



Pure Cloud Solutions Centile myRCC RestAPI description v9 (for MS Lync® integration)

Preamble

Confidentiality

All information contained in this document is the entire property of Pure Cloud Solutions and as such, must stay confidential. Access to this document is restricted to those companies or parties having signed a Non-Disclosure Agreement (NDA) with Pure Cloud Solutions. Diffusing information to other parties without a signed Non-Disclosure Agreement between Pure Cloud Solutions and the other party is forbidden.

Trademarks

Centile™ and Istra™ are trademarks of Centile Telecom Applications SAS.

Table of contents

Preamble	1
Confidentiality	1
Trademarks	1
Document History	2
Table of contents.....	3
1. Server Configuration.....	4
2. RCC Rest API Catalog.....	7
2.1. Services	7
2.2. Extension Resources	7
2.3. Call control Resources.....	7
2.4. Call Lines actions	8
2.5. Misc.....	8
3. Sequences samples.....	10
3.1. Login / Retrieve extensions list:	10
3.2. Starts Calls Monitoring	11
3.3. Call Lines management.....	14

1. Introduction

Centile has enriched its platform ISTRATM with a REST API called myRCC. This interface allows platforms owners to connect any Remote Call Control (RCC) application to ISTRATM. The RCC application will be then able to perform call control actions on enabled users of the selected enterprise on ISTRATM.

Microsoft Lync® is one of these RCC applications. Centile has tested it using the myRCC API and declared it certified.

2. Server Configuration

Below are the ISTRATM configuration steps in order to activate myRCC:

- myRCC is only available on ISTRATM platforms on version 9.1 or more
- myRCC web service must be enabled on a running Jetty server.

field	value
domain	IstraCentrex
name	J-PRIV/ADM
max memory (Mo)	600
port	8078
authorize Top Level to sign into administrative webapps on this server?	<input type="radio"/> no <input checked="" type="radio"/> yes
command line: arguments	
command line: advanced options	-Dwebapps.includes=restletrouter,myxpad,customdata,download,myrcc -Dvhost.myxpad=myistra
command line: launcher arguments	

- Login to myRCC is only accessible to administrator that have been granted with RCC authorizations. These administrators should not be real administrator, but created by a platform admin to in order to establish one or several session between two servers.
- When login, an administrator will have to provide the name of the enterprise he wishes to monitor. This enterprise has to belong to his administrative domain, and it cannot be changed during the session.
- Finally, a myRCC parameter should be enabled on each extension to be controlled via RCC.

Pure Cloud Solutions Centile myRCC RestAPI interface v9

platform owner : Top-Level

User extension

Beld fields are mandatory.

field	value
extension	290
user	ghaytouri - Outman HAYTOUMI
administrative hierarchy	<FCPS-SPICPS-Reseleokps
telephonic state	Available
receptionist	no

■ ■ ■

XPad and Switchboard: enable desktop softphone with G.722.2 codec?	<input type="radio"/> no <input checked="" type="radio"/> yes	override <input type="checkbox"/>
XPad and Switchboard: enable desktop softphone with video?	<input type="radio"/> no <input checked="" type="radio"/> yes	override <input type="checkbox"/>
XPad: enable the web XPad version?	<input type="radio"/> no <input checked="" type="radio"/> yes	override <input type="checkbox"/>
XPad: enable web softphone?	<input type="radio"/> no <input checked="" type="radio"/> yes	override <input type="checkbox"/>
XPad: enable ACD agent?	<input type="radio"/> no <input checked="" type="radio"/> yes	override <input type="checkbox"/>
activate the "Switchboard operator" role?	<input type="radio"/> no <input checked="" type="radio"/> yes	override <input type="checkbox"/>
enable C2CPE and XPad CRM integration?	<input type="radio"/> no <input checked="" type="radio"/> yes	override <input type="checkbox"/>
enable WebVoiceCard?	<input type="radio"/> no <input checked="" type="radio"/> yes web identity: ghaytouri	override <input type="checkbox"/>
enable WebCallback?	<input type="radio"/> no <input checked="" type="radio"/> yes use web identity	override <input type="checkbox"/>
enable USSD user access?	<input checked="" type="radio"/> no <input type="radio"/> yes	override <input type="checkbox"/>
enable mylstra mobile client?	<input type="radio"/> no <input checked="" type="radio"/> yes	override <input type="checkbox"/>
enable TAPI Connector?	<input checked="" type="radio"/> no <input type="radio"/> yes	override <input type="checkbox"/>
removed by service plan		
enable myReports?	yes	override <input type="checkbox"/>
enable myRCC?	<input type="radio"/> no <input checked="" type="radio"/> yes	override <input checked="" type="checkbox"/>
enable mylstra in salesforce?	<input type="radio"/> no <input checked="" type="radio"/> yes	override <input checked="" type="checkbox"/>

