

Xconf configuration & feature validation (Linux/AWS)



This Page is work in progress and hence may not be suitable for general audience.

- [Software Requirements \(Reference setup\)](#)
- [Installation of Dependencies](#)
 - [Install Java JDK](#)
 - [Install Maven \(Version 3.6.0\)](#)
 - [Install a local copy of npm \(specific to the user\)](#)
 - [Install Cassandra \(Version 2.0.17\)](#)
- [Build Xconf server application](#)
- [Configuration & service startup](#)
 - [Start Cassandra service](#)
 - [Configure and start Xconf Application services](#)
 - [Resolve Dependencies](#)
 - [Configure angular admin \(UI\) service](#)
 - [c. Configure Data Service](#)
- [Admin UI common configuration](#)
 - [Configuration](#)
 - [Client end verification \(RPI\)](#)
- [Feature Validation \(LogUpload\)](#)
 - [Configuration](#)
 - [Client end verification \(RPI\)](#)
- [Feature Validation \(Telemetry\)](#)
 - [Configuration](#)
 - [Client end verification \(RPI\)](#)
- [Feature Validation \(Firmware update\)](#)

Software Requirements (Reference setup)

Component	Recommendation
System/OS	Ubuntu 18.04.1 LTS
Disk space	> 5GB
GIT	(Version 2.17.1)
Java/JDK	(Version 1.8.0_212)

Installation of Dependencies

1. Install Java JDK

To install JDK follow these steps:

- For x86 Linux architecture
Download `jdk-7u80-linux-x64.tar.gz` from oracle jdk download site.
- For AWS VM (aarch64 ARM architecture)
Download `jdk-8u211-linux-arm64-vfp-hflt.tar.gz` from oracle java download site.
- Extract the compressed archive under `/opt`
`$ tar xzf <archive-name> -C /opt`
- If there are other versions of JDK previously installed ,then to use this version do the following:

```
sudo update-alternatives --install "/usr/bin/java" "java" "path/of /java/binary" 1
```

Similarly repeat the above step for `javac`, `javaws` etc. Once it's done, run the command :

```
sudo update-alternatives --config java
```

Then select the choice which corresponds to your JDK version. You can repeat the same for `javac`, `javaws` etc.

Check your installation using the command : `java -version`

2. Install Maven (Version 3.6.0)

To install maven follow these steps:

- sudo apt update
- sudo apt install maven
- Check the installation using : mvn -version

3. Install a local copy of npm (specific to the user)

Steps to install nvm & configure node using nvm:

```
-----  
$ curl -o- https://raw.githubusercontent.com/creationix/nvm/v0.34.0/install.sh | bash  
[Follow instruction from console to set the nvm Environment]  
$ nvm install node
```

Only required, if you prefer to set particular version

```
$ nvm install 10.2.1  
$ nvm alias default v10.2.1
```

4. Install Cassandra (Version 2.0.17)

To install Cassandra follow below steps:

- wget -c <https://archive.apache.org/dist/cassandra/2.0.17/apache-cassandra-2.0.17-bin.tar.gz>
- tar -xvf apache-cassandra-2.0.17-bin.tar.gz
- Step into the cassandra folder.
- Enter sudo bin/cassandra to start Cassandra.
- In another terminal window, enter sudo bin/cqlsh to start the cqlsh utility.
- The terminal switches to the cqlsh mode.
- To create keyspace enter the following command :

```
CREATE KEYSPACE "ApplicationsDiscoveryDataService" WITH replication = {  
'class': 'SimpleStrategy',  
'replication_factor': '3'  
};
```

- To use this key space run the command: USE "ApplicationsDiscoveryDataService";
- To check if tables were created successfully use the command:

```
DESCRIBE KEYSPACE;
```

- NOTE: If the keyspace has already been created run these commands to check if all tables present in `cassandra_schema_tables` has been added to the keyspace:

```
USE "ApplicationsDiscoveryDataService";
```

```
DESCRIBE KEYSPACE;
```

Build Xconf server application

Download the xconfserver code from the rdk central code repository using the following command:

```
$ git clone "https://code.rdkcentral.com/r/rdk/components/generic/xconfserver"
```

For the new updates download from the latest branch.

