Asterisk Module Documentation for the yencap Agent

Release: ASTERISK-yencap-1.0.0

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1.1 System Requirements

- **Python**: 2.3.0 or newer. The whole implementation of the Module is done in Python so, check the appropriate Python package for your distribution or download the sources from www.python.org .
- **4Suite**: 1.0 alpha 4 or newer. The XML processing is done entirely via this library. Check the package for your distribution or download the sources from it webpage. In the later case you should untar the sources and invoke "python setup.py install" in the top-level source directory.
- **Yapps**: version 2 or newer. The parser of the data from the device is done by a class generated by this parser generator. Download the zip file from the YAPPS webpage. The files included in the zip don't need to be compiled. Unzip them in your library folder or any place you consider. Add the path of the folder you decided to the $PYTHONPATH environment variable.
- **Asterisk**:Asterisk is a software Pbx, it runs in Linux. Check the package for your distribution or download the sources from it webpage.
- **NetConf Agent[?]:** Check in our page the last release of it.

1.2 Installation

We provide the source code of the ASTERISK Module, to install is quite easy, copy the main folder ASTERISK_Module to the folder Module in the Server Agent and execute "python setup.py".

In order to the Agent to register this module, a node like the one show next should be added to the modules.xml file. For more information check the documentation of the Agent.

```
<module>
        <name>ASTERISKModule</name>
        <mainFileName>ASTERISKModule</mainFileName>
        <className>ASTERISKModule</className>
        <xpath>/netconf/asterisk</xpath>
        <xsdfile>asterisk.xsd</xsdfile>
</module>
```

1.3 Launching the Module

As the ASTERISK implementation is a module of the NetConf agent yencap, it will automatically launch it self if the step specified in the installation were followed.

Minimal requirements :

- Pentium III with 256 Mb
- Root access privileges

2 Usage

2.1 Presentation

THe ASTERISK Module is responsible for the configuration of the Asterisk Pbx. As the NetConf protcol uses XML configuration, the Module had to translate the several plain text configuration files of Asterisk into one single XML configuration Document. The resulting XML configuration is as follows

```
<asterisk>
        <file name="asterisk.conf">
                <section name="global">
                        <attribute name="astetcdir">/etc/asterisk</attribute>
                        <attribute name="astvarlibdir">/var/lib/asterisk</attribute>
                        <attribute name="astrundir">/var/run/asterisk</attribute>
                </section>
        </file>
        <file name="sip.conf">
                <section name="cisco1">
                        <attribute name="username">cisco</attribute>
                        <attribute name="secret">blah</attribute>
                        <attribute name="qualify">200</attribute>
                        <attribute name="type">friend</attribute>
                </section>
        </file>
</asterisk>
```

2.2 Netconf operations

The Aterisk Module is able to perform every NetConf Operations ("get-config", "copy-config", "edit-config", etc...).

get-config / get : When a get request is received, the Module generates the XML configuration Document by mapping every configuration files in /etc/asterisk into a XML node, then the module return the resulting Document to the agent.

copy-config : When the Module receive a copy-config, it's able to re-generates the configruation files from the received XML Document.

edit-config : The edit-config is made by the agent, it's a combination of a get-config and a copy-config.

Others : The Module is not responsible for the others operations which are managed by the agent itself.

2.3 Examples

2.3.1 Get-config

The "get-config" operation allows the manager to retrieve all or only a specific part of the configuration of the device.

```
<rpc message-id="1" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
        <get-config>
                <source>
                        <running>
```

```
                </source>
                <filter type="xpath">
                        /netconf/asterisk/file[@name="sip.conf"]
                </filter>
        </et-config>
</rpc>
```

2.3.2 Get

The "get" operation is almost like the "get-config" operation except that it returns informations on the device. The informations are not implemented so the "get" returns the same configuration Document than the "get-config".

```
<rpc message-id="2" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
        <get>
                <filter type="xpath">
                        /netconf/asterisk/file[@name="sip.conf"]
                </filter>
        </get>
</rpc>
```

2.3.3 Edit-config

The "edit-config" operation allows the manager to make modification(s) to the Asterisk Configuration, such as add a new user in the "sip.conf" file.

```
<rpc message-id="3" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
        <edit-config>
                <target>
                        <running/>
                </target>
                <config xmlns:xc="urn:ietf:params:xml:ns:netconf:base:1.0">
                        <netconf>
                                <asterisk>
                                        <file name="sip.conf">
                                                <section name="NEW_USER" xc:operation="create">
                                                        <attribute name="username">NEW</attribute>
                                                        <attribute name="secret">PASSWORD</attribute>
                                                        <attribute name="qualify">200</attribute>
                                                        <attribute name="type">friend</attribute>
                                                </section>
                                        </file>
                                </asterisk>
                        </netconf>
                </config>
        </edit-config>
</rpc>
```

2.3.4 Copy-config

The "copy-config" operation allows the user to replace, for instance, the running configuration by the candidate configuration.

```
<rpc message-id="4" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
        <copy-config>
                <source>
                        <candidate/>
                </source>
                <target>
                        <running/>
```

```
                </target>
        </copy-config>
</rpc>
```