[save] [apply] [cancel]

3. RCC Rest API Catalog

3.1. Services

- **/restletrouter/v1/service/Login** Open and authenticate a session for an enterprise. The cookie + token must be sent set to every subsequent requests. The session is expired after a (configurable) delay of inactivity.
 - Request Header : Authorization: Basic <login|name enterprise:pwd> Base64 encoded.
 - Request Header: X-Application: myRCC
- **/restletrouter/v1/service/Logout** Close session, reset authentication.
- **/restletrouter/v1/service/EventListener/bean** Create / Delete a listener identifier.
 - JSON Request Payload : { "name" : "free string identifier" }

3.2. Extension Resources

- **/restletrouter/v1/rcc/Extension** Fetch the extensions list of the domain available once the user is logged.
 - optional query string : ?offset=int&length=int (permit the paginations list).
- **/restletrouter/v1/rcc/Extension/:id** Retrieve detail of an extension.

3.3. Call control Resources

- **/restletrouter/v1/rcc/Extension/:id/placeCall** Place a call to a given destination
 - JSON Request Payload : { "destination" : "number destination" }.
 - As far a call is created, the call legs states could be asked (pull) by a http request or monitored (push). Call actions are driven by the server which provide in a same representation the state of the call legs and each state the list of possible actions like hold, dtmfs ..
- **/restletrouter/v1/rcc/CallLine** Fetch the list of call lines.
 - optional query string : ?listenerName=listener identifier. The listener identifier must be created previously. Adding this parameter to this request starts the monitoring of this resource. The monitoring is disabled since the the identifier is deleted.
- **/restletrouter/v1/rcc/CallLine/:id/:action** Perform an action on a callLine
 - For full list please refers to [Call Lines actions](#)

- Call lines monitoring consists of a series of actions permitting to receive events (push) through a websocket connection previously established. This mechanism permit to be notified of changes of dedicated resource or a list of resources like callines (call legs). In order to avoid flooding clients, the server will send latest full representation of the resources every 100 ms (this duration may change after adjustments) as far the state of the resource has been changed.

3.4. Call Lines actions

:action	JSON request payload
addParty : add a party to a call	{ "destination" : "free string number" }
answer : call answer	N/A
disconnect : disconnect the call (destroy)	N/A
hold : hold the line	N/A
unhold : resume the line	N/A
leave : quit a multi-part call.	N/A
merge : merge 2 calls	{ "line" : "uri callLine" }
redirect : blind transfer/redirect according state call	{ "destination" : "free string number" }
sendDtmfs : send dtmf(s)	{ "dtmfs" : "string dtmfs" }
transfer : 2 step transfer	{ "line" : "uri callLine" }

3.5. Misc

- Traffic between client and server is done over HTTP protocol, no SSL protection is enabled as far client and server are in a private domain.
- Please note requests may in future versions be redirected permanently/temporarily to an alternative host. In this case the main server will responds by the standard HTTP status code (301 / 302) and provide the response header "Location" the new full URI to address requests.

- Resources are a JSON representation only, XML is not supported. It's recommended to add systematically the mime type to the Accept and Content-Type headers.
- Specific header X-Application : To permit authentication, clients must set the specific header : X-Application: myRCC. Then once client is authenticated, server will responds by the same header + a token. This value must be copied to subsequents requests.

4. Sequences samples

Note : To make sequences more lisible, the headers list is not complete.

