REYAX
TECHNOLOGY CORPORATION, LTD

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RYC1001_Application_note

Telxt LE910Cx Linux/ LE910Cx Thread X/ ME310G1 Cellular module

RYC1001 Example Account

<URL>	iot.reyax.com
<Username>	e22e0f401d
<Password>	password
<Network_ID>	6
<Device_ID>	euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF

Demo Terminal Software : Docklight

Please visit website to obtain the software.

https://docklight.de

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LE910Cx Operating Procedure Example:

Module Info:

```
// Request Manufacturer Identification
AT+CGMI

AT+CGMI

Telit

OK

// Request Model Identification
AT+CGMM

AT+CGMM

LE910C1-AP

OK

// Request Software Package Version
AT#SWPKGV

AT#SWPKGV

25.20.288-B017-P0F.280201
M0F.280008-B017
P0F.280201
A0F.280008-B017

OK

// Operator Selection
AT+COPS?

AT+COPS?

+COPS: 0,0,"TW Mobile",7 // +COPS: <mode>[,<format>,<oper>,< AcT>]

OK

// EPS Network Registration Status
AT+CEREG?

AT+CEREG?

+CEREG: 0,1 // +CEREG: <n>,<stat>

OK

// PDP Context Read Dynamic Parameters
AT+CGCONTRDP=

AT+CGCONTRDP=

// +CGCONTRDP:<cid>,<bearer_id>,<apn>[,<ip&subnet>[,<gw_addr>[,<DNS_prim_addr>[,<DNS_sec_addr>[,<P-
CSCF_prim_addr>[,<P-CSCF_sec_addr>]]]]]][<CR><LF>
+CGCONTRDP: 1,5,internet,"10.108.61.124.255.255.255.248"
"36.2.117.0.4.134.52.38.0.0.0.0.15.86.211.116.255.255.255.255.255.255.255.255.0.0.0.0.0.0.0.0","10.108.61
.125" "254.128.0.0.0.0.0.0.0.0.0.0.0.0.0.1","61.31.1.1"
"32.1.69.70.0.1.0.0.0.0.0.0.0.0.0.1","61.31.233.1" "32.1.69.70.0.2.0.0.0.0.0.0.0.0.0.1"

OK
```

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```
// USB composition configuration
AT#usbcfg?

AT#usbcfg?

#USBCFG: 0

OK

at#usbcfg=1 // AT#USBCFG=<composition> Set the RNDIS parameter = 1 to be used MQTT correctly

at#usbcfg=1

OK

-----[rebooting]-----
// USB composition configuration
AT#usbcfg?

AT#usbcfg?

#USBCFG: 1

OK

// EPS Network Registration Status
at+cereg?

at+cereg?

+CEREG: 0,1 // +CEREG: <n>,<stat>

OK

// RNDIS - Remote Network Driver Interface Specification setup
at#rndis=1,0 // AT#RNDIS=<Cid>,<Did>

at#rndis=1,0

OK

// PDP Context Activate Or Deactivate
at+cgact?

at+cgact?

+CGACT: 1,1 // +CGACT: <cid>, <state>[<CR><LF>+CGACT: <cid>,<state>[…]]
+CGACT: 2,0
+CGACT: 3,0
+CGACT: 4,0

OK
```

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MQTT Init:

```
// Enable MQTT Feature
at#mqen=1,1 // AT#MQEN=<instance_number>,<enable>

at#mqen=1,1

OK

// Configure timeout parameters for MQTT transmission
at#mqtcfg=1,60 // AT#MQTCFG=<instance_number>,<packet_timeout>

at#mqtcfg=1,60

OK

// This sets the optional connection parameters for the selected MQTT client
at#mqcfg2=1,80,1 // AT#MQTCFG2=<instance_number>,<keepalive>,<clean_session>

at#mqcfg2=1,80,1

OK

// This sets the connection parameters for the selected MQTT client
AT#MQCFG=1,"iot.reyax.com",1883,1 // AT#MQCFG=<instance_number>,<host_name>,<port>,<cid>

AT#MQCFG=1,"iot.reyax.com",1883,1

OK

// Connect and log in the MQTT broker
AT#MQCONN=1," e22e0f401d0001","e22e0f401d","password" // AT#MQCONN=<instance_number>,<client_id>,<
user_name >,<password > client_id                Must not exceed 32 characters

AT#MQCONN=1," e22e0f401d0001","e22e0f401d","password"

OK

// Performs the subscription to a MQTT topic
AT#MQSUB=1,"api/notification/6/#" // AT#MQSUB=<instance_number>,<topic>

