USP - Testing with CDRouter

CDRouter is a test automation platform from QA Cafe that contains many test cases for the USP protocol, including the DTP-469 USP Conformance tests.

To test UspPa with CDRouter, you need to configure both the agent and CDRouter.

Configuring UspPa Agent

Use the one of the factory reset settings below in your usp_factory_reset.conf file. They configure your agent to use an unencrypted STOMP, MQTT or WebSocket connection to CDRouter.

NOTE: Replace "192.168.1.128" with the IP address or hostname of your CDRouter unit.

STOMP

```
# IMPORTANT: Modify Device.STOMP.Connection.1.Host with the IP address of your CDRouter
Device.STOMP.Connection.1.Host "192.168.100.128"
Device.LocalAgent.Controller.1.EndpointID "proto::controller-id"
Device.STOMP.Connection.1.Username "qacafe"
Device.STOMP.Connection.1.Password "qacafe123"
Device.LocalAgent.Controller.1.MTP.1.STOMP.Destination "/controller-path"
Device.LocalAgent.MTP.1.STOMP.Destination "/agent-path"
Device.STOMP.Connection.1.X_ARRIS-COM_EnableEncryption "false"
Device.LocalAgent.EndpointID "proto::agent-id"

Device.LocalAgent.MTP.1.Alias "cpe-1"
Device.LocalAgent.MTP.1.Enable "true"
Device.LocalAgent.MTP.1.Protocol "STOMP"
Device.LocalAgent.MTP.1.STOMP.Reference "Device.STOMP.Connection.1"
Device.LocalAgent.Controller.1.Alias "cpe-1"
Device.LocalAgent.Controller.1.Enable "true"
Device.LocalAgent.Controller.1.AssignedRole "Device.LocalAgent.ControllerTrust.Role.1"
Device.LocalAgent.Controller.1.PeriodicNotifInterval "600"
Device.LocalAgent.Controller.1.PeriodicNotifTime "0001-01-01T00:00:00Z"
Device.LocalAgent.Controller.1.USPNotifRetryMinimumWaitInterval "5"
Device.LocalAgent.Controller.1.USPNotifRetryIntervalMultiplier "2000"
Device.LocalAgent.Controller.1.ControllerCode ""
Device.LocalAgent.Controller.1.MTP.1.Alias "cpe-1"
Device.LocalAgent.Controller.1.MTP.1.Enable "true"
Device.LocalAgent.Controller.1.MTP.1.Protocol "STOMP"
Device.LocalAgent.Controller.1.MTP.1.STOMP.Reference "Device.STOMP.Connection.1"
Device.STOMP.Connection.1.Alias "cpe-1"
Device.STOMP.Connection.1.Enable "true"
Device.STOMP.Connection.1.Port "61613"
Device.STOMP.Connection.1.VirtualHost "/"
Device.STOMP.Connection.1.EnableHeartbeats "true"
Device.STOMP.Connection.1.OutgoingHeartbeat "30000"
Device.STOMP.Connection.1.IncomingHeartbeat "300000"
Device.STOMP.Connection.1.ServerRetryInitialInterval "60"
Device.STOMP.Connection.1.ServerRetryIntervalMultiplier "2000"
Device.STOMP.Connection.1.ServerRetryMaxInterval "30720"
Internal.Reboot.Cause "LocalFactoryReset"
```

