platform, identifies and resolves issues, and collects log files to determine the root cause of each problem. It empowers customer success teams and customers to rectify issues themselves without the need of reaching out to the engineering team. Newly identified issues will be incorporated into this tool for future handling.
- *Collect Logs*: This feature automates the process of collecting and archiving critical data, such as application logs, system logs, and TCP dump files.
- *Apply Patch*: This feature facilitates updating the existing AppViewX setup by applying plugin patches, add-on patches, or both, ensuring the system stays up-to-date and functional.

Note: If you do not have a deployment model defined yet, contact help@appviewx.com

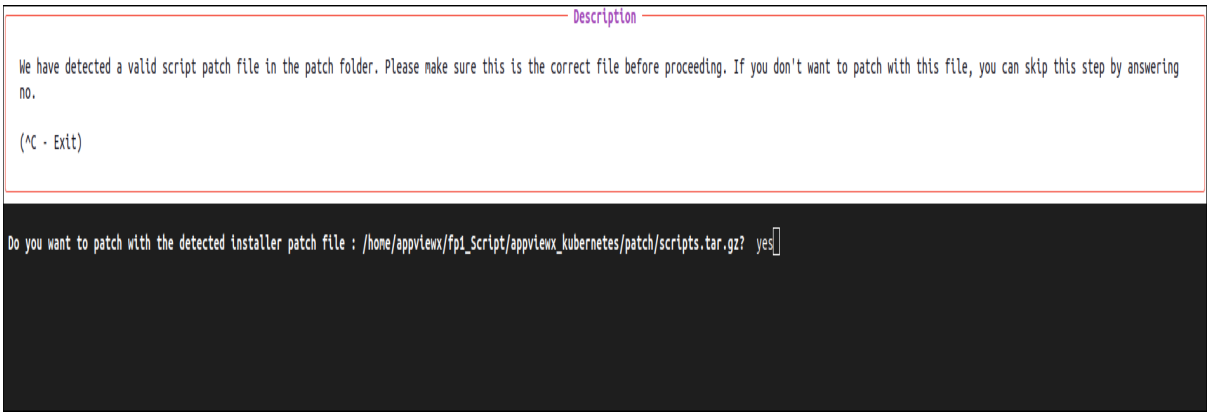
Warning:

- It is critical that you execute the prerequisite tool before installing AppViewX.
- Before you start the installation, ensure that the node password does not contain special characters such as single quote (**'**), double quote (**"**), and back slash (****), ampersand (**&**), comma (**,**) semicolon (**;**) or a combination of special characters such as **%{** and **${**.
- Upgrading from earlier versions is not supported in v2021.1.0. A new install is the only option.

Chapter 2: Prerequisites

Before beginning the installation, ensure that the following are prepared:

- If any operation is being carried out using the interactive tool, these steps should be followed.
  - If a script patch is released for the version, make sure to download the patch.
  - Move the patch to the <installer_path>/patch directory.(e.g.: /home/appviewx/appviewx_kubernetes/patch)
  - Trigger the `install.sh` script and respond with '**yes**' to any prompts that appear, as shown in the image below.



  These steps are essential to ensure that the tool operates with the latest fixes.

- Sudo access to the configured for the appviewx installation user
- If the user opts for a key-based installation, passwordless sudo must be configured. As the root user, add the following lines to the **/etc/sudoers** file:

```
appviewx ALL=(ALL) NOPASSWD:ALL
```

- Load balancer (LB) for the AppViewX GUI (*optional - refer note below*)
- Kubernetes master L4 load balancer (*optional - refer note below*)
- A **.p12** certificate for the AppViewX Web GUI - An external signed certificate is typically issued by a trusted Certificate Authority (CA) and is used to authenticate and encrypt communication between the web server and clients, ensuring data integrity and security. (*optional - refer note below*).
- NTP server details
- Nameserver details
- Proxy or internet access is required on all the nodes if any of the following OS prerequisite packages mentioned below are to be installed during the prerequisite check. Ignore, if the packages are already installed on the nodes.

- **Ubuntu** - curl, net-tools, nmap, zip, unzip, sysstat, rsync, tcpdump, chrony, bind9-utils, dnsutils, ebtables, netcat, netcat-openbsd
- **RHEL** - curl, net-tools, nmap, zip, unzip, sysstat, rsync, tcpdump, chrony, bind-utils, nmap-ncat, (ebtables, iptables-ebtables, iptables-nft) any one based on OS version

- If you wish to enable Mongo/Vault backups to the SFTP server, you must specify the server where the Database and Vault backups will be securely stored. Ensure that the IP address or hostname is accurate, accessible from your network, and has enough storage space to avoid any connectivity or capacity issues during the backup process.
- The HSM client must be configured on the HSM node. For a **single node**, the configuration is done on the node itself. For a **multi-node** setup, the HSM nodes are selected and configured accordingly.

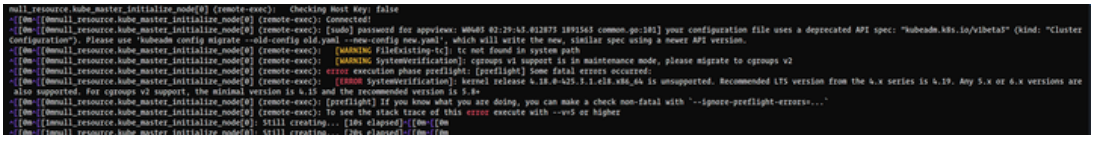
Note:

- **The Load Balancers** and the **.p12** certificate prerequisites are optional during the installation process but are recommended to be enabled for High Availability (HA). This will help complete the installation or upgrade smoothly in one attempt.
- If a custom workflow is being used, please contact AppViewX technical support before proceeding with the upgrade.

Updating the Kernel version

Following the upgrade to **Kubernetes v1.32.2**, the `kubeadm init` setup is no longer compatible with **older Linux kernel versions**. This is primarily due to enhanced reliance on **cgroups** (control groups), a Linux kernel feature that manages resource isolation and allocation. This incompatibility typically affects nodes running older operating system versions, particularly those in the **RHEL 8 series** (e.g., 8.5, 8.6, or even 8.10), depending on the specific kernel version present on the node.

Figure 1. Error log from kubernetes



Cgroups Overview:

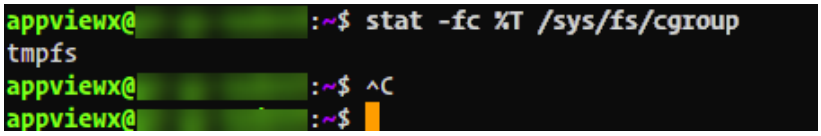
Control Groups (cgroups) are a kernel-level feature that enables the limitation, prioritization, and isolation of resource usage (CPU, memory, I/O, etc.) among process groups. Kubernetes leverages cgroups extensively for container orchestration.

Determining the Cgroups Version in Use:

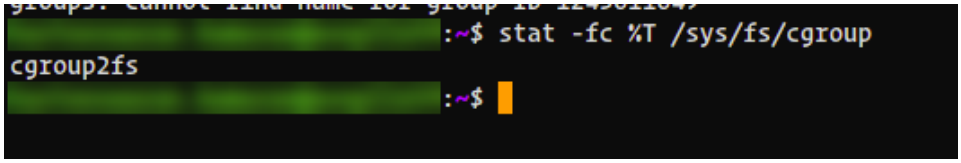
To identify the active cgroups version on a Linux system, run the following command:

```
stat -fc %T /sys/fs/cgroup
```

- If the output is `tmpfs`, the system is using **cgroups v1**.



- If the output is `cgroup2fs`, the system is using **cgroups v2**.