AT#MQSUB=1,"api/notification/6/#"

OK

// Performs the subscription to a MQTT topic
AT#MQSUB=1,"api/command/6/#" // AT#MQSUB=<instance_number>,<topic>

AT#MQSUB=1,"api/command/6/#"

OK

// Performs the subscription to a MQTT topic
AT#MQSUB=1,"api/command_update/6/#" // AT#MQSUB=<instance_number>,<topic>

AT#MQSUB=1,"api/command_update/6/#"

OK

// Performs the subscription to a MQTT topic
AT#MQSUB=1,"api/response/command/get@e22e0f401d0001" // AT#MQSUB=<instance_number>,<topic>

AT#MQSUB=1,"api/response/command/get@e22e0f401d0001"

OK

// Performs the subscription to a MQTT topic
AT#MQSUB=1,"api/response/notification/get@e22e0f401d0001" // AT#MQSUB=<instance_number>,<topic>

AT#MQSUB=1,"api/response/notification/get@e22e0f401d0001"
```

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```
OK
```

Command publish:

```
// Publish ASCII string
// AT#MQPUBS=<instance_number>,<topic>[,retain[,qos[,message]]]
AT#MQPUBS=1,"api/request",1,0,"{"action":"command/insert","deviceId":"euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF","command": {"command": "Control Temperature","parameters":{"Control":"Temperature"},"status":"todo","result":{"temperature": "27"}}}"

AT#MQPUBS=1,"api/request",1,0,"{"action":"command/insert","deviceId":"euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF","command": {"command": "Control Temperature","parameters":{"Control":"Temperature"},"status":"todo","result":{"temperature": "27"}}}"

OK

// Read messages received from the MQTT broker
AT#MQREAD=1,1 // AT#MQREAD=<instance_number>,<message_id>

AT#MQREAD=1,1

#MQREAD: 1,"api/command/6/4/euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF/Control Temperature",391
<<<
{"action":"command/insert","command":{"id":57369931,"command":"Control Temperature","timestamp":"2020-11-27T06:50:27.391","lastUpdated":"2020-11-27T06:50:27.391","userId":6,"deviceId":"euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF","networkId":6,"deviceTypeId":4,"parameters":{"Control":"Temperature"},"lifetime":null,"status":"todo","result":{"temperature":"27"}},"subscriptionId":1606459781118231}

OK
```

Command_update publish:

```
// Publish ASCII string
// AT#MQPUBS=<instance_number>,<topic>[,retain[,qos[,message]]]
AT#MQPUBS=1,"api/request",1,0,"{"action":"command/update","deviceId":"euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF","commandId":57369931,"command":{"status":"done!","result": {"temperature": "28"}}}"

AT#MQPUBS=1,"api/request",1,0,"{"action":"command/update","deviceId":"euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF","commandId":57369931,"command":{"status":"done!","result": {"temperature": "28"}}}"

OK

// Publish ASCII string
// AT#MQPUBS=<instance_number>,<topic>[,retain[,qos[,message]]]
AT#MQPUBS=1,"api/request",1,0,"{"action":"command/get","deviceId":"euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF",
"commandId":57369931}"

AT#MQPUBS=1,"api/request",1,0,"{"action":"command/get","deviceId":"euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF",
"commandId":57369931}"

OK
```

Command_update subscribe:

```
// Read messages received from the MQTT broker
AT#MQREAD=1,1 // AT#MQREAD=<instance_number>,<message_id>

AT#MQREAD=1,1

#MQREAD: 1,"api/command_update/6/4/euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF/Control Temperature",391
<<<
{"action":"command/update","command":{"id":57369931,"command":"Control Temperature","timestamp":"2020-11-27T06:50:27.391","lastUpdated":"2020-11-27T06:51:50.751","userId":6,"deviceId":"euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF","networkId":6,"deviceTypeId":4,"parameters":{"Control":"Temperature"},"lifetime":null,"status":"done!","result":{"temperature":"28"}},"subscriptionId":1606459789893232}

OK
```

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Command query publish:

```
// Publish ASCII string
// AT#MQPUBS=<instance_number>,<topic>[,retain[,qos[,message]]]
AT#MQPUBS=1,"api/request",1,0,"{"action":"command/get","deviceId":"euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF",
"commandId":57369931}"

AT#MQPUBS=1,"api/request",1,0,"{"action":"command/get","deviceId":"euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF",
"commandId":57369931}"

OK
```