MQTT

```
# IMPORTANT: Modify Device.MQTT.Client.1.BrokerAddress with the IP address of your CDRouter
Device.LocalAgent.Controller.1.EndpointID "proto::controller-id"
Device.MQTT.Client.1.BrokerAddress "192.168.100.128"
Device.LocalAgent.MTP.1.MQTT.ResponseTopicConfigured "/agent-path"
Device.MQTT.Client.1.Username "qacafe"
Device.MQTT.Client.1.Password "qacafe123"
Device.LocalAgent.EndpointID "proto::agent-id"

Device.LocalAgent.MTP.1.Alias "cpe-1"
Device.LocalAgent.MTP.1.Protocol "MQTT"
Device.LocalAgent.MTP.1.Enable "true"
Device.LocalAgent.MTP.1.MQTT.Reference "Device.MQTT.Client.1"
Device.LocalAgent.Controller.1.Alias "cpe-1"
Device.LocalAgent.Controller.1.Enable "true"
Device.LocalAgent.Controller.1.AssignedRole "Device.LocalAgent.ControllerTrust.Role.1"
Device.LocalAgent.Controller.1.PeriodicNotifInterval "600"
Device.LocalAgent.Controller.1.PeriodicNotifTime "0001-01-01T00:00:00Z"
Device.LocalAgent.Controller.1.USPNotifRetryMinimumWaitInterval "5"
Device.LocalAgent.Controller.1.USPNotifRetryIntervalMultiplier "2000"
Device.LocalAgent.Controller.1.ControllerCode ""
Device.LocalAgent.Controller.1.MTP.1.Alias "cpe-1"
Device.LocalAgent.Controller.1.MTP.1.Enable "true"
Device.LocalAgent.Controller.1.MTP.1.Protocol  "MQTT"
Device.LocalAgent.Controller.1.MTP.1.MQTT.Reference "Device.MQTT.Client.1"
Device.LocalAgent.Controller.1.MTP.1.MQTT.Topic "/controller-path"
Device.MQTT.Client.1.ProtocolVersion "5.0"
Device.MQTT.Client.1.BrokerPort "1883"
Device.MQTT.Client.1.TransportProtocol "TCP/IP"
Device.MQTT.Client.1.Alias "cpe-1"
Device.MQTT.Client.1.Enable true
Device.MQTT.Client.1.ClientID ""
Device.MQTT.Client.1.KeepAliveTime "60"
Internal.Reboot.Cause "LocalFactoryReset"
```

WebSockets

```
# IMPORTANT: Modify Device.LocalAgent.Controller.1.MTP.1.WebSocket.Host with the IP address of your CDRouter
Device.LocalAgent.Controller.1.EndpointID "proto::controller-id"
Device.LocalAgent.EndpointID "proto::agent-id"

Device.LocalAgent.Controller.1.MTP.1.Protocol  "WebSocket"
Device.LocalAgent.Controller.1.MTP.1.WebSocket.Host "192.168.100.128"
Device.LocalAgent.Controller.1.MTP.1.WebSocket.Port "80"
Device.LocalAgent.Controller.1.MTP.1.WebSocket.Path "/controller-path"
Device.LocalAgent.Controller.1.MTP.1.WebSocket.EnableEncryption "false"
Device.LocalAgent.Controller.1.MTP.1.WebSocket.KeepAliveInterval "2000"
Device.LocalAgent.Controller.1.MTP.1.WebSocket.SessionRetryMinimumWaitInterval "5"
Device.LocalAgent.Controller.1.MTP.1.WebSocket.SessionRetryIntervalMultiplier "2000"
Device.LocalAgent.Controller.1.MTP.1.Enable  "true"
Device.LocalAgent.MTP.1.Enable  "true"
Device.LocalAgent.MTP.1.Protocol  "WebSocket"
Device.LocalAgent.MTP.1.WebSocket.Port  "80"
Device.LocalAgent.MTP.1.WebSocket.Path  "/agent-path"
Device.LocalAgent.MTP.1.WebSocket.EnableEncryption  "false"
Device.LocalAgent.MTP.1.WebSocket.KeepAliveInterval  "2000"
Device.LocalAgent.Controller.1.Alias "cpe-1"
Device.LocalAgent.Controller.1.Enable "true"
Device.LocalAgent.Controller.1.AssignedRole "Device.LocalAgent.ControllerTrust.Role.1"
Device.LocalAgent.Controller.1.PeriodicNotifInterval "600"
Device.LocalAgent.Controller.1.PeriodicNotifTime "0001-01-01T00:00:00Z"
Device.LocalAgent.Controller.1.USPNotifRetryMinimumWaitInterval "5"
Device.LocalAgent.Controller.1.USPNotifRetryIntervalMultiplier "2000"
Device.LocalAgent.Controller.1.ControllerCode ""
Internal.Reboot.Cause "LocalFactoryReset"
```

Configuring CDRouter

The following instructions are for configuring CDRouter for testing with a RPi running RDK-B. Some tweaking may be necessary with other devices.

First add a new configuration using the CDRouter Web GUI.