4.1. Login / Retrieve extensions list:

1. Log in to enterprise named e1
2. Retrieve the list of extensions.
3. Log out of e1.

```
Request Method: POST
Request URL: http://istra1/restletrouter/v1/service/Login
Request Headers:
Accept:application/json, text/plain, */*
Content-Type: application/json
X-Application: myRCC
Authorization: Basic RXXXXXXXXXXXXX==

Response Headers:
Status Code: 200 OK
Set-Cookie: myRCC_SESSIONID=4278595528937730729;Path=/restletrouter;HttpOnly
X-Application:myRCC;42c7588b-8940-45cd-8007-436f51f08bf6
```

```
Request Method: GET
Request URL: http://istra1/restletrouter/v1/rcc/Extension?offset=50&length=50
Request Headers:
Accept:application/json, text/plain, */*
Content-Type: application/json
X-Application:myRCC;42c7588b-8940-45cd-8007-436f51f08bf6
Cookie: myRCC_SESSIONID=4278595528937730729

Response Headers:
Status Code: 200 OK
Response :
{
  "count" : 150,
  "items": [{
    "addressNumber": "101",
    "restUri": "v1/rcc/Extension/897778778",
    "displayName": "John Doe",
    "department": "Sales",
    "urlPhoto": "http://jhondoe.pictures.com",
    "pstnNumbers": ["+33415369101"]
  },{
    "addressNumber": "102",
    "restUri": "v1/rcc/Extension/4588897",
```

```
    "displayName": "Alice White",
    "Department": "HR",
    "urlPhoto": "http://alicewhite.pictures.com",
    "pstnNumbers": ["+33415369102"]
  }],
  "next": "v1/rcc/Extension?offset=100&length=50",
  "prev": "v1/rcc/Extension?offset=0&length=50"
}
```

```
Request Method: POST
Request URL: http://istra1/restletrouter/v1/service/Logout
Request Headers:
Accept:application/json, text/plain, */*
Content-Type: application/json
X-Application:myRCC;42c7588b-8940-45cd-8007-436f51f08bf6
Cookie: myRCC_SESSIONID=4278595528937730729

Response Headers:
Status Code: 204 No Content
Set-Cookie:myIstra_SESSIONID=4278595528937730729;Path=/restletrouter;Expires=Thu, 01-Jan-1970
00:00:00
```

4.2. Starts Calls Monitoring

Prerequisite: User must be authenticated.

1. Setup a WebSocket connection.
2. Create a Listener identifier.
3. Start monitoring call lines.
4. Stop monitoring call lines.

```
Request Method: GET
Request URL: ws://istra1/restletrouter/ws-service/myRCC
Request Headers:
Connection: Upgrade
Cookie: myRCC_SESSIONID=4278595528937730729
```

```
Response Headers:
Status Code: 101 Switching Protocols
```

```
Request Method: POST
Request URL: http://istra1/restletrouter/v1/service/EventListener/bean
Request Headers:
Accept:application/json, text/plain, */*
Content-Type: application/json
X-Application:myRCC;42c7588b-8940-45cd-8007-436f51f08bf6
Cookie: myRCC_SESSIONID=4278595528937730729
Request Payload:
{"name": "CallLines"}
```

Response Headers:
Status Code: 200 OK

Response:
{ "name": "CallLines", "restUri": "v1/service/EventListener/bean/CallLines" }

Request Method: GET
Request URL: http://istra1/restletrouter/v1/rcc/CallLine?listenerName=CallLines
Request Headers:
Accept: application/json, text/plain, */*
X-Application: myRCC;42c7588b-8940-45cd-8007-436f51f08bf6
Cookie: myRCC_SESSIONID=4278595528937730729