Command query subscribe:

```
// Read messages received from the MQTT broker
AT#MQREAD=1,1 // AT#MQREAD=<instance_number>,<message_id>

AT#MQREAD=1,1

#MQREAD: 1,"api/response/command/get@e22e0f401d0001 ",390
<<<
{"action":"command/get","requestId":null,"status":"success","command":{"id":57369931,"command":"Control
Temperature","timestamp":"2020-11-27T06:50:27.391","lastUpdated":"2020-11-
27T06:51:50.751","userId":6,"deviceId":"euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF","networkId":6,"deviceTypeId
":4,"parameters":{"Control":"Temperature"},"lifetime":null,"status":"done!","result":{"temperature":"28"}
}}

OK
```

Notification publish:

```
// Publish ASCII string
// AT#MQPUBS=<instance_number>,<topic>[,retain[,qos[,message]]]
AT#MQPUBS=1,"api/request",1,0,"{"action":"notification/insert","deviceId":"euqco7P4Sjh0zF1berWlw1NbiAmsOc
tsnXbF","notification":{"notification": "temp","parameters":{"temperature": "25"}}}"

AT#MQPUBS=1,"api/request",1,0,"{"action":"notification/insert","deviceId":"euqco7P4Sjh0zF1berWlw1NbiAmsOc
tsnXbF","notification":{"notification": "temp","parameters":{"temperature": "25"}}}"

OK
```

Notification subscribe:

```
// Read messages received from the MQTT broker
AT#MQREAD=1,1 // AT#MQREAD=<instance_number>,<message_id>

AT#MQREAD=1,1

#MQREAD: 1,"api/notification/6/4/euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF/temp",274
<<<
{"action":"notification/insert","notification":{"id":2088563719,"notification":"temp","deviceId":"euqco7P
4Sjh0zF1berWlw1NbiAmsOctsnXbF","networkId":6,"deviceTypeId":4,"timestamp":"2020-11-
27T06:52:56.113","parameters":{"temperature":"25"}},"subscriptionId":1606459772266230}

OK

// Publish ASCII string
// AT#MQPUBS=<instance_number>,<topic>[,retain[,qos[,message]]]
AT#MQPUBS=1,"api/request",1,0,"{"action":"notification/get","deviceId":"euqco7P4Sjh0zF1berWlw1NbiAmsOctsn
XbF","notificationId": 1789764272}"

AT#MQPUBS=1,"api/request",1,0,"{"action":"notification/get","deviceId":"euqco7P4Sjh0zF1berWlw1NbiAmsOctsn
XbF","notificationId": 1789764272}"

OK

// Read messages received from the MQTT broker
AT#MQREAD=1,1 // AT#MQREAD=<instance_number>,<message_id>

AT#MQREAD=1,1
```

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```
#MQREAD: 1,"api/response/notification/get@e22e0f401d0001 ",273
<<<
{"action":"notification/get","requestId":null,"status":"success","notification":{"id":1789764272,"notific
ation":"temp","deviceId":"euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF","networkId":6,"deviceTypeId":4,"timestamp
":"2020-10-27T09:27:15.522","parameters":{"temperature":"25"}}}

OK

// Read messages received from the MQTT broker
AT#MQREAD=1,1 // AT#MQREAD=<instance_number>,<message_id>

AT#MQREAD=1,1

#MQREAD: 1,"api/notification/6/4/euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF/temp",274
<<<
{"action":"notification/insert","notification":{"id":565324961,"notification":"temp","deviceId":"euqco7P4
Sjh0zF1berWlw1NbiAmsOctsnXbF","networkId":6,"deviceTypeId":4,"timestamp":"2020-11-
27T06:53:26.286","parameters":{"temperature":"250"}},"subscriptionId":1606459772266230}

OK
```

UNSUBTOPIC:

```
// Unsubscribe from a Topic
AT#MQUNS=1,"api/notification/6/#" // AT#MQUNS=<instance_number>,<topic>

AT#MQUNS=1,"api/notification/6/#"

OK

// Unsubscribe from a Topic
AT#MQUNS=1,"api/command/6/#" // AT#MQUNS=<instance_number>,<topic>

AT#MQUNS=1,"api/command/6/#"

OK

// Unsubscribe from a Topic
AT#MQUNS=1,"api/command_update/#" // AT#MQUNS=<instance_number>,<topic>

AT#MQUNS=1,"api/command_update/#"

OK

// Unsubscribe from a Topic
AT#MQUNS=1,"api/response/command/get@e22e0f401d0001" // AT#MQUNS=<instance_number>,<topic>

