Hi! Call me Fede or Fed

Who is Federico Capoano?

- Open Source Software Developer ([github](https://github.com))
- **Ninux** contributor since 2011
- **Cineca Public WiFi** 2012-2017
- **OpenWISP** core developer since 2012
- Working on **NetJSON** spec since 2015
What is OpenWISP?

Open Source Network Management System

Aims to ease the deployment and management of networks and helps to keep the costs low
Keeps the costs low? How?

Automates repetitive actions

Fully supports OpenWRT (runs on lots of hardware)

No licensing fees

No vendor lock-in
What else?

Modular, Programmable, Hackable

Written in Python (very popular as of 2018)

Active and Growing Community

Becoming popular in emerging countries
What can OpenWISP do?

(quick summary and overview)
Auto-registration
Change device

**Name:** IMPERIAL-OPPIDO

**Organization:** Basilicata

**Mac address:** C4:6E:1F:FE:E0:C1

**UUID:** ff1d5190e924ba7842d3a354b2385c

**Key:** 49284078d87e26316357215149807ab8

**Last ip:** 87.17.93.165

**Management ip:** 10.27.253.04

**Model:** TP-Link TL-WDR3600 v1

**Operating system:** OpenWrt 18.06-SNAPSHOT r7312-e56be1330
DEVICE CONFIGURATION DETAILS

Configuration: IMPERIAL-OPPIDO

Backend: OpenWRT/LEDE

Select netlronconfig backend

Configuration status: applied

“modified” means the configuration is not applied yet;
“applied” means the configuration is applied successfully;
“error” means the configuration caused issues and it was rolled back;

Templates:

- Timezone (Europe/Rome)
- DLSFd2 in VPN
- DLSFd2 common
- [Basilicata] Topologia
- OpenVPN
- [Basilicata] SSH keys
- /etc/profile
- openwisp-config (management_interface)
- Monitoring
- Banner
- Captive Portal (chilli)
- olsr2-generic
- Dual Radio
- Firenze
- [Palermo] Topologia

Choose items and order by drag & drop.

configuration templates, applied from first to last
# Configuration:

## General

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>maintainer</td>
<td>nemesis</td>
</tr>
<tr>
<td>description</td>
<td>ipv6 linklocal: fe80::c24a:ff:fe2d:5fc description and notes</td>
</tr>
</tbody>
</table>

## Interfaces

### Interface 1

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>lan</td>
</tr>
<tr>
<td>type</td>
<td>bridge</td>
</tr>
</tbody>
</table>

**Bridge Members**

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>bridged interface 1</td>
<td>eth0.1</td>
</tr>
</tbody>
</table>
{
    "general": {
        "maintainer": "nemesis",
        "description": "IPv6 link-local: fe80::c24a:ff:fe2d:5fc",
    },
    "interfaces": [
        {
            "bridge members": [
                "eth0.1"
            ],
            "type": "bridge",
            "addresses": [
                {
                    "proto": "static",
                    "family": "ipv6",
                    "gateway": "",
                    "mask": 64,
                    "address": "2001:4c00:893b:fedc:1"
                }
            ],
            "name": "lan"
        },
        {
            "type": "ethernet",
            "addresses": [
                {
                    "proto": "static",
                    "family": "ipv4",
                    "gateway": "",
                    "mask": 255,
                    "address": "192.168.2.254"
                },
                {
                    "proto": "static",
                    "family": "ipv4",
                    "gateway": "",
                    "mask": 255,
                    "address": "192.168.1.254"
                }
            ],
            "network": "lan24",
            "name": "eth0.24",
            "description": "NanoBeam AC verso DiegoApriliana"
        }
    ],
    "type": "ethernet",
    "addresses": [
        {
            "proto": "static",
            "family": "ipv6",
            "gateway": "",
            "mask": 64,
            "address": "2001:4c00:893b:1:40:0:24"
        }
    ]
}
Change template

Name: Management VPN

Organization: [Dropdown]

Type: [Dropdown] VPN-client

template type, determines which features are available

Backend: [Dropdown] OpenWRT/LEDE

Select netjsonconfig backend

VPN: [Dropdown] Management VPN Server

Auto certificate
whether x509 client certificates should be automatically managed behind the scenes for each configuration using this template, valid only for the VPN type

Tags: A comma-separated list of template tags, may be used to ease auto configuration with specific settings (eg: 4G, mesh, WDS, VPN, etc.)

Enabled by default
whether new configurations will have this template enabled by default
Geographic Information

Location: Santa Marta, Laboratorio di reti, stanza 509

Type: Indoor environment (e.g., building, roofs, subway, large vehicles)

is mobile? No

is this location a moving object? No

Location name: Santa Marta, Laboratorio di reti, stanza 509

Address: Via di Santa Marta 3

Geometry:
Network Topology Monitoring

(indispensable in mesh networks)
Freeradius administration

(indispensable for ISPs)
### Freeradius administration

<table>
<thead>
<tr>
<th>FREERADIUS</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Accountings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Batch user creation operations</td>
<td>+ Add</td>
<td>+ Change</td>
</tr>
<tr>
<td>Checks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groups</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post auth log</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Replies</td>
<td>+ Add</td>
<td>+ Change</td>
</tr>
<tr>
<td>Attribute</td>
<td>Value</td>
<td>Created</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Max-Daily-Session</td>
<td>1800</td>
<td>15 Oct 2018, 10:48 a.m.</td>
</tr>
<tr>
<td>Max-Daily-Session-Traffic</td>
<td>100000000000</td>
<td>15 Oct 2018, 10:49 a.m.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Organization:</strong></th>
<th>onynet dev</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Id