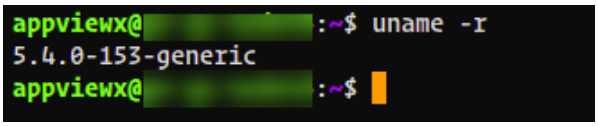
Kernel Version Requirements Based on Cgroups Version

Cgroups Version	Minimum Kernel Version	Recommended Kernel Version
v1	4.19+	5.x or 6.x series
v2	4.15+	5.8 or later

To ensure compatibility with Kubernetes 1.32.2, it is recommended to validate and, if necessary, upgrade the Linux kernel version in accordance with the cgroups configuration of the host system.

To verify the kernel version, execute the command:

```
uname -r
```



Solution provided:

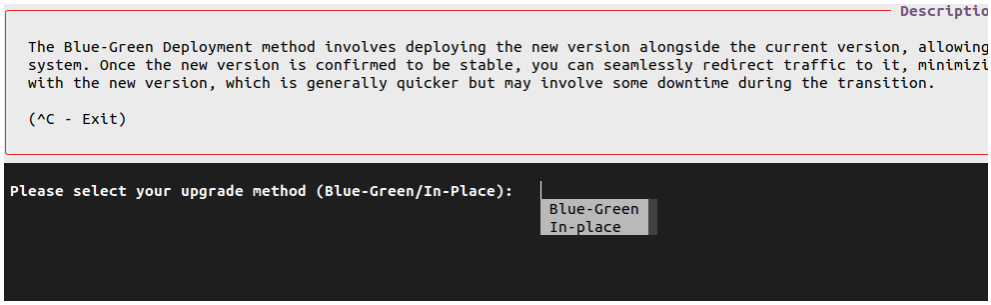
Since the issue is not OS-specific, the prerequisite scripts now contain the generic checks during both the installation and application upgrade processes.

- If the system does not meet the minimum required kernel version, the installation will be blocked from proceeding.
- Additionally, if the system is using cgroups v1, a warning message will be displayed recommending an upgrade to cgroups v2 for improved compatibility and performance.

Keyboard Shortcuts for Install and Upgrade Operations

- *Ctrl* + *Z*: Go to the previous question
- *Ctrl* + *L*: Collect the logs
- *Ctrl* + *W*: Scroll up
- *Ctrl* + *S*: Scroll down
- *Ctrl* + *U*: Unpause scrolling
- *Ctrl* + *C*: Cancel the installation or upgrade
- *Ctrl* + *T*: Show or hide the password
- *Ctrl* + *E*: Show the error message
- *Ctrl* + *P*: To rollback during apply patch failures
- *Ctrl* + *R*: To resume
- *Ctrl+W*: To scroll up
- *Ctrl+S*: To scroll down
- *Ctrl+A*: To scroll left
- *Ctrl+D*: To scroll right
- *V* : View verbose logs
- *Tab*: Press the tab key for suggestions to questions

Example below shows options for upgrade when the Tab key is pressed.



Chapter 3: Fresh Installation

1. Copy all the downloaded packages to the server.

> **Note:** The AppViewX installation must start from the node that is selected for the primary MongoDB host. For example, the first node specified under the MONGODB_HOST property in the **appviewx.conf** file.

2. SSH to the server in which packages are copied.
3. Open the terminal.
4. To extract the contents of the **appviewx_kubernetes_2023.4.0.0.tar.gz** file, execute the following command:

```
tar -xvf appviewx_kubernetes_2023.4.0.0.tar.gz
```

5. To move the **appviewx_kubernetes_addons_2023.4.0.0.tar.gz** file to the **appviewx_kubernetes** folder, execute the following command:

```
mv appviewx_kubernetes_addons_2023.4.0.0.tar.gz appviewx_kubernetes/
```

6. To navigate to the <InstallerLocation>/appviewx_kubernetes/scripts directory, execute the following command:

```
cd <InstallerLocation>/appviewx_kubernetes/scripts
```

7. To start the installation process, run the command:

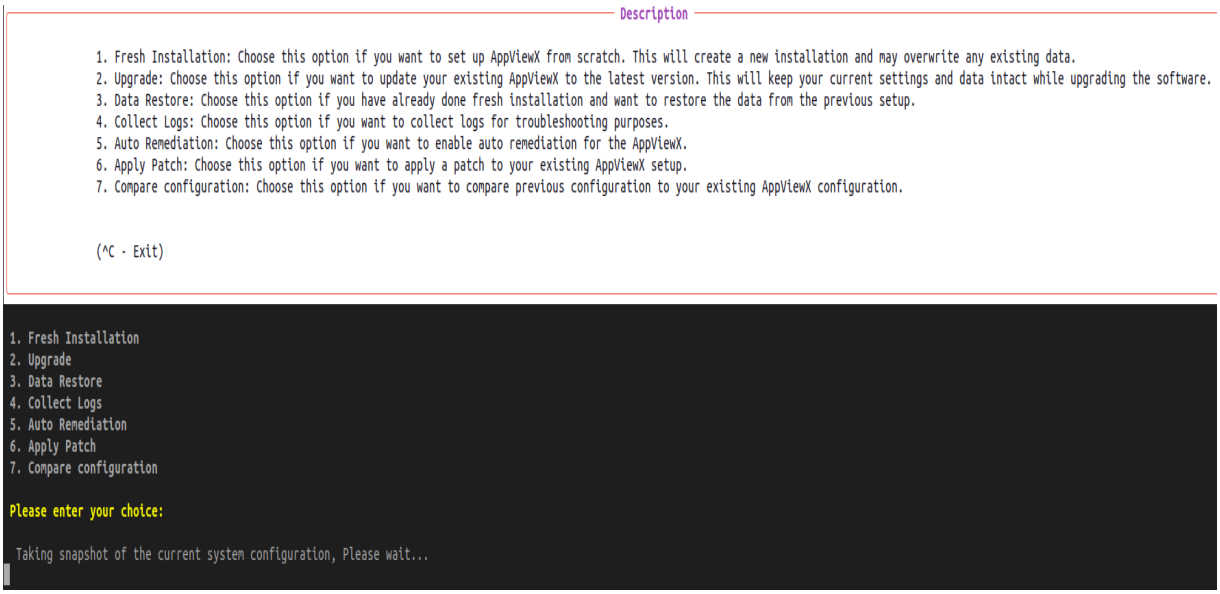
```
./install.sh
```

The following welcome screen is displayed.

8. Select **Continue**.

   The screen shows the following options:

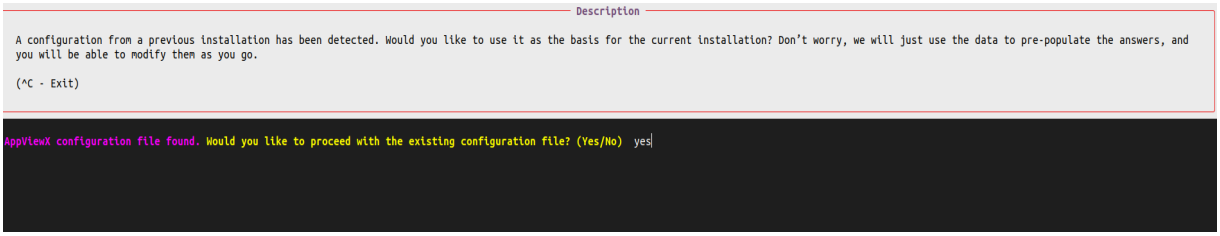
   - 1. Fresh Installation
   - 2. Upgrade
   - 3. Data Restore
   - 4. Collect Logs
   - 5. Auto Remediation
   - 6. Apply Patch
   - 7. Compare Configuration



9. To install the AppViewX application from scratch, Enter **1** (Fresh Installation).

Note: In case the application is already installed, you will be prompted to uninstall and the proceed with the installation.

10. Follow the interactive steps provided by the Terminal UI to configure the settings for generating the appviewx.conf file.



