python-redfish Documentation

Release 0.3

Bruno Cornec, Vincent Misson, René Ribaud

April 30, 2016

CONTENTS

Contents:

CHAPTER

ONE

THE PYTHON-REDFISH PROJECT

This repository will be used to house the python-redfish library, a reference implementation to enable Python developers to communicate with the Redfish API (http://www.dmtf.org/standards/redfish).

NOTE:

```
STATUS: Work in progress, ready for proof of concept.

The current Redfish specification revision is 1.0.0 - Note that the mockup
is still at version 0.99.0a and may not reflect what the standard provides
fully
```

1.1 Documentation

The full documentation is available at http://pythonhosted.org/python-redfish/installation.html

1.2 Project Structure

This project follows the same convention as OpenStack projects, eg. using pbr for build and test automation:

```
doc/             # Documentation
doc/source       # The doc source files live here
doc/build/html   # Output of building any docs will go here
dmtf             # Reference documents and mockup provided by the DMTF
examples/        # Any sample code using this library, eg. for education
                 # should be put here
pbconf           # Project builder file to build rpm/deb packages for
                 # distributions
redfish/         # The redfish library itself
redfish/tests/   # python-redfish unit test suite
redfish-client   # Client tool to manage redfish devices
```

1.3 Requirements

To use the enclosed examples, you will need Python 2.7 or Python 3.4 (https://www.python.org/downloads/). Note that Python 2.7.9 enforces greater SSL verification requiring server certificates be installed. Parameters to relax the requirements are available in the library, but these configurations are discouraged due to security.

Python requirements are listed in requirements.txt; additional requirements for running the unit test suite are listed in test-requirements.txt.

Note: Running tests requires Docker engine.

Note: The program was tested with Python 2.7.10 and 3.4.2 however it might work as well with all Python 3 releases.

1.4 Get the source code

The source code is available on github and can be retrieved using:

```
git clone https://github.com/bcornec/python-redfish
```

As python-redfish is currently in heavy development we recommend to checkout the devel branch using:

```
cd python-redfish
git checkout devel
```

1.5 Installation

Please refer to the following link.

http://pythonhosted.org/python-redfish/installation.html

1.6 Contacts

Distribution list: python-redfish@mondorescue.org

1.7 Further References

Please look at dmtf/README.rst file.

CHAPTER

TWO

INSTALLATION

The following instructions are ordered by ease of use, and our project recommendations.

2.1 Using rpm packages

There is currently no official Linux distribution packages.

The upstream project provides packages for a limited set of Linux distributions.

There are available at ftp://ftp.project-builder.org

As an example for Fedora 23 use the following:

1. As root get the repo file:

```
cd /etc/yum.repos.d && wget ftp://ftp.project-builder.org/fedora/23/x86_64/python-redfish.repo
```

2. Install using dnf:

```
dnf install python-redfish
```

2.2 Using pip and virtualenv

1. Install virtualenv and virtualenvwrapper:

   Fedora 22:

```
dnf install python-virtualenv python-virtualenvwrapper
```

   Ubuntu 15.04:

```
apt-get install python-virtualenv virtualenvwrapper
```

2. Source virtualenvwrapper.sh:

```
. /usr/bin/virtualenvwrapper.sh
```

   or:

```
. /usr/share/virtualenvwrapper/virtualenvwrapper.sh
```

3. Create a redfish virtual environement:

```
mkvirtualenv redfish
```

4. Install using pip:

```
pip install python-redfish
```

   All files are installed under your virtualenv.

2.3 Using pip

Use:

```
sudo pip install python-redfish
```

Pip will install :

1. The library and all dependencies into prefix/lib/pythonX.Y/site-packages directory
2. redfish-client conf file into prefix/etc/redfish-client.conf. If prefix = '/usr' then force the configuration file to be in /etc
3. Data files (templates) into prefix/share/redfish-client/templates

Point 2 and 3 above need root access to your system. If you don't have root access on your system, please follow *Using pip and virtualenv* section.

2.4 Using source code

1. Follow get the source code section to retrieve it.
2. Install from the source code using:

```
python setup.py install --prefix="/usr/local"
```

2.5 Building your own rpm packages

Inside the project tree there is a mechanism to build rpm packages for distributions.

The mechanism is based on project builder tool.

