


KIP-6 Topology Port Mapping

Status

Current state: Complete

Discussion thread:

JIRA:  [KNOX-928 - Topology Port Mapping](#) CLOSED

Motivation

The Default Topology feature as it stands now seems to be [broken](#), there were multiple attempts made to fix it but the recent refactoring seems to have broken it. This feature is useful and some advantages. Also it could be sometimes confusing to use it and difficult to troubleshoot and maintain (since it uses the same port as all other topologies use).

This KIP proposes a similar functionality but proposes that they use a different port. The requests to this topology do not have to include the {gateway} and {topology} elements. So essentially it will be Default Topology feature but now we can have support for multiple topologies (listening on different ports). Of course the standard port configured through gateway config will work just the way it always has, so all the existing features will not be affected.

Say, we have three topologies alongside our default 'sandbox' topology, 'eerie', 'ontario' and 'huron'. These three topologies will listen on 3 separate ports, say, 5443, 6443 and 7443. Default gateway port will not be affected by these ports and these topologies can be accessed from the default port (i.e. 8443).

In the above example one should be able to make a successful request to

```
https://{gateway-host}:5443/webhdfs
```

```
https://{gateway-host}:6443/webhdfs
```

```
https://{gateway-host}:7443/webhdfs
```

```
https://{gateway-host}:8443/gateway/eerie/webhdfs
```

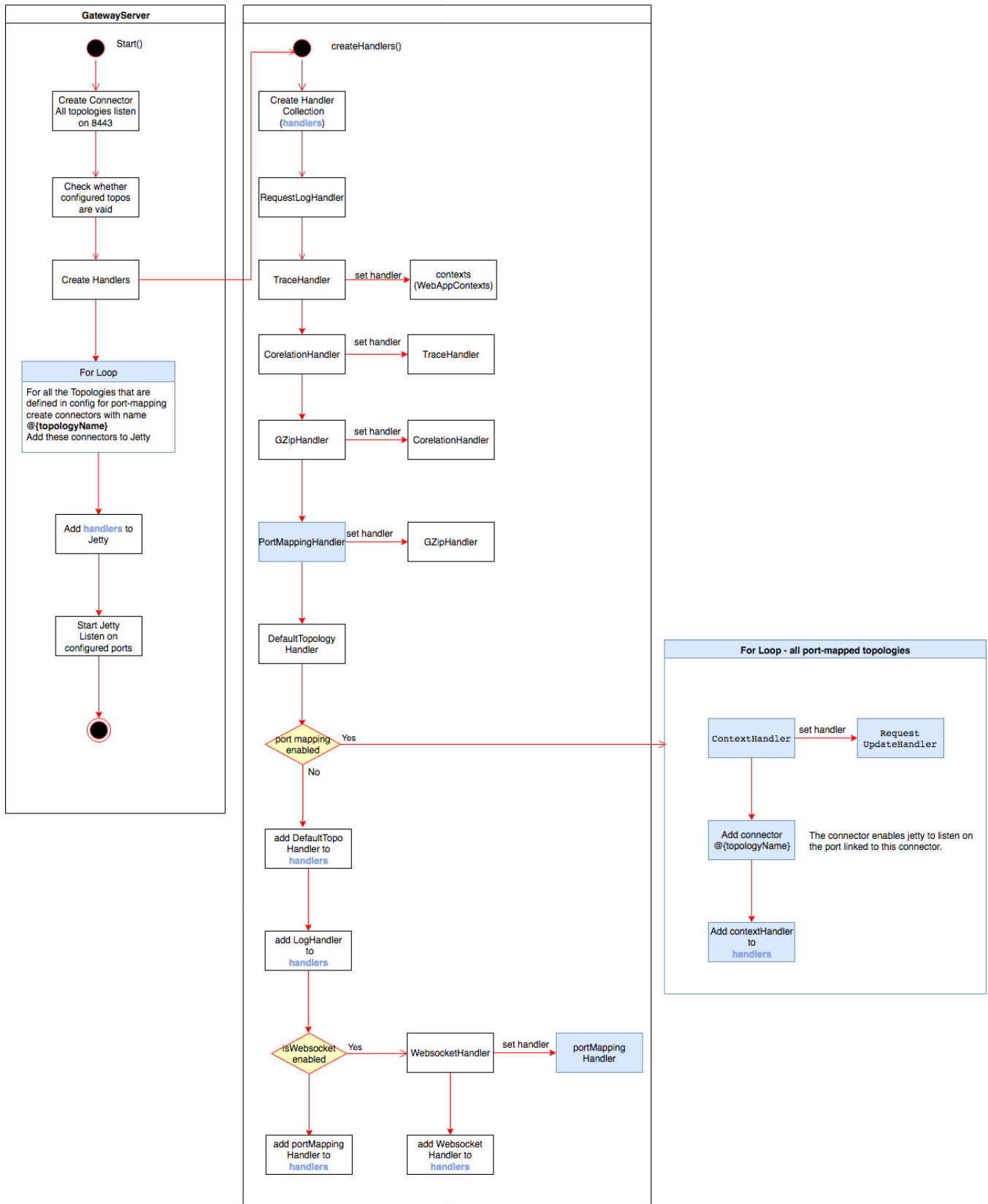
```
https://{gateway-host}:8443/gateway/ontario/webhdfs
```

```
https://{gateway-host}:8443/gateway/huron/webhdfs
```

This would provide interesting possibilities for existing hadoop cli's.

Architecture

The following is the startup sequence diagram for this feature. Changes are highlighted in [blue](#).



Configuration

Configuration for this feature will be in gateway-site.xml config file.

Following are the settings relevant to this feature

- The property **gateway.port.mapping.enabled** is used to turn feature ON/OFF.
- The property **gateway.port.mapping.{topologyName}** and its value {port} maps {topologyName} to {port}.

Example:

```
<!-- Optional, true by default-->
<property>
  <name>gateway.port.mapping.enabled</name>
  <value>true</value>
  <description>Enable/Disable gateway topology port mapping feature.</description>
</property>

<!-- Multi Port Gateway -->
<property>
  <name>gateway.port.mapping.eerie</name>
  <value>5443</value>
  <description>The HTTP port for the Gateway.</description>
</property>

<property>
  <name>gateway.port.mapping.huron</name>
  <value>6443</value>
  <description>The HTTP port for the Gateway.</description>
</property>

<property>
  <name>gateway.port.mapping.ontario</name>
  <value>7443</value>
  <description>The HTTP port for the Gateway.</description>
</property>
```

Improvements

1. Need to address the inability for the hadoop java client to deal with spnego challenges from the DN redirect.