> **Note:** If an appviewx.conf file already exists, you will be prompted to continue with the existing file. However, validations will occur for each configuration step.

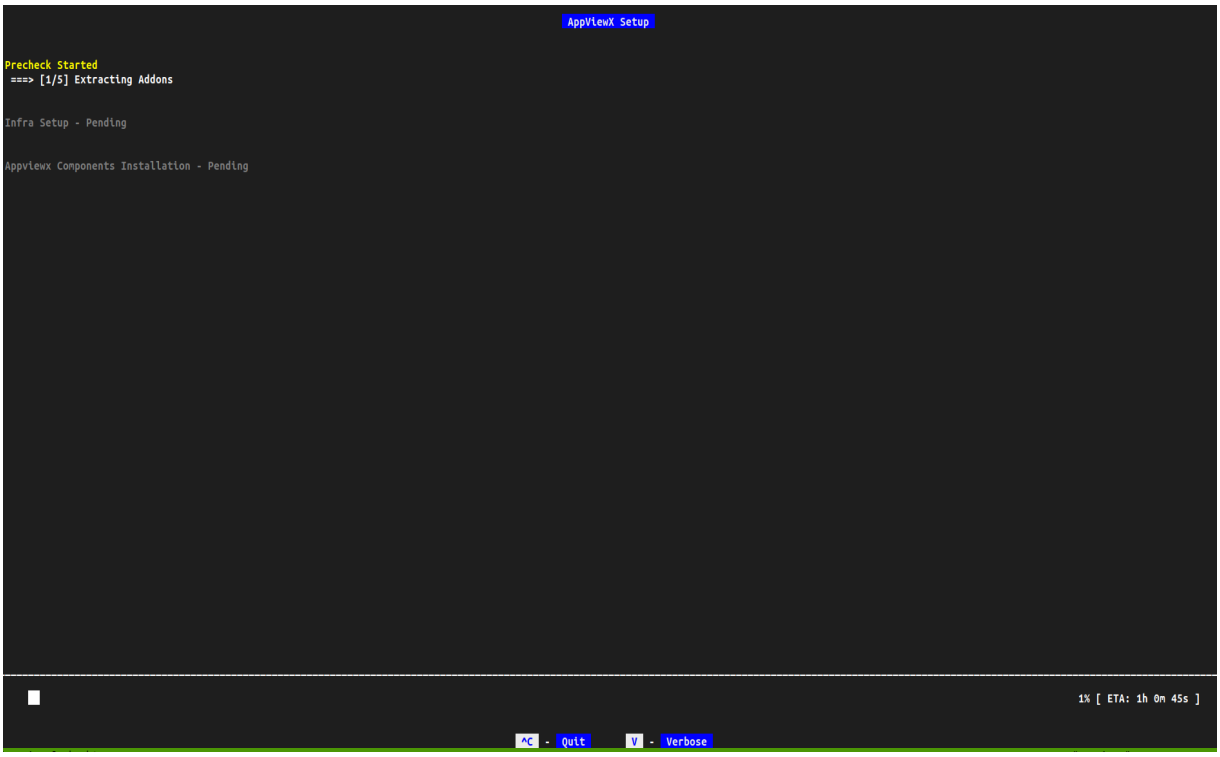
11. You will be prompted with the following questions:
    a. *Do you have an external Signed certificate for Appviewx Web UI?* If you have such a certificate (.p12) for AppViewX Web GUI, please respond with **Yes**.
    b. *Would you like to enable HSM plugin ?* If you have already installed HSM as per the prerequisites, respond with **Yes**.
12. Ensure all required inputs are provided, and the system will automatically generate the configuration file, ready for use.
13. Once all the questions are answered, you will be prompted with a final table displaying the provided details. Review the information carefully, and type '**y**' to proceed with the prerequisites validation.

14. **Prerequisites validation** - The prerequisites validation will be performed based on the information provided.

15. **Configuring Prerequisites** - If any prerequisites are missing, the Prerequisite Configure option allows the installer to automatically install or configure the necessary packages. Press '**y**' to continue with the configuration.

> **Note:** Installing these prerequisite packages requires internet access or proxy access to download and install the missing packages.

16. Once all the prerequisites are validated, the AppViewX installation will be triggered.



17. To view the verbose logs, press '**v**.'

Chapter 4: Upgrade

Note: Ensure that a valid **other_user_internal.pem** file is present in the <appviewx installer directory>/scripts directory of the old installer for the in-place and blue-green deployments, where the existing setup is live.

1. Copy all the downloaded packages to the server.

   Note: The AppViewX installation must start from the node that is selected for the primary MongoDB host. For example, the first node specified under the MONGODB_HOST property in the **appviewx.conf** file.

2. SSH to the server in which packages are copied.
3. Open the terminal.
4. To extract the contents of the **appviewx_kubernetes_2023.4.0.0.tar.gz** file, execute the following command:

   ```
   tar -xvf appviewx_kubernetes_2023.4.0.0.tar.gz
   ```

5. To move the **appviewx_kubernetes_addons_2023.4.0.0.tar.gz** file to the **appviewx_kubernetes** folder, execute the following command:

   ```
   mv appviewx_kubernetes_addons_2023.4.0.0.tar.gz appviewx_kubernetes/
   ```

6. To navigate to the <InstallerLocation>/appviewx_kubernetes/scripts directory, execute the following command:

   ```
   cd <InstallerLocation>/appviewx_kubernetes/scripts
   ```

7. To start the upgrade process, use the installer command:

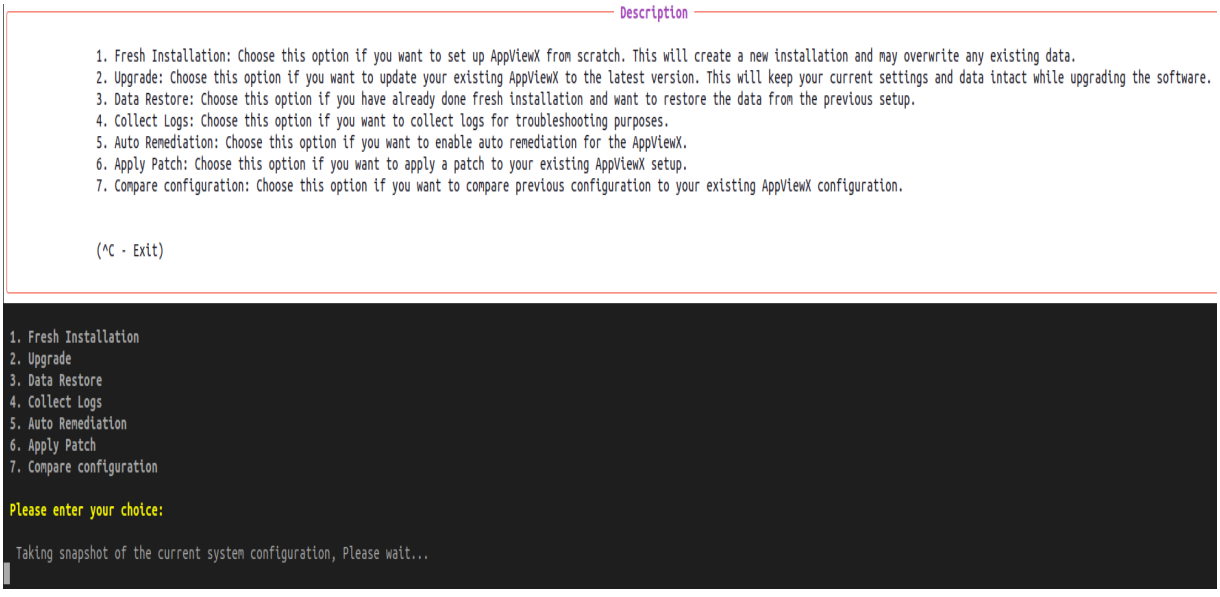
   ```
   ./install.sh
   ```

   A welcome screen is displayed with options to Continue with installation or Exit.

