appviewX

Kubernetes Graceful Shutdown Guide

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Contents

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Preface

Revision History

Revision	Description	Date
1.0	Initial release of document for Release 2021.1.0	Sept 2021

About this Guide

This guide outlines the kubernetes graceful shutdown guide.

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

Enable the application’s graceful stop/start across server reboots.

Note: For Multi-Node setup, follow the instructions at each node to enable the graceful stop/start across multi nodes.

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Chapter 2: Enabling Graceful Start and Stop

1. Login to the AppViewX Server as a root user via SSH.
2. To navigate to the /etc/systemd/system/ directory, execute the following command:

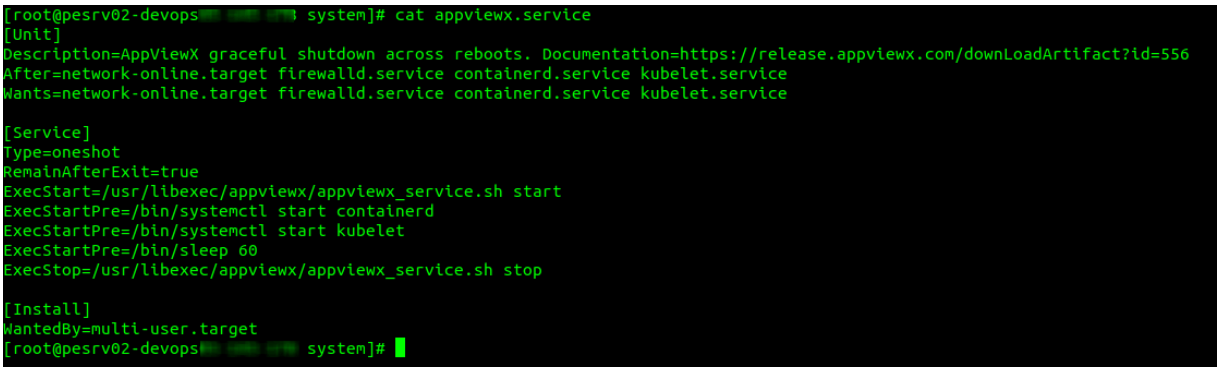
   ```
   cd /etc/systemd/system/
   ```

3. To create a new **appviewx.service** file, execute the following command:

   ```
   vi appviewx.service
   ```

4. Enter the following details:

   ```
   [Unit]
   Description=AppViewX graceful shutdown across reboots. Documentation=https://release.appviewx.com/downLoadArtifact?id=556
   After=network-online.target firewalld.service containerd.service kubelet.service
   Wants=network-online.target firewalld.service containerd.service kubelet.service
   [Service]
   Type=oneshot
   RemainAfterExit=true
   ExecStart=/usr/libexec/appviewx/appviewx_service.sh start
   ExecStartPre=/bin/systemctl start containerd
   ExecStartPre=/bin/systemctl start kubelet
   ExecStartPre=/bin/sleep 60
   ExecStop=/usr/libexec/appviewx/appviewx_service.sh stop
   [Install]
   WantedBy=multi-user.target
   ```



5. To create the **appviewx** directory, execute the following command:

   ```
   mkdir -p /usr/libexec/appviewx
   ```

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6. To navigate to the **appviewx** directory, execute the following command:

```
cd /usr/libexec/appviewx/
```

7. To create the **appviewx_service.sh** script file, execute the following command:

```
vi appviewx_service.sh
```

8. Enter the following details:

```
#!/bin/bash

# appviewx graceful shutdown

case $1 in

stop)

echo "=========="$(date)"=============" >> /var/log/appviewx_services.log

systemctl list-jobs | egrep -q 'reboot.target.*start' && echo "server reboot" >> /var/log/appviewx_services.log

systemctl list-jobs | egrep -q 'shutdown.target.*start' && echo "sever shutdown" >> /var/log/appviewx_services.log

PATH=/sbin:/usr/sbin:$PATH

su -s /bin/bash appviewx -c "kubectl drain $(hostname) \

--delete-local-data --ignore-daemonsets --timeout 30s --force \

|| kubectl drain $(hostname) --delete-local-data \

--ignore-daemonsets --timeout 30s --force --disable-eviction \

|| true" >> /var/log/appviewx_services.log

;;

start)

PATH=/sbin:/usr/sbin:$PATH

su -s /bin/bash appviewx -c "kubectl uncordon $(hostname)" >> /var/log/appviewx_services.log

;;

esac
```

```
[root@ip- ~]# cat /etc/init.d/appviewx_service.sh
#!/bin/bash
# appviewx graceful shutdown

case $1 in
        stop)
        echo "=========="$(date)"=============" >> /var/log/appviewx_services.log
        systemctl list-jobs | egrep -q 'reboot.target.*start' && echo "server reboot" >> /var/log/appviewx_services.log
        systemctl list-jobs | egrep -q 'shutdown.target.*start' && echo "sever shutdown" >> /var/log/appviewx_services.log
        PATH=/sbin:/usr/sbin:$PATH
        su -s /bin/bash appviewx -c "kubectl drain $(hostname) \
        --delete-local-data --ignore-daemonsets --timeout 30s  --force \
        || kubectl drain $(hostname) --delete-local-data \
        --ignore-daemonsets --timeout 30s  --force --disable-eviction \
        || true" >> /var/log/appviewx_services.log
        ;;

        start)
        PATH=/sbin:/usr/sbin:$PATH
        su -s /bin/bash appviewx -c "kubectl uncordon $(hostname)" >> /var/log/appviewx_services.log
        ;;
esac
[root@ip- ~]#
```

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9. To assign execute permissions to the **appviewx_service.sh** script file, execute the following command:

   ```
   chmod u+x /usr/libexec/appviewx/appviewx_service.sh
   ```

10. To navigate to the **system** directory, execute the following command:

    ```
    cd /etc/systemd/system/
    ```

11. To reload the **daemon**, execute the following command:

    ```
    systemctl daemon-reload
    ```

12. To enable the **appviewx** service, execute the following command:

    ```
    systemctl enable appviewx.service
    ```

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Chapter 3: Outcome

We reaped a lot of benefits by adoption of Kubernetes with service mesh capabilities in terms of scale, performance and immutable infrastructure.

• **Optimal resource usage**:

We were able to make better use of the resource using custom metrics and scaling the pods when in demand.

• **Security**:

With service mesh and zero trust network model we were able to achieve higher and tightened security around the perimeter of the cluster.

• **Zero downtime:**

We were able to achieve zero downtime for upgrading AppViewX microservices.

• **Managed CI/CD**:

Better management of deployment code through modularity. Refined the way we build, package, deploy and manage applications.

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Chapter 4: References

1. https://kubernetes.io/docs/home/ - Kubernetes Object and cluster management
2. https://docs.projectcalico.org/about/about-calico - Calico overview and working
3. https://octetz.com/docs/2020/2020-10-01-calico-routing-modes/ - To understand calico routing
4. https://docs.projectcalico.org/reference/resources/networkpolicy#selector - Calico network policy
5. https://istio.io/latest/docs/concepts/ - ISTIO overview and concepts

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Chapter 5: 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://help.appviewx.com/documentation
- Find solutions and answer questions using our Knowledge Base: https://internalkb.appviewx.com/knowledge-base
- Download the latest versions of software: https://release.appviewx.com

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