



Project Deliverable D5.5

Second experimentation toolset

Contractual date of delivery:	31-12-2016
Actual date of delivery:	23-12-2016
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Work package:	WP5 – FED4FIRE compliance
Estimated person months:	See D5.4
Nature:	O
Dissemination level:	PU
Version:	1.0

Abstract:

This deliverable describes the second release of new and extended experimentation tools on the WISHFUL portal, together with the supporting documentation. For every tool, a short description is given, followed by guidelines how the tool can be accessed.

Keywords:

Fed4FIRE compliance, Experimentation tools, jFed, OMF6, OML, Ansible, GNUradio, WTA GitHub

First experimentation toolset

The following tools are available as part of the second experimentation toolset. This list is also available on the WISHFUL portal [1]. Sample configuration files for all these tools can be found in the ExperimentationTools repository on the WirelessTestbedsAcademy GitHub [2].

Name	Function	URL
jFed	Resource provisioning and management	http://jfed.iminds.be/
OMF6	Uniform Experiment Control	https://omf.mytestbed.net/
OML	Uniform Measurement framework	https://oml.mytestbed.net/
Ansible	IT automation tool for installation of software	http://www.ansible.com/
GNU Radio	Open-source toolkit for Software defined radio	http://gnuradio.org/
LA	Logic Analyzer for sensor code debugging	https://www.saleae.com/

1. jFed

- Tool name: jFed
- Download: <http://jfed.iminds.be/>
- Documentation: <http://doc.ilabt.iminds.be/jfed-documentation/>
- Short description: jFed is a Java-based framework for testbed federation. The jFed Experimenter GUI and CLI allow end-users to provision and manage experiments. It is compliant with the SFA protocol used in the Fed4FIRE project.
- Supported WISHFUL testbeds: w-iLab.t, TWIST, Portable testbed

2. OMF6

- Tool name: cOntrol and Management Framework version 6
- Download: <http://mytestbed.net/doc/omf/file.INSTALLATION.html>
- Documentation: <https://omf.mytestbed.net/projects/omf6/wiki/Wiki>
- Short description: OMF is a control, measurement and management framework for experimental platforms. The OMF Experiment Description Language (OEDL) allows users to define their experiments in a uniform way so that they can easily be mapped onto other testbeds. It is compliant with the FRCP protocol used in the Fed4FIRE project.
- Supported WISHFUL testbeds: w-iLab.t, ORBIT, Portable testbed

3. OML

- Tool name: OML – Measurement Library
- Download: <https://oml.mytestbed.net/projects/oml/wiki/Installation>
- Documentation: https://oml.mytestbed.net/projects/oml/wiki/OML_Overview
- Short description: OML is an instrumentation tool that allows application writers to define customisable measurement points (MP) inside new or pre-existing applications. Experimenters running the applications can then direct the measurement streams (MS) from these MPs to remote collection points, for storage in measurement databases. It is compliant with the OMSP protocol used in the Fed4FIRE project.
- Supported WISHFUL testbeds: w-iLab.t, ORBIT, Portable testbed

4. Ansible

- Tool name: Ansible
- Download: http://docs.ansible.com/ansible/intro_installation.html

- Documentation: <http://docs.ansible.com/index.html>
 - Short description: Ansible is a simple IT automation engine that automates cloud provisioning, configuration management, application deployment, intra-service orchestration, and many other IT needs. It is used as a helper tool to install some of the tools listed above. It can be loosely coupled with the jFed tool to automate the installation process of experimentation tools (e.g. OMF6, OML, or other custom tools).
 - Supported WiSHFUL testbeds: w-iLab.t, ORBIT, TWIST, Portable testbed
5. GNU Radio
- Tool name: GNU radio
 - Download: <http://gnuradio.org/redmine/projects/gnuradio/wiki/Download>
 - Documentation: <http://gnuradio.org/redmine/projects/gnuradio/wiki>
 - Short description: GNU Radio is a free & open-source software development toolkit that provides signal processing blocks to implement software radios. It can be used with readily-available low-cost external RF hardware to create software-defined radios, or without hardware in a simulation-like environment. In WiSHFUL testbeds it is mostly used in combination with USRP hardware.
 - Supported WiSHFUL testbeds: w-iLab.t, ORBIT, IRIS, Portable testbed
6. LA
- Tool name: Logic Analyzer
 - Download: <https://www.saleae.com/downloads>
 - Documentation: <http://support.saleae.com/hc/en-us/sections/201990573-saleae-users-guide>
 - Short description: The Saleae Logic Analyzer can be used to do in-depth debugging of sensor protocols. 16 GPIOs (general purpose inputs and outputs) can be selected on the target platform to observe the sensor activities via a Logic Analyzer like: chain and instruction envelopes, radio activity, and so forth. Examples are available to connect the RM090 and the Zolertia Re-Mote sensor nodes in a uniform way, but this approach can also be applied to any other target platforms.
 - Supported WiSHFUL testbeds: w-iLab.t, Portable testbed

References

- [1] WiSHFUL portal, <http://www.wishful-project.eu/>
- [2] WTA GitHub, <https://github.com/WirelessTestbedsAcademy/ExperimentationTools>