8. Select **Continue**.

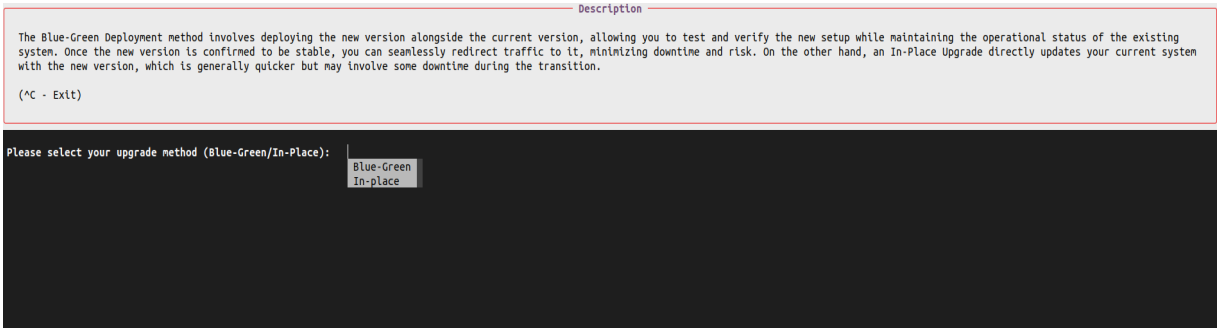
   The screen shows the following options:

   - 1. Fresh Installation
   - 2. Upgrade
   - 3. Data Restore
   - 4. Collect Logs
   - 5. Auto Remediation
   - 6. Apply Patch
   - 7. Compare Configuration



9. To upgrade the AppViewX application, choose option **2**.

   The screen displays a prompt "*Please select your upgrade method (Blue-Green/In-Place):*"



10. Now, choose between two types: Blue-Green Upgrade and In-Place Upgrade.
    Choose the upgrade option based on the current transition type:

    Note: All prerequisite validations will be carried out during the upgrade, and the `appviewx.conf` file can be modified during the interactive question phase.

    - **Blue-Green**: If this option is selected, prepare the previous installer node details, installer path, and decide whether to take new hot backups or use an existing backup for the migration. There are two options
      - Select **Yes** if you are retaining the same design, where both the existing and new clusters have an identical number of nodes, to migrate without modifying the configuration.
      - Select **No** to allow the system to automatically generate the `appviewx.conf` file based on the inputs provided.
    - **In-Place**: This option involves downtime, so ensure that the necessary downtime is planned and approved before proceeding with the in-place upgrade. The in-place upgrade retains the existing configuration, but validations will take place during the interactive questions and confirmations. You may add or remove nodes during the interactive questions phase.
11. You will be prompted with the following questions:
    a. *Do you have an external Signed certificate for Appviewx Web UI?* If you have such a certificate (.p12) for AppViewX Web GUI, please respond with **Yes**.
    b. *Would you like to enable HSM plugin ?* If you have already installed HSM as per the prerequisites, respond with **Yes**.
12. After the upgrade completes, to clean up the temporary data run the command below:

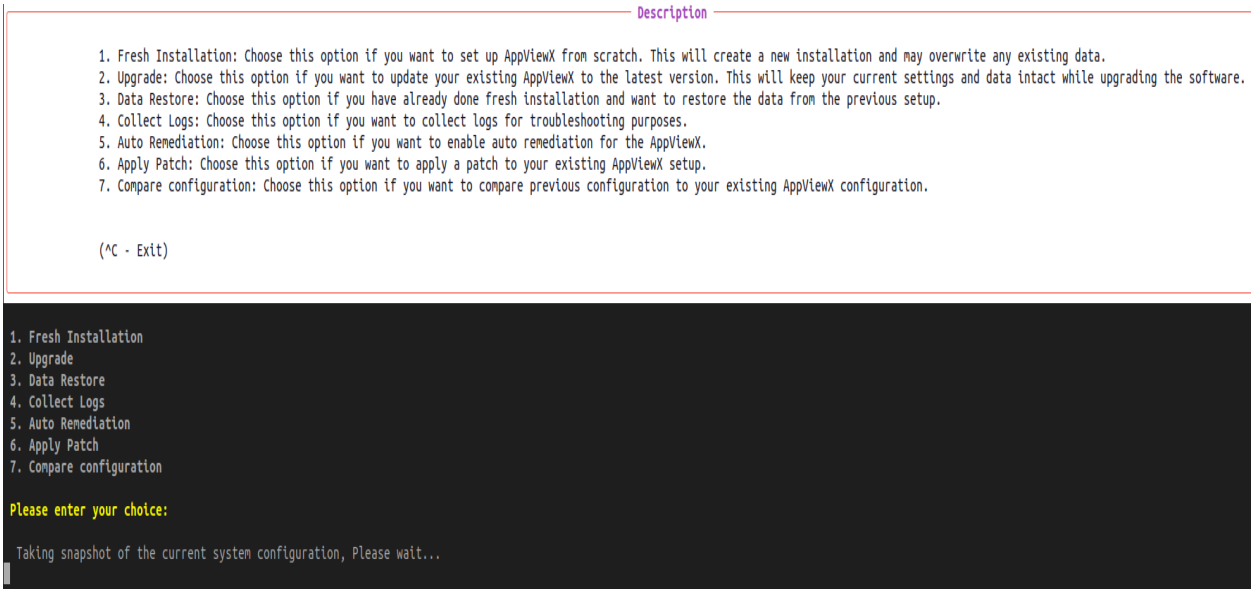
```
source appviewx.conf
```

```
./appviewx.sh --run-on-all "rm -rf $INSTALLATION_PATH/appviewx_dependencies/seed/*"
```

Chapter 5: Data Restore

This option should be used when the customer is ready to proceed with the final database and vault restoration in preparation for the cut-over and go-live phase. Choose option 3 for Data Restore.

> **Note:** Ensure that the **appviewx_kubernetes_addons_2023.4.0.0.tar.gz** file is present in the **appviewx_kubernetes** directory.



After the data restore is complete, run the command below from the installer location:

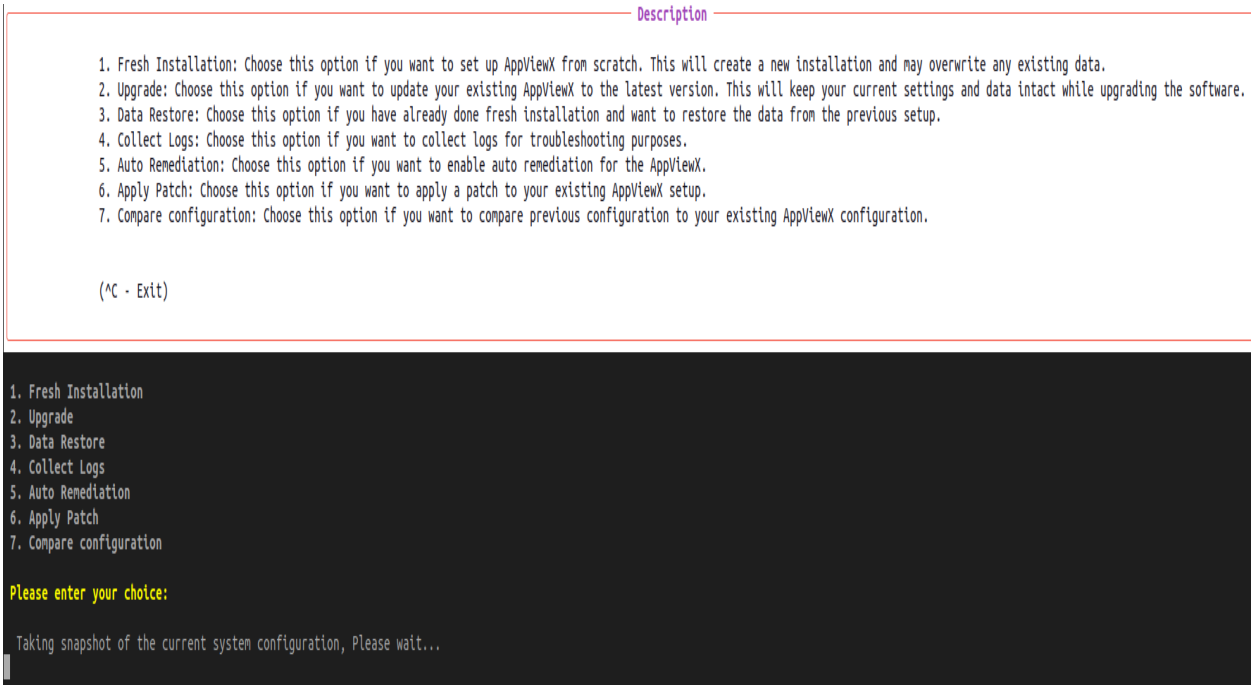
```
source appviewx.conf
```

```
sudo ./appviewx.sh --run-on-all "rm -rf $INSTALLATION_PATH/logs/mongo_backup_*"
```