Then you need to modify the following testvars:

```
testvar wanIspIp                        192.168.100.1
testvar wanIspMask                      255.255.255.240
```

If you don't connect CDRouter's designated LAN port to RPi using an ethernet to USB dongle, then you must connect a network switch to CDRouter's designated LAN port instead and set the *lanMode* testvar to 'static':

```
testvar lanMode                         static
```

Replace the "USP Add-On" section in the configuration with the text below.

If you are testing using a different MTP than STOMP, modify the testvar *uspControllerMTP* appropriately.

```
SECTION "CDRouter USP Add-On" {

    testvar supportsUSP                     yes

    SECTION "Basic Controller Configuration" {

        # testvar uspControllerID                 proto::controller-id
        # testvar uspControllerInterface          wan

        # testvar uspControllerIpMode             ipv4-only
        testvar uspControllerIpv4               192.168.100.128
        # testvar uspControllerIpv6               6000::2
        # testvar uspControllerPort               auto
        # testvar uspControllerPath               /controller-path

        testvar uspControllerUseNonPayloadProtection no
        testvar uspControllerUseSessionContext   no
        testvar uspControllerMTP                 stomp
        testvar uspControllerMTPEncryption       no
        # testvar uspControllerUSPEncryption       no
        # testvar uspControllerDomain              controller.cdroutertest.com

        # testvar uspSegmentationEnable            no
        # testvar uspSegmentationSize              auto

        testvar uspControllerMTPCertPath         /usr/cdrouter/tests/cdroutertest.pem
#        testvar uspControllerMTPCaCertPath       /usr/cdrouter/tests/eco_agent_root.crt

        # testvar uspControllerUSPCaCertPath       /usr/cdrouter/tests/wildcard.cdroutertest.com-ca.pem
        # testvar uspControllerUSPCertPath         /usr/cdrouter/tests/wildcard.cdroutertest.com.pem

        # testvar uspControllerSenderCertPath      /usr/cdrouter/tests/wildcard.cdroutertest.com.pem
        testvar uspControllerVerifyRecordIntegrity no

        # testvar uspControllerHost                any
        # testvar uspControllerUsername            qacafe
        # testvar uspControllerPassword            qacafe123

    }

    SECTION "Basic Agent Configuration" {

        # testvar uspAgentID                       proto::agent-id
```

```
        # testvar uspAgentIpv4                    auto
        # testvar uspAgentIpv6                    auto
        # testvar uspAgentPort                    auto
        # testvar uspAgentPath                    /agent-path

        # testvar uspMessageTimeout               30

    }

    SECTION "USP Scenarios" {

        # testvar uspScenarioPath                 /home/dev/myUSPScenario.usp
        # testvar uspScenarioSingleMode           no
        # testvar uspScenarioBootstrap            /home/dev/myBootstrapScenario.usp

    }

    SECTION "Data Model" {

        # testvar uspSkipParameters               empty
        # testvar uspModifyParameters             empty
        # testvar uspSupportedDataModel           all

        SECTION "Custom USP Data Model" {

            IGNORE testvar_group usp_profile_1 {

                # testvar uspProfileName                  myVendorParameters
                # testvar uspProfilePath                  /home/dev/myVendorParameters.xml

            }

        }

    }

    SECTION "USP Agent Data Model Configuration" {

        testvar uspParameterPath1               Device.DeviceInfo.ManufacturerOUI
        testvar uspParameterPath2               Device.IP.Interface.1.Name
        testvar uspMissingParameterPath         Device.DeviceInfo.DeviceCategory
        testvar uspExternallyChangeableParam    Device.LocalAgent.Controller.1.MTP.1.CoAP.Host

        # testvar uspNotificationParamManualChange yes
        # testvar uspNotificationParamNewValue     myCustomParameterValue

        testvar uspObject1                      Device.Bridging.Bridge.
        testvar uspObject2                      Device.RouterAdvertisement.InterfaceSetting.

        testvar uspValidSearchPath              {Device.IP.Interface.[Name=="brlan0"].}
        testvar uspValidSearchPathResultParam   Alias
        testvar uspValidSearchPathResultValue   "Primary LAN"

        testvar uspFirmwareImage                /home/qacafe/imageC.txt
        testvar uspOriginalFirmwareImage        /home/qacafe/imageA.txt
        testvar uspInactiveFirmwareSlot         Device.DeviceInfo.FirmwareImage.2

    }

}
```

Finally you will need to create a test package containing the tests to run. For example the tests from the USP -> usp.tcl group.