Response Headers:
Status Code: 200 OK

Response :

```
{
  "count": 2,
  "results": [{
    "restUri": "v1/rcc/CallLine/-2898",
    "actions": ["addParty", "disconnect", "unhold", "leave", "redirect"],
    "creationTime": "1420635386447",
    "displayedExternalNumber": "+33412345670",
    "displayedLabel": "EnterpriseVM",
    "displayedNumber": "555",
    "displayedPhoto": "",
    "isIncoming": false,
    "isMediaAvailable": false,
    "isPlaying": false,
    "isRecording": false,
    "lastModificationTime": "1420635390594",
    "lineId": "-2898",
    "state": "held",
    "stateCause": "causeNormal",
    "talkingTime": "1420635386449",
    "extension": "v1/rcc/Extension/897778778",
  }, {
    "restUri": "v1/rcc/CallLine/-2903",
    "actions": ["addParty", "disconnect", "hold", "leave", "redirect", "transfer",
"merge", "sendDtmfs"],
    "creationTime": "1420635411530",
    "displayedExternalNumber": "+334xxx",
    "displayedLabel": "John Doe",
    "displayedNumber": "102",
    "displayedPhoto": "http://jhonDoePicture.com",
    "isIncoming": false,
    "isMediaAvailable": false,
  }
}
```

```
    "isPlaying": false,
    "isRecording": false,
    "lastModificationTime": "1420635411538",
    "lineId": "-2903",
    "state": "talking",
    "stateCause": "causeNormal",
    "talkingTime": "1420635411537",
    "extension": "v1/rcc/Extension/105",
  }}
}
```

At each change the snapshot of the call line involved will be sent through the Websocket, with the same syntax as the GET response :

```
{
  "listenerName": "CallLines",
  "item": [{
    "restUri": "v1/rcc/CallLine/-2904",
    "actions": ["addParty", "disconnect", "hold", "leave", "redirect", "transfer",
"merge", "sendDtmfs", "startRecord"],
    "creationTime": "1420635411530",
    "displayedExternalNumber": "+33412345670",
    "displayedLabel": "Jhon Doe",
    "displayedNumber": "102",
    "displayedPhoto": "http://jhonDoePicture.com",
    "isIncoming": false,
    "isMediaAvailable": false,
    "isPlaying": false,
    "isRecording": false,
    "lastModificationTime": "1420635411538",
    "lineId": "-2903",
    "state": "talking",
    "stateCause": "causeNormal",
    "talkingTime": "1420635411537",
    "extension": "v1/rcc/Extension/897778778"
  ]}
}
```

Request Method: DELETE

Request URL: <http://istra1/restletrouter/v1/service/EventListener/bean/CallLines>

Request Headers:

Accept: application/json, text/plain, */*

Content-Type: application/json

X-Application: myRCC;42c7588b-8940-45cd-8007-436f51f08bf6

Cookie: myRCC_SESSIONID=4278595528937730729

Response Headers:

Status Code: 200 OK

4.3. Call Lines management

Prerequisite : User must be authenticated. Monitoring is installed.

1. Place a call from 101 to 102.
2. Receive calls events (101 side only to simplify the reading) through Websockets.
3. 101 holds/unhold the call
4. 101 disconnect the call.

```
Request Method: POST
Request URL: http://istra1/restletrouter/v1/rcc/Extension/897778778/placeCall
Request Headers:
Accept:application/json, text/plain, */*
Content-Type: application/json
X-Application:myRCC;42c7588b-8940-45cd-8007-436f51f08bf6
Cookie: myRCC_SESSIONID=4278595528937730729
Request Payload:
{"destination":"102"}

Response Headers:
Status Code: 200 OK

Response:
{
  "restUri": "v1/rcc/CallLine/-5499",
  "actions": ["disconnect", "answer"],
  "creationTime": "1420707628893",
  "displayedLabel": "Alice",
  "displayedNumber": "102",
  "displayedPhoto": "http://alice.pictures.com",
  "isIncoming": false,
  "isMediaAvailable": false,
  "isPlaying": false,
  "isRecording": false,
  "lineId": "-5499",
  "state": "prompting",
  "extensionURI": "v1/rcc/Extension/897778778"
}
```

```
WS RCV Frame
{
  "listenerName": "CallLines",
  "item": [{
    "restUri": "v1/rcc/CallLine/-5499",
    "actions": ["addParty", "disconnect", "hold", "leave", "redirect", "sendDtmfs" ],
    "creationTime": "1420707629436",
    "displayedExternalNumber": "+33412345670",
    "displayedLabel": "Alice Withe",
    "displayedNumber": "102",
    "displayedPhoto": "http://alice.pictures.com",
```

```
    "isIncoming": false,
    "isMediaAvailable": false,
    "isPlaying": false,
    "isRecording": false,
    "lastModificationTime": "1420707629443",
    "lineId": "-5499",
    "state": "talking",
    "stateCause": "causeNormal",
    "talkingTime": "1420707629443",
    "uriExtension": "v1/rcc/Extension/897778778"
  }}
}
```