Chapter 6: Collect Logs (for Troubleshooting)

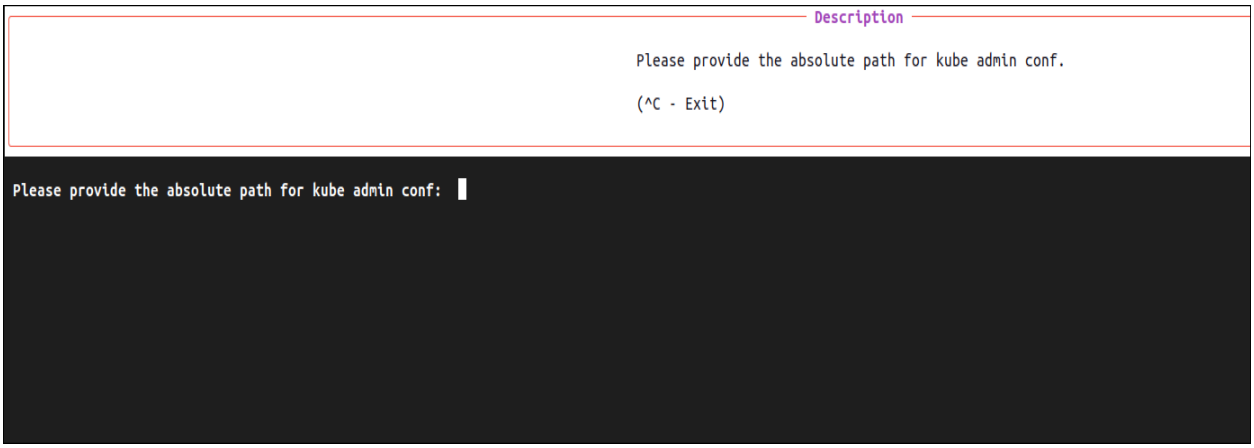
This option should be used to gather application logs, system logs, and other relevant logs for troubleshooting in case of any issues with the application. Choose option 4 for collecting logs.

Note: Ensure that the **appviewx_kubernetes_addons_2023.4.0.0.tar.gz** file is present in the **appviewx_kubernetes** directory.



By default, the cluster has read-only access. To perform administrative tasks, admin access must be enabled. A configuration file located at <Home Directory>/.kube/backup/config provides the required admin privileges. When prompted, ensure you specify the correct path to this file.

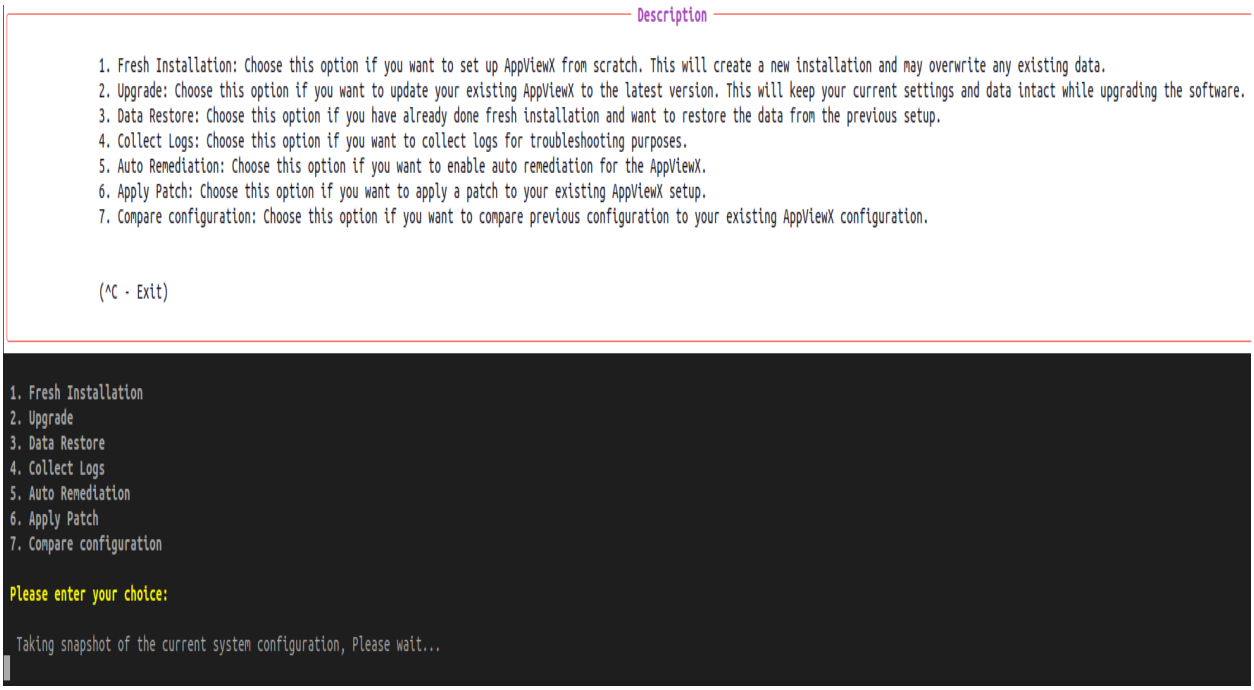
Note: If the file has been moved or backed up to a secure location, provide the updated file path accordingly.



Chapter 7: Auto-Remediation

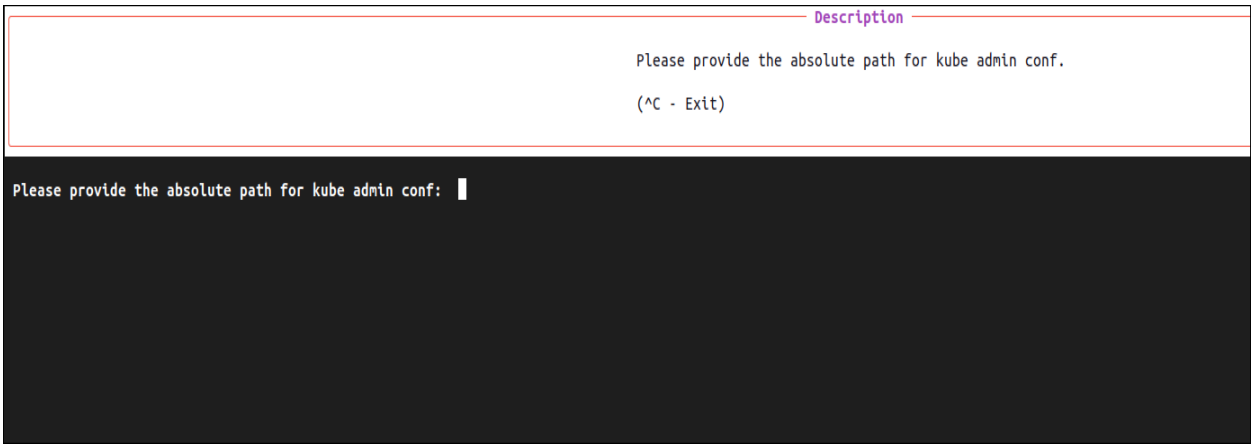
This option should be used during an outage in the customer environment. It scans the entire cluster, performs remediation if any issues are detected, and collects logs for root cause analysis (RCA). Choose option 5 for Auto-Remediation.