AT#MQUNS=1,"api/response/command/get@e22e0f401d0001"

OK

// Unsubscribe from a Topic
AT#MQUNS=1,"api/response/notification/get@e22e0f401d0001" // AT#MQUNS=<instance_number>,<topic>

AT#MQUNS=1,"api/response/notification/get@e22e0f401d0001"

OK

// Read messages received from the MQTT broker
AT#MQREAD=1,1 // AT#MQREAD=<instance_number>,<message_id>

AT#MQREAD=1,1

ERROR // Unsubscribe can't read messages
```

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CLOSE :

```
// Log out and disconnect from the MQTT broker
AT#MQDISC=1 // AT#MQDISC=<instance_number>

AT#MQDISC=1

OK
```

PC MQTT.FX APP DEMO

Command publish:


```
{
   "action": "command/insert",
   "deviceId": "JFjNmVQHlB4oAOZlZtGRWFfQDjhSQ00y1BtL",
   "command": {
      "command": "Control Temperature",
      "parameters": {"Control":"Temperature"},
      "status":"to do",
      "result": {"temperature": "27"}
   }
}
```


Command subscribe:


```
{"action":"command/insert","command":{"id":451757241,"command":"Control Temperature","timestamp":"2020-10-23T02:36:29.634","lastUpdated":"2020-10-23T02:36:29.634","userId":3,"deviceId":"JFjNmVQHlB4oAOZlZtGRWFfQDjhSQ00y1BtL","networkId":3,"deviceTypeId":4,"parameters":{"Control":"Temperature"},"lifetime":null,"status":"to do","result":{"temperature":"27"}},"subscriptionId":1603420528163529}
```


Command_update publish:


```
{
   "action": "command/update",
   "deviceId": "JFjNmVQHlB4oAOZlZtGRWFfQDjhSQ00y1BtL",
   "commandId": 451757241,
   "command": {
      "status": "done!",
      "result": {"temperature": "28"}
   }
}
```


Command_update subscribe:


```
{"action":"command/update","command":{"id":451757241,"command":"Control Temperature","timestamp":"2020-10-23T02:36:29.634","lastUpdated":"2020-10-23T02:48:42.714","userId":3,"deviceId":"JFjNmVQHlB4oAOZlZtGRWFfQDjhSQ00y1BtL","networkId":3,"deviceTypeId":4,"parameters":{"Control":"Temperature"},"lifetime":null,"status":"done!","result":{"temperature":"28"}},"subscriptionId":1603420544271531}
```


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Command query publish:


```
{
   "action": "command/get",
   "deviceId": "JFjNmVQHlB4oAOZlZtGRWFfQDjhSQ00y1BtL",
   "commandId": 451757241
}
```


Command query subscribe:


```
{"action":"command/get","requestId":null,"status":"success","command":{"id":451757241,"command":"Control Temperature","timestamp":"2020-10-23T02:36:29.634","lastUpdated":"2020-10-23T02:48:42.714","userId":3,"deviceId":"JFjNmVQHlB4oAOZlZtGRWFfQDjhSQ00y1BtL","networkId":3,"deviceTypeId":4,"parameters":{"Control":"Temperature"},"lifetime":null,"status":"done!","result":{"temperature":"28"}}}
```


Notification publish:


```
{
   "action": "notification/insert",
   "deviceId": "JFjNmVQHlB4oAOZlZtGRWFfQDjhSQ00y1BtL",
   "notification": {
      "notification": "temp",
      "parameters": {"temperature": "25"}
   }
}
```


Notification subscribe:


```
{"action":"notification/insert","notification":{"id":1563790640,"notification":"temp","deviceId":"JFjNmVQHlB4oAOZlZtGRWFfQDjhSQ00y1BtL","networkId":3,"deviceTypeId":4,"timestamp":"2020-10-23T02:51:00.790","parameters":{"temperature":"25"}},"subscriptionId":1603420537072530}
```


Notification query publish:


```
{
   "action": "notification/get",
   "deviceId": "JFjNmVQHlB4oAOZlZtGRWFfQDjhSQ00y1BtL",
   "notificationId": 1563790640
}
```


Notification query subscribe:


```
{"action":"notification/get","requestId":null,"status":"success","notification":{"id":1563790640,"notification":"temp","deviceId":"JFjNmVQHlB4oAOZlZtGRWFfQDjhSQ00y1BtL","networkId":3,"deviceTypeId":4,"timestamp":"2020-10-23T02:51:00.790","parameters":{"temperature":"25"}}}
```


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