

# 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



## Environments

Search by Id

+ Create

Export All

Id	Description	Actions
DEV	DEV Env	
PROD	Production Environemnt	

### Define Models



## Models

Search by Id

+ Create

Export All

Id	Description	Actions
MODELXYZ	model xyz	
PX013AN	XG1V3 Gateway	
PX051AEI	Xi5 Client	
RPI	RaspberryPi	

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



## Editing MAC List

Choose File

Browse

Name

RPI\_MAC\_LIST

Data

AA:BB:CC:DD:EE:FF

+

84:E0:58:57:58:32 x

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

B8:27:EB:AE:57:B7 x

B8:27:EB:FF:54:95 x

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

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](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](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 estbMacAddress IN\_LIST RPI\_MAC\_LIST

## Client end verification (RPI)

CURL Command	<code>curl 'http://&lt;XCONF_IP&gt;:9092/featureControl/getSettings?estbMacAddress=B8:27:EB:FF:54:95&amp;firmwareVersion=rdk-generic-hybrid-wpe-image_default_20190702100618&amp;env=pi&amp;model=RPI&amp;ecmMacAddress=B8:27:EB:FF:54:95&amp;controllerId=2504&amp;channelMapId=2345&amp;vodId=15660&amp;partnerId=&amp;accountId=Unknown&amp;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://&lt;XCONF_IP&gt;:9092/loguploader/getSettings?estbMacAddress=B8:27:EB:FF:54:95&amp;firmwareVersion=rdk-generic-hybrid-wpe-image_default_20190702100618&amp;env=dev&amp;model=RPI&amp;ecmMacAddress=B8:27:EB:FF:54:95&amp;controllerId=2504&amp;channelMapId=2345&amp;vodId=15660&amp;timezone=&amp;partnerId=&amp;accountId=Unknown&amp;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](http://<XCONF_SERVER>:9093) >> Telemetry >> Permanent Profiles | Example URL: <http://34.219.243.214:9093/admin/ux#/permanentprofile>

Site Navigation: [http://<XCONF\\_SERVER>:9093](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>