Note: Ensure that the **appviewx_kubernetes_addons_2023.4.0.0.tar.gz** file is present in the **appviewx_kubernetes** directory.



By default, the cluster has read-only access. To perform administrative tasks, admin access must be enabled. A configuration file located at <Home Directory>/.kube/backup/config provides the required admin privileges. When prompted, ensure you specify the correct path to this file.

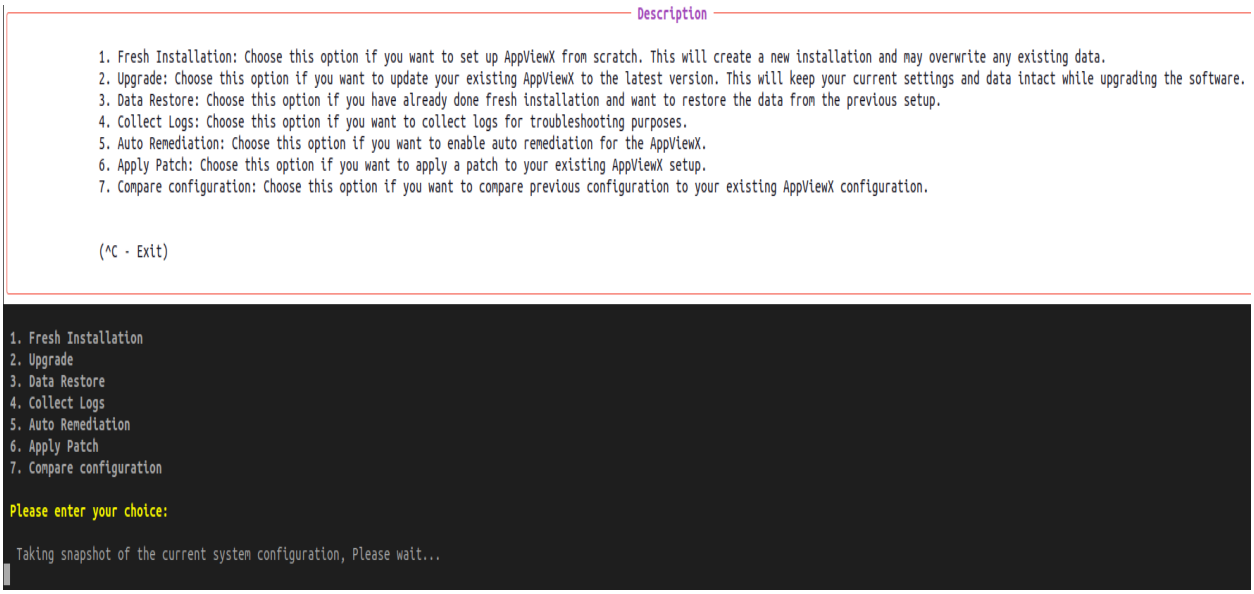
Note: If the file has been moved or backed up to a secure location, provide the updated file path accordingly.



Chapter 8: Apply Patch

This option should be selected when the customer is ready to apply the latest plugins and addons patch, incorporating the newest bug fixes and application enhancements. Choose option 6 for applying the patch.

Note: Ensure that the **appviewx_kubernetes_addons_2023.4.0.0.tar.gz** file is present in the **appviewx_kubernetes** directory.



Skipping Backup During apply patch:

Attention: Ensure that node snapshots are taken, as the rollback option in the Terminal UI will not restore data if the backup is skipped.

To skip the mongoDB backup:

1. Run `./install.sh`.
2. Select option 6.
3. Enter the password and respond to the prompts.
4. When the table screen appears, create a duplicate session and follow these steps:
   a. Navigate to the directory <appviewx_installer_directory>/appviewx_kubernetes/scripts/
   b. Open the **application_upgrade.json** file.

c. To disable backups, find the **take_backup** parameter and set its value from `true` to `false`.

d. Save the file.

Chapter 9: Compare Configuration

In customer environments, configuration changes often lead to issues, making it challenging to identify what has changed. This troubleshooting process can also be time-consuming. To streamline this and save time, AppViewX has developed a utility that compares the current configuration with previous versions when the system was functioning correctly. By default, the utility automatically captures snapshots whenever an event—such as an installation, upgrade, patch, or data restore—is successfully completed.

Important: Admin conf is required for running this utility.

Note: Ensure that the **appviewx_kubernetes_addons_2023.4.0.0.tar.gz** file is present in the **appviewx_kubernetes** directory.

Steps to perform a compare configuration:

1. To start the installation process, run the command:

   ```
   ./install.sh
   ```

   The following welcome screen is displayed.

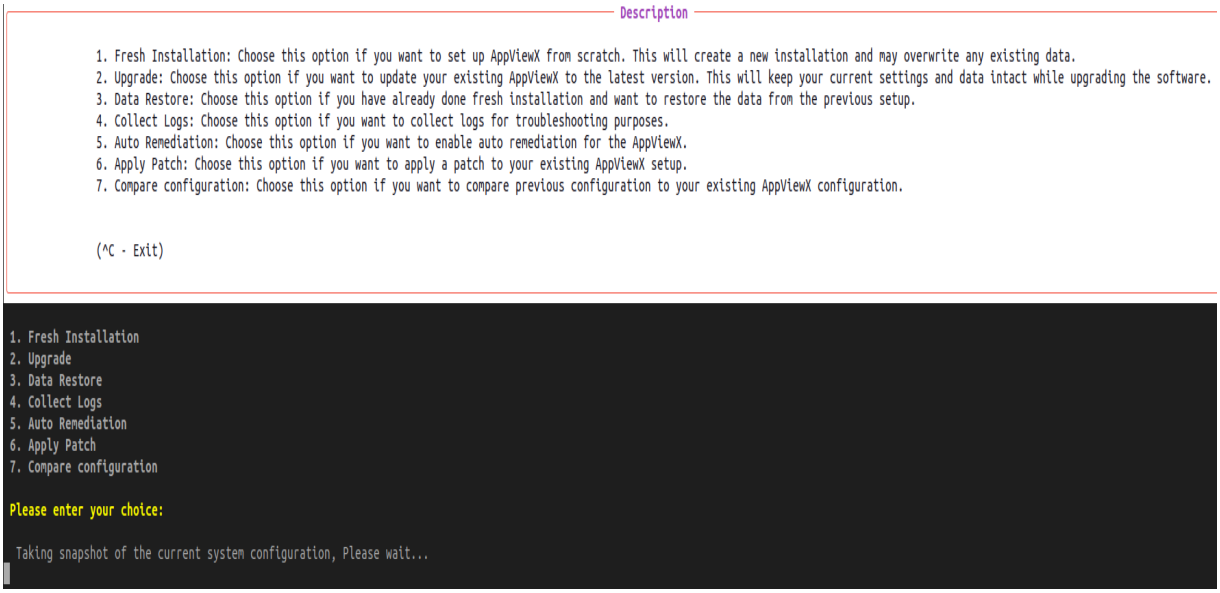
   

2. Select **Continue**.

   The screen shows the following options:

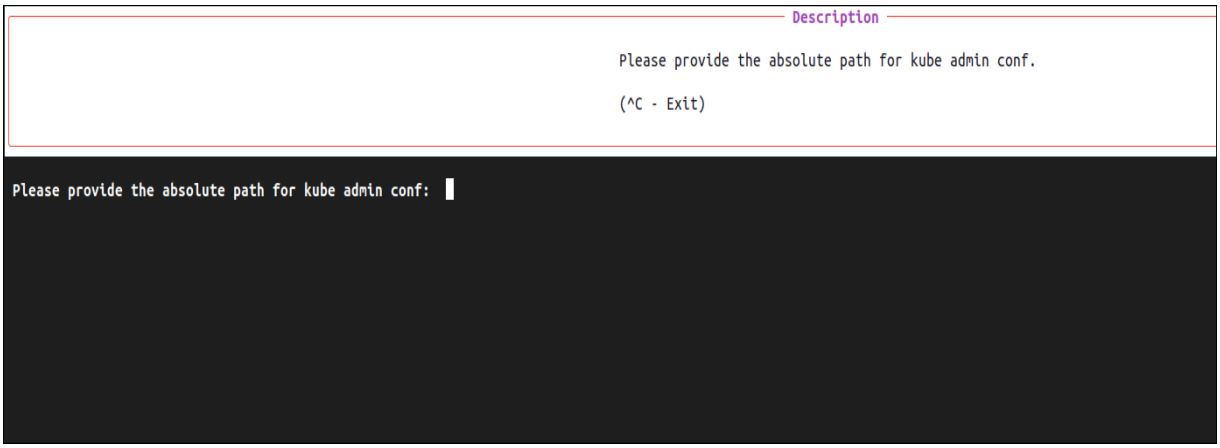
   - 1. Fresh Installation
   - 2. Upgrade
   - 3. Data Restore
   - 4. Collect Logs
   - 5. Auto Remediation

- 6. Apply Patch
- 7. Compare Configuration

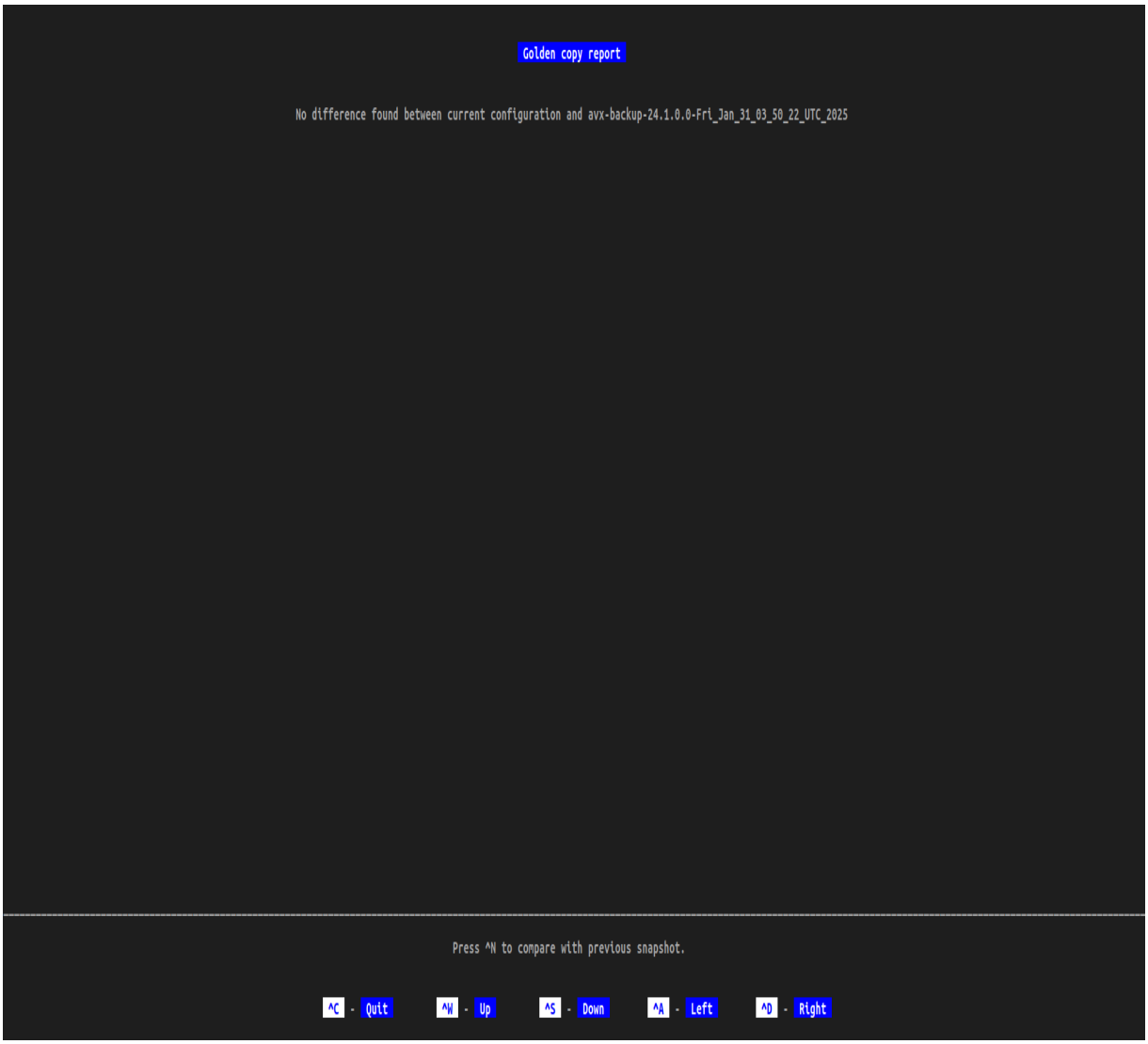


3. Choose option 7, Compare Configuration.
   By default, the cluster has read-only access. To perform administrative tasks, admin access must be enabled. A configuration file located at <Home Directory>/.kube/backup/config provides the required admin privileges. When prompted, ensure you specify the correct path to this file.

> **Note:** If the file has been moved or backed up to a secure location, provide the updated file path accordingly.



4. The utility captures a snapshot of the current configuration and compares it with the previous one. The resulting snapshots highlight areas where changes have occurred and where no modifications have been made.