1. Follow get the source code section to retrieve it.
2. Download project builder for your distribution from ftp://ftp.project-builder.org.
3. Clone the project to your own github account.
4. Create a .pbrc with the following content, replace "/workspace/python/redfish" and "uggla" with your own directory and account:

```
$ cat .pbrc
pbdefdir python-redfish = $ENV{'HOME'}/workspace
pbconfdir python-redfish = $ENV{'HOME'}/workspace/python-redfish/pbconf
pbconfurl python-redfish = git+ssh://git@github.com:uggla/python-redfish.git
pburl python-redfish = git+ssh://git@github.com:uggla/python-redfish.git
```

5. Build the project:

```
pb -p python-redfish sbx2pkg
```

or:

```
pb -p python-redfish sbx2pkg2ins
```

6. All packages (srpm/rpm) should be available into the build directory, then install the package using rpm:

```
rpm -Uvh python-redfish/build/RPMS/python-redfish-devel20160213182552.rpm
```

CHAPTER

THREE

INVENTORY FILE CONFIGURATION

1. Verify redfish-client is working correclty:

```
redfish-client -h
```

2. Create a default entry to use the mockup:

```
redfish-client config add default default http://localhost:8000/redfish/v1
```

3. Verify the entry is correctly registered:

```
redfish-client config showall
```

Note: The inventory file is created in $HOME/.redfish

CHAPTER

FOUR

MOCKUP INSTALLATION

1. Follow get the source code section to retrieve it.
2. Install docker using your distribution packages or the docker procedure (docker provides more recent packages):

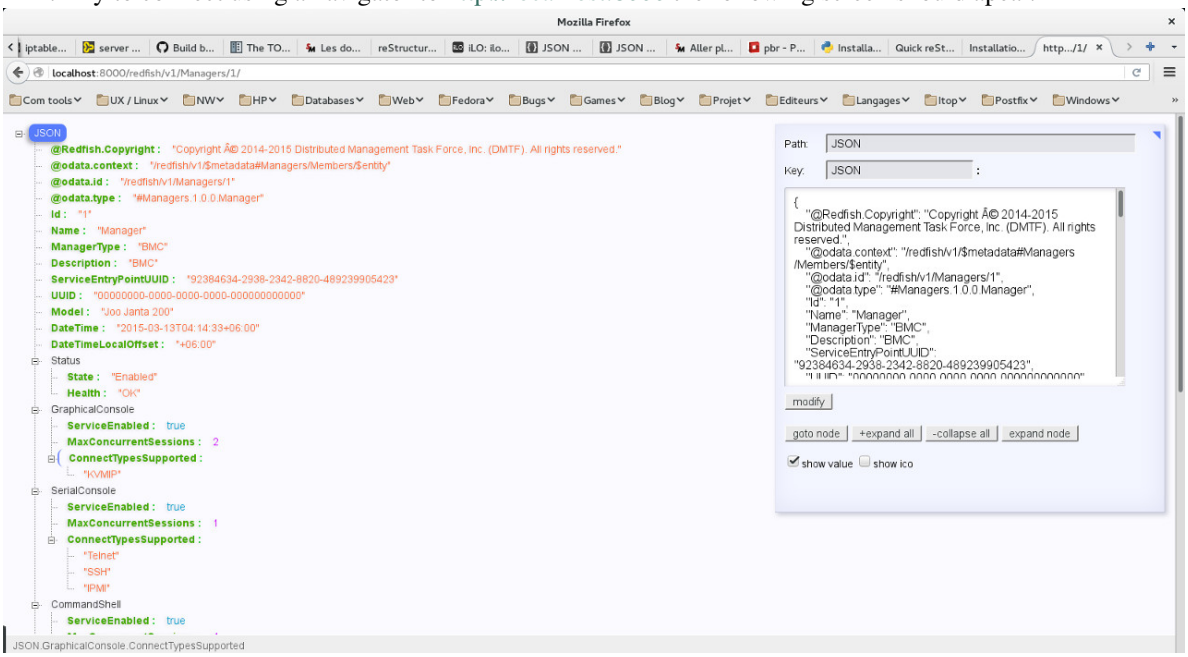
As an example for Fedora 23 use the following:

```
dnf install docker
systemctl enable docker.service
systemctl start docker.service
systemctl status docker.service
```

1. Jump into the dmtf directory.
2. Run ./buildImage.sh and ./run-redfish-simulator.sh
3. Check that a container is running and listening on port 8000:

```
    $ docker ps
    CONTAINER ID        IMAGE                          COMMAND                  CREATED                 STAT
    9943ff1d4d93        redfish-simulator:latest       "/bin/sh -c /tmp/redf"   3 weeks ago             Up 2
```

4. Try to connect using a navigator to http://localhost:8000 the following screen should apear.



Note : in the above screenshot, firefox JSON-handle extension is used. If you want the same presentation install the extension and refresh the page.