Configuration & service startup

1. Start Cassandra service

To start an Xconf application, start the Cassandra server by executing the following commands:

```
$ cd cassandra/apache-cassandra-2.0.17  
$ sudo bin/cassandra  
The status of cassandra can be checked by invoking below command  
$ bin/nodetool status
```

2. Configure and start Xconf Application services

a. Resolve Dependencies

Go to the xconf folder and run the following command to download all dependencies.
\$ mvn clean install

b. Configure angular admin (UI) service

For running the angular admin application, execute the following in the folder xconfserver/xconf-angular-admin:

For the first time application deployment,

create a "*service.properties*" file under the path xconfserver/xconf-angular-admin/src/main/resources/service.properties with the following contents:

```
#autoGenerate schema is true by default but can be turned to false
autoGenerateSchema=true
```

Then run the command,

```
mvn jetty:run -DappConfig=<path_to_xconfserver>/xconf-angular-admin/src/main/resources/service.properties
```

For the subsequent runs execute the below command in the folder xconfserver/xconf-angular-admin:

```
mvn jetty:run
```

Download the following packages under the folder */xconfserver/xconf-angular-admin/src/main/webapp*

- npm install -g bower
- npm install -g grunt-cli
- npm install
- npm install grunt-contrib-copy --save-dev
- grunt install

To run the admin UI launch it as <http://localhost:9093/admin/> in any browser.

c. Configure Data Service

a. To run the data service application go to the xconfserver/xconf-dataservice folder and execute the following:

For the first time application deployment, create a "*service.properties*" file e.g. xconfserver/xconf-dataservice/src/main/resources/service.properties with the following contents:

```
#autoGenerate schema is true by default but can be turned to false
autoGenerateSchema=true
```

Then run the command,

```
mvn jetty:run -DappConfig=<path_to_xconfserver>/xconf-dataservice/src/main/resources/service.properties
```

For the subsequent runs execute the below command in the folder xconfserver/xconf-dataservice :

```
mvn jetty:run
```

8. To launch the application go to <http://localhost:9092/queries/environments> . To verify add an entry in the environments tab of the xconf admin application and check whether the same is updated here.

9. NOTE: To run the Admin UI and dataservice applications in background start jetty server as follows:

```
nohup mvn jetty:run &
```

Admin UI common configuration

Below steps will affect all the features in xconf system and should be configured after initial setup.

Define Environments

Site Navigation: <xconf-server>:9093 >> Common >> Environments | Example URL: <http://34.219.243.214:9093/admin/ux/#/environment/all>



Common Firmware DCM Telemetry Settings RFC Tools

Application First 06/18/2019 UTC 11:26:43

Environments

Search by Id

+ Create

Export All

Id	Description	Actions
DEV	DEV Env	
PROD	Production Environemnt	

Define Models

Site Navigation: <http://<XCONF-SERVER>:9093> >> Common >> Models | Example URL : <http://34.219.243.214:9093/admin/ux/#/model/all>



Common Firmware DCM Telemetry Settings RFC Tools

Application First 06/18/2019 UTC 11:28:39

Models

Search by Id

+ Create

Export All

Id	Description	Actions
MODELXYZ	model xyz	
PX013AN	XG1V3 Gateway	
PX051AEI	X15 Client	
RPI	RaspberryPi	

Define MAC List (This will be used to target certain list of MACs against a particular feature configuration)

Site Navigation <http://<XCONF-SERVER>:9093> >> Common >> MAC List | Example URL : http://34.219.243.214:9093/admin/ux/#/namespacedlist/MAC_LIST



Common Firmware DCM Telemetry Settings RFC Tools

Application First 06/18/2019 UTC 11:32:00

Editing MAC List

Choose File

Browse

Name

RPI_MAC_LIST

Data

AA:BB:CC:DD:EE:FF

84:E0:58:57:58:32

B8:27:EB:47:54:7F

B8:27:EB:AE:57:B7

B8:27:EB:FF:54:95

E8:82:5B:68:9D:4F

Save

Cancel

Feature Validation (RFC)

RDK Feature control configuration can be added by adding below 2 sections

- Define the Feature
- Define the Feature Rule

Configuration

Site Navigation | http://<XCONF_SERVER>:9093 >> RFC >> Feature

XConf Common Firmware DCM Telemetry Settings RFC Tools Application stb First 07/12/2019 UTC 09:18:49