Request Method: POST

Request URL: http://istra1/restletrouter/v1/rcc/CallLine/-5499/hold

Request Headers:

Accept:application/json, text/plain, */*

X-Application:myRCC;42c7588b-8940-45cd-8007-436f51f08bf6

Cookie: myRCC_SESSIONID=4278595528937730729

Response Headers :

Status Code: 204 No Content

WS RCV Frame

```
{
  "listenerName": "Calllines",
  "item": [{
    "restUri": "v1/rcc/CallLine/-5499",
    "actions": ["addParty", "disconnect", "unhold", "leave", "redirect" ],
    "creationTime": "1420707629436",
    "displayedExternalNumber": "+33412345670",
    "displayedLabel": "Alice White",
    "displayedNumber": "102",
    "displayedPhoto": "http://alice.pictures.com",
    "isIncoming": false,
    "isMediaAvailable": false,
    "isPlaying": false,
    "isRecording": false,
    "lastModificationTime": "1420707783052",
    "lineId": "-5499",
    "state": "held",
    "stateCause": "causeNormal",
    "talkingTime": "1420707629443",
    "uriExtension": "v1/rcc/Extension/897778778"
  ]}
}
```

Request Method: POST

Request URL: http://istra1/restletrouter/v1/rcc/CallLine/-5499/unhold

Request Headers:

Accept:application/json, text/plain, */*

X-Application:myRCC;42c7588b-8940-45cd-8007-436f51f08bf6

Cookie: myRCC_SESSIONID=4278595528937730729

Response Headers :

Status Code: 204 No Content

WS RCV Frame

```
{
  "listenerName": "CallLines",
  "item": [{
    "restUri": "v1/rcc/CallLine/-5499",
    "actions": ["addParty", "disconnect", "hold", "leave", "redirect", "sendDtmfs",
"startRecord" ],
    "creationTime": "1420707629436",
    "displayedExternalNumber": "+33412345670",
    "displayedLabel": "Alice White",
    "displayedNumber": "102",
    "displayedPhoto": "http://alice.pictures.com",
    "isIncoming": false,
    "isMediaAvailable": false,
    "isPlaying": false,
    "isRecording": false,
    "lastModificationTime": "1420707787595",
    "lineId": "-5499",
    "state": "talking",
    "stateCause": "causeNormal",
    "talkingTime": "1420707629443",
    "uriExtension": "v1/rcc/Extension/897778778"
  ]
}
```

Request Method: POST

Request URL: http://istra1/restletrouter/v1/rcc/CallLine/-5499/disconnect

Request Headers:

Accept:application/json, text/plain, */*

X-Application:myRCC;42c7588b-8940-45cd-8007-436f51f08bf6

Cookie: myRCC_SESSIONID=4278595528937730729

Response Headers :

Status Code: 204 No Content

WS RCV Frame:

```
{
  "listenerName": "CallLines",
  "item": [{
    "restUri": "v1/rcc/CallLine/-5499",
```



```
"conference": false,  
"creationTime": "1420707629436",  
"displayedExternalNumber": "+33412345670",  
"displayedLabel": "Alice White",  
"displayedNumber": "102",  
"displayedPhoto": "http://alice.pictures.com",  
"isIncoming": false,  
"isMediaAvailable": false,  
"isPlaying": false,  
"isRecording": false,  
"lastModificationTime": "1420707794023",  
"lineId": "-5499",  
"state": "dropped",  
"stateCause": "causeNormal",  
"talkingTime": "1420707629443",  
"uriExtension": "v1/rcc/Extension/897778778"
```

```
}]
```

```
}
```



together with **CS Comms**

Simplifying IT & Communications with the power of
THE CLOUD

Pure Cloud Solutions Ltd.

6 The Pavillions
Amber Close
Tamworth
B77 4RP

www.purecloudsolutions.co.uk

Tel: 0333 150 6780