CHAPTER

FIVE

TESTING AGAINST THE MOCKUP

1. Follow *Inventory file configuration* and *Mockup installation* section.
2. Run the following command:

```
    redfish-client manager getinfo
```

The result should be like this:

```
$ redfish-client manager getinfo
Gathering data from manager, please wait...

Redfish API version :  1.00
Root Service

Managers information :
======================

Manager id 1:
UUID : 00000000-0000-0000-0000-000000000000
Type : BMC
Firmware version : 1.00
State : Enabled
Ethernet Interface :
    This manager has no ethernet interface
Managed Chassis :
    1
Managed System :
    1
----------------------------

Manager id 2:
UUID : 00000000-0000-0000-0000-000000000000
Type : EnclosureManager
Firmware version : Not available
State : Enabled
Ethernet Interface :
    This manager has no ethernet interface
Managed Chassis :
    Enc1
Managed System :
    2
----------------------------

Manager id 3:
UUID : 00000000-0000-0000-0000-000000000000
```

```
Type : EnclosureManager
Firmware version : Not available
State : Enabled
Ethernet Interface :
    This manager has no ethernet interface
Managed Chassis :
    Enc1
Managed System :
    2
----------------------------
```

CHAPTER

SIX

BUILDING LOCAL DOCUMENTATION

Building the html documentation locally.

1. Follow get the source code section to retrieve it.
2. Jump in the doc directory:

```
cd doc
```

3. Build the html documentation:

```
make html
```

If you want to build the documentation in pdf.

1. Get texlive full distribution, e.g. on Fedora 23:

```
dnf install texlive-scheme-full
```

2. Build the documentation:

```
make latexpdf
```

CHAPTER

SEVEN

USAGE

7.1 Example using the mockup

example/simple-simulator.py provide a simple library usage to interact with the redfish mockup.

7.2 Example using a proliant

example/simple-proliant.py provide a simple library usage to interact with a HPE ProLiant BL460C G9 server. However this example should work on any server supplier following redfish standard.

7.3 redfish-client usage

The client usage can be display using:

```
redfish-client -h
```

This is also available at http://pythonhosted.org/python-redfish/redfish-client.html.

CHAPTER

EIGHT

DEVELOPER SETUP

1. Follow get the source code section to retrieve the sources.
2. Follow using pip and virtualenv section to create your environment.

You can start hacking the code now.

CHAPTER

NINE

RUNNING TESTS

9.1 redfish module tests

Tests are not functional for the redfish module yet.

9.2 redfish-client tests

1. Create your development environment following Developer setup.
2. Install docker using the procedure.
3. Ensure you can use docker with your current user.
4. Jump into the python-redfish directory containing the source code.
5. Depending of your distribution, you may have to upgrade setuptools:

```
pip install --upgrade setuptools
```

6. Install required modules for testings:

```
pip install -t test-requirements.txt
```

7. Run the test:

```
tox
```

or:

```
py.test redfish-client
```

CHAPTER

TEN

CLASSES DOCUMENTATION

10.1 python-redfish classes

10.1.1 config class

10.1.2 exception class

10.1.3 main class

10.1.4 mapping class

10.1.5 types class

10.2 redfish-client classes

CHAPTER

ELEVEN

CONTRIBUTING

If you would like to contribute to the development of this project.

Submit your pull request and issues to https://github.com/bcornec/python-redfish.

You can also share and discuss on the mailing list as well at http://mondorescue.org/sympa/arc/python-redfish.

CHAPTER

TWELVE

FAQ

- Q1 : error in setup command: Invalid environment marker: (python_version < '3')

  This error is caused by an old setuptools version that does not understand "python_version < '3"'. Upgrade setuptools using:

```
pip install --upgrade setuptools
```

CHAPTER

THIRTEEN

HELP REQUIRED

We need help on the following topic:

- debian/ubuntu dependencies packaging.
- installation on distributions which are not Fedora or Mageia.
- documentation.

Any contribution will be welcomed.

CHAPTER

FOURTEEN

INDICES AND TABLES

- genindex
- modindex
- search