Edit Feature

Feature name: RPI_FEATURE Effective immediate: false

Name: RaspPi Feature Enable: true

Config Data:

<input type="checkbox"/>	SYSVAR1	100
<input type="checkbox"/>	ENVVAR1	10

whitelisted

Site Navigation | http://<XCONF_SERVER>:9093 >> RFC >> Feature Rule

XConf Common Firmware DCM Telemetry Settings RFC Tools Application stb First 07/12/2019 UTC 09:23:23

Edit Feature Rule

Define properties

Name: RPL_FR1 Priority: 1

Features: RPI_FEATURE x

Rule

model IS RPI

AND OR not estblMacAddress IN_LIST RPI_MAC_LIST

Client end verification (RPI)

CURL Command	<code>curl 'http://<XCONF_IP>:9092/featureControl/getSettings?estbMacAddress=B8:27:EB:FF:54:95&firmwareVersion=rdk-generic-hybrid-wpe-image_default_20190702100618&env=pi&model=RPI&ecmMacAddress=B8:27:EB:FF:54:95&controllerId=2504&channelMapId=2345&vodId=15660&partnerId=&accountId=Unknown&version=2'</code>
--------------	--

CPE Script (RDK-V)	/lib/rdk/RFCbase.sh
CPE Service (RDK-V)	/lib/systemd/system/rfc-config.service

Feature Validation (LogUpload)

Configuration

1. Create an upload repository under `http://<XCONF_IP>:9093/admin/ux/#/uploadrepository`
2. Add the formula under `http://<XCONF_IP>:9093 >> DCM >> Formulas` e.g. `http://<XCONF_IP>:9093/admin/ux/#/formulas`
3. Edit the Device Settings Tab
4. Edit the Log upload Setting (Create schedule & Add the upload repository created beforehand).

Client end verification (RPI)

CURL Command	<code>curl 'http://<XCONF_IP>:9092/loguploader/getSettings?estbMacAddress=B8:27:EB:FF:54:95&firmwareVersion=rdk-generic-hybrid-wpe-image_default_20190702100618&env=dev&model=RPI&ecmMacAddress=B8:27:EB:FF:54:95&controllerId=2504&channelMapId=2345&vodId=15660&timezone=&partnerId=&accountId=Unknown&version=2'</code>
CPE Script (RDK-V)	<code>/lib/rdk/StartDCM.sh</code> <code>/lib/rdk/DCMscript.sh</code>
CPE Service (RDK-V)	<code>/lib/systemd/system/dcm-log.service</code>

Feature Validation (Telemetry)

1. Telemetry configuration can be done by adding an permanent profile which contains below objects
 - a. Upload repository
 - b. Profile options (Header, content, frequency etc.)
2. Creating a targeting rule which is basically mapping the profile to a set of MAC/IP/Device etc.

Configuration

Site Navigation: http://<XCONF_SERVER>:9093 >> Telemetry >> Permanent Profiles | Example URL: <http://34.219.243.214:9093/admin/ux#/permanentprofile>

Site Navigation: http://<XCONF_SERVER>:9093 >> Telemetry >> Targeting Rule | Example URL: <http://34.219.243.214:9093/admin/ux#/targetingrule>

Client end verification (RPI)

CURL Command	curl 'http://<XCONF_IP>:9092/loguploader/getSettings?estbMacAddress=B8:27:EB:FF:54:95&firmwareVersion=rdk-generic-hybrid-wpe-image_default_20190702100618&env=dev&model=RPI&ecmMacAddress=B8:27:EB:FF:54:95&controllerId=2504&channelMapId=2345&vodId=15660&timezone=&partnerId=&accountId=Unknown&version=2'
CPE Script (RDK-V)	/lib/rdk/DCMscript.sh /lib/rdk/dca_utility.sh
CPE Service (RDK-V)	/lib/systemd/system/dcm-log.service

Feature Validation (Firmware update)

Please refer below links for firmware update

[XConf - Configuring Firmware Download Location](#)

<https://wiki.rdkcentral.com/display/RDK/XConf+-+Configuring+Firmware>