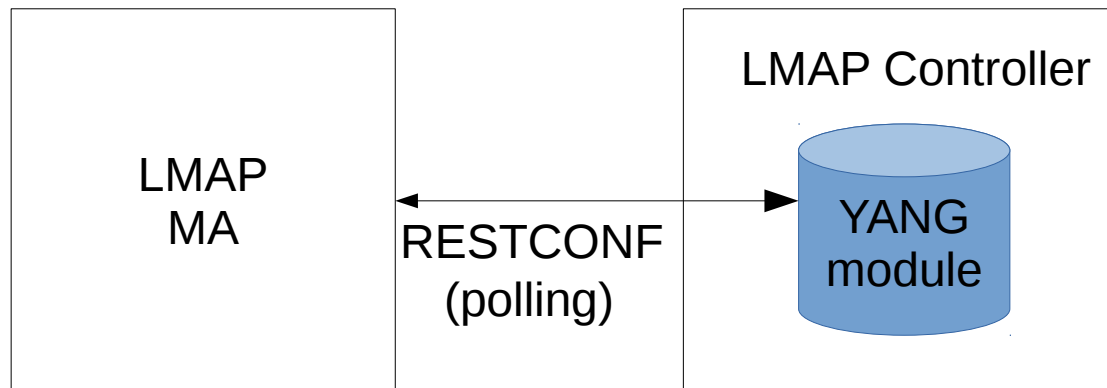


draft-oslebo-Imap-control-yang

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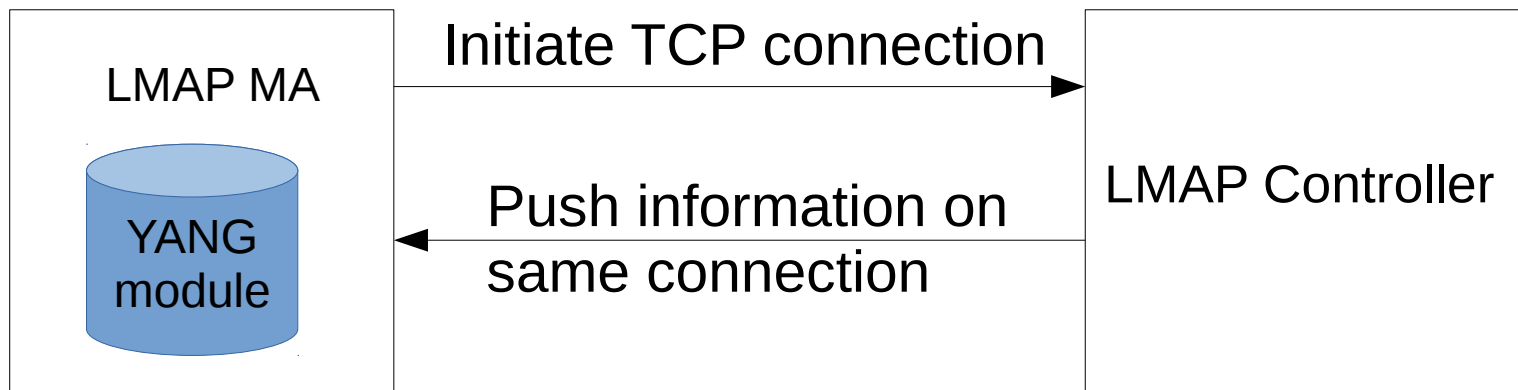
Overview

- Draft defines a YANG module, lmap-control, that defines the information stored on the LMAP controller
- Based on MAs polling configuration from controller



RESTCONF call home

- Support for RESTCONF will now be added to draft-ietf-netconf-call-home



Overall structure

```
+--rw imap-control
  +--rw tasks
  |   +--rw task* [name]
  +--rw channels
  |   +--rw channel* [name]
  +--rw schedules
  |   +--rw schedule* [name]
  +--rw timings
  |   +--rw timing* [name]
  +--rw log
  |   +--rw log-entry* [agent-id event-time]
  +--rw measurement-agents
  |   +--rw ma* [agent-id]
```

Tasks

```
+--rw tasks
|   +--rw task* [name]
|     +--rw name                string
|     +--rw registry-entry      inet:uri
|     +--rw role?                string
|     +--rw options
|       |   +--rw option* [name]
|       |     +--rw name          string
|       |     +--rw value?        string
|       +--rw suppress-by-default? boolean
|       +--rw cycle-id?          string
```