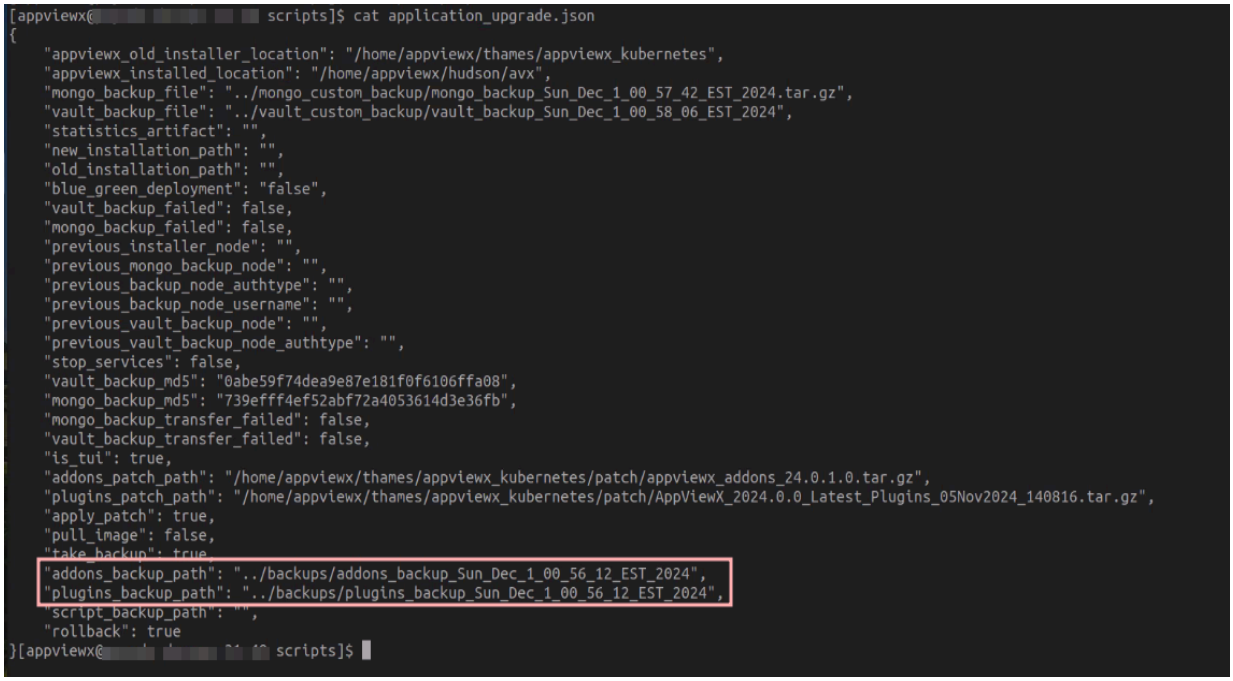


5. To compare with the next snapshot, press **Ctrl+N**. This will compare it with the subsequent snapshot.
   If the report is too large, use the following short cut keys:
   - To scroll up, Ctrl+W
   - To scroll down, Ctrl+S
   - To scroll left, Ctrl+A
   - To scroll right, Ctrl+D

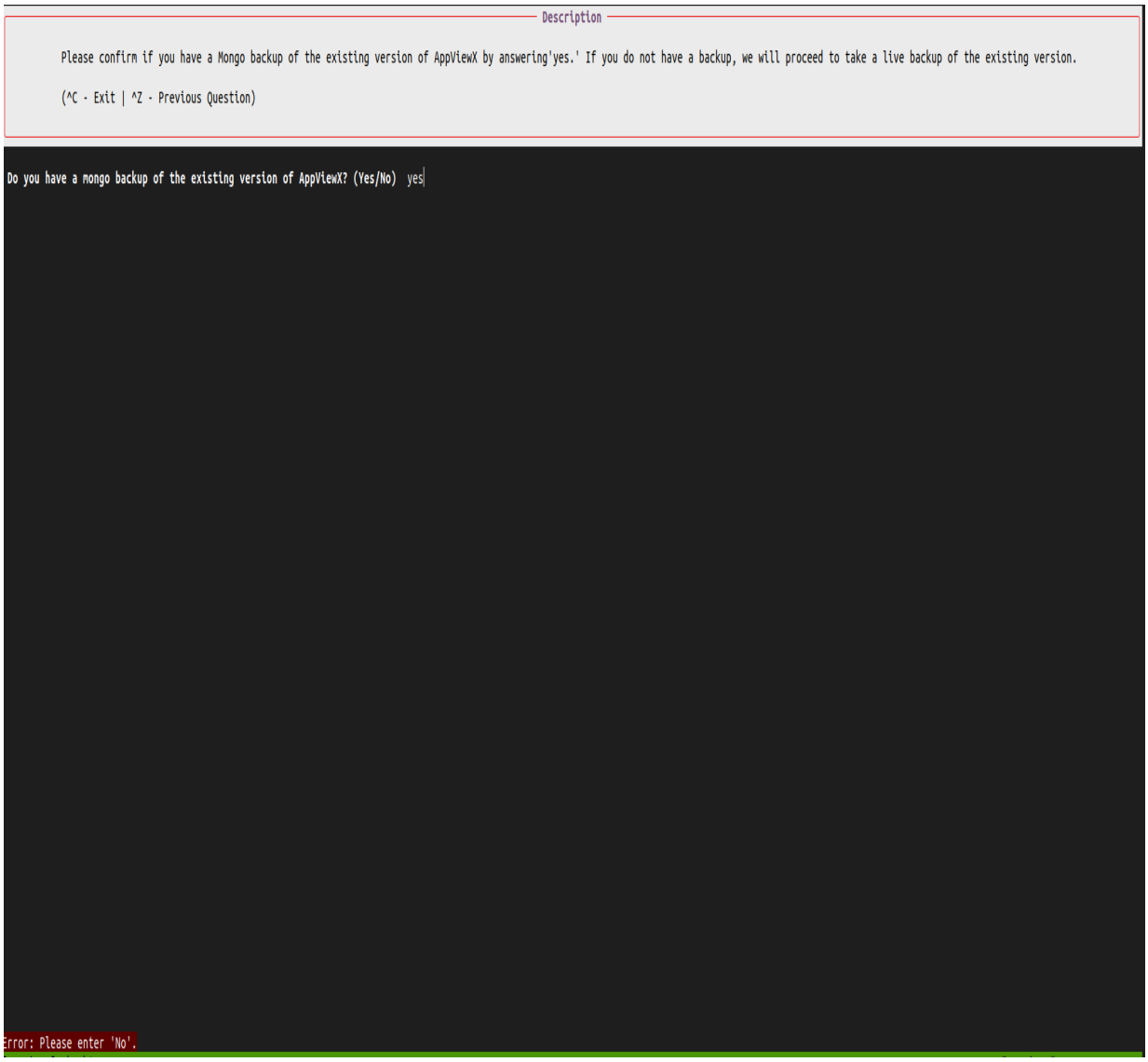
The resulting snapshots highlight areas when there are no more snapshots to compare and when the report is too large.

Chapter 10: Points to Remember

- Do not use the appviewx_kubernetes installer if it was previously used during the upgrade process. During the upgrade, the initial seed dump file is replaced with the user-provided backup file, which could lead to issues if the same installer is reused for a fresh installation. To ensure a smooth process, always use a new appviewx_kubernetes installer for fresh installations.
- The file <installer path>/interactive-iu/resources/requirements.txt located inside the **interactive-iu** folder is just a reference for prerequisites validation during the upgrade. Do not use it for package installation.
- If auto-enrolment plugins are selected during the installation phase, the external gateway must be installed manually.
- Navigating back to previous questions after reaching the additional questions requires exiting and restarting the process.
- Latency warnings during prerequisite checks can be ignored. However, it is recommended to manually verify latency using the `ping` command for confirmation.
- For a patch rollback, update the `addons_backup_path` and `plugins_backup_path` in the `application_upgrade.json` file located in the `<appviewx_installer>/scripts` folder if multiple backups are present. Backup paths can be found in the `<appviewx_installer>/backups` directory.



- Additional questions have been introduced during the production cut-over; however, they are consistently restricted to "No," ensuring they do not impact the cut-over process.



Chapter 11: More Information

For the latest, most complete information about known and fixed issues with the AppViewX modules, see the latest revision of the release notes.

To access Software Release Notifications for AppViewX Releases, visit our Help center at https://help.appviewx.com/home. You need to log in to your AppViewX account. From the Help center, search by the specific release number or navigate to Release Portal and choose the release, for example, v20.3.0.

Documentation Feedback

We request you to provide feedback, comments, and suggestions so that we can improve the documentation. You can send your comments to *tech-documentation@appviewx.com*

If you are preferred to send feedback through e-mail, be sure to include the following information with your comments:

- Document or topic name
- URL or page number
- Software release version (if applicable).

Requesting Technical Support

Technical product support is available through AppViewX help support center, request to send an email to *help@appviewx.com*

Self-Help Online Tools and Resources

For quick and easy problem resolution, AppViewX is designed an online self-service portal called the help support center that provides you with the following features:

- Find help support center: https://help.appviewx.com/home
- Find product technical documentation: https://helpcenter.appviewx.com/techdoc
- Download the latest versions of software: https://release.appviewx.com