Tasks XML

```
<tasks>
  <task>
    <name>Configuration</name>
    <registry-entry>urn:..:configuration
    </registry-entry>
  </task>
  <task>
    <name>Ping</name>
    <options>
      <option>
        <name>destination</name>
        <value>127.0.0.1</value>
      </option>
    </options>
    <registry-entry>urn:ping</registry-entry>
  </task>
</tasks>
```

Channels

```
+--rw channels
|   +--rw channel* [name]
|       +--rw name                string
|       +--rw target              inet:uri
|       +--rw credentials         string
|       +--rw interface?         leafref
```

Reference to YANG
Interface model -
RFC7223

Schedules

```
+--rw schedules
| +--rw schedule* [name]
|   +--rw name      string
|   +--rw tasks
|     | +--rw task* [name]
|     |   +--rw name      leafref
|     |   +--rw channels
|     |     | +--rw channel* leafref
|     |   +--rw downstream-tasks
|     |     +--rw downstream-task* [schedule task]
|     |       +--rw schedule leafref
|     |       +--rw task     leafref
|     |       +--rw outputs
|     |         +--rw output*  int32
|   +--rw timing leafref
```


Schedules XML

```
<schedules>
  <schedule>
    <name>Ping</name>
    <tasks>
      <task>
        <name>Ping</name>
        <downstream-tasks>
          <downstream-task>
            <schedule>Report daily</schedule>
            <task>Report</task>
            <outputs>
              <output>1</output>
            </outputs>
          </downstream-task>
        </downstream-tasks>
      </task>
    </tasks>
    <timing>Hourly</timing>
  </schedule>
</schedules>
```

RESTCONF query - XML

```
GET /restconf/data/imap-control:imap-control/measurement-agents/  
ma=00000000-0000-0000-0000-0000-000000000001/config HTTP/1.1  
Host: 127.0.0.1:5000  
Accept: application/yang.data+xml,  
application/yang.errors+xml
```

```
HTTP/1.0 200 OK  
Content-Type: application/yang.data+xml  
Server: example-server  
Date: Fri, 12 Sep 2014 11:56:42 GMT
```

```
<config>  
  <credentials/>  
  <group-id>1</group-id>  
</config>
```

RESTCONF query - JSON

```
GET /restconf/data/imap-control:imap-control/measurement-agents/  
ma=00000000-0000-0000-0000-0000-000000000002/schedules HTTP/1.1  
Host: 127.0.0.1:5000  
Accept: application/yang.data+json,  
application/yang.errors+json
```

```
HTTP/1.0 200 OK  
Content-Type: application/yang.data+json  
Server: example-server  
Date: Fri, 12 Sep 2014 12:14:15 GMT
```

```
{  
  "schedules": {  
    "schedule": [  
      "Configuration",  
      "Ping"  
    ]  
  }  
}
```

RESTCONF: add log entry

```
POST /restconf/data/imap-control:imap-control/log HTTP/1.1
```

```
Host: example.com
```

```
Content-Type: application/yang.data+json
```

```
{ "imap-control:log-entry" : {  
    "agent-id" : "00000000-0000-0000-0000-000000000001",  
    "event-time" : "1410701348000",  
    "code" : "1",  
    "description" : "log entry test"  
  }  
}
```

```
HTTP/1.1 201 Created
```

```
Date: Mon, 23 Apr 2012 17:01:00 GMT
```

```
Server: example-server
```

```
Location: http://example.com/restconf/data/imap_control:.....
```

```
Last-Modified: Sun, 14 Sep 2014 15:32:00 GMT
```

```
ETag: b3a3e673be2
```

Advantages of YANG+RESTCONF

- YANG
 - Getting popular
 - <http://www.ietf.org/blog/2014/07/yang-takes-off-in-the-industry/>
 - Easy to model the LMAP information model in YANG
 - Provides formal validation
 - Reuse existing work
 - RFC7223
- RESTCONF
 - Well defined API for create, retrieve, update and delete operations.
 - Notification support
 - Filter mechanisms to request a subset of the target resource contents
 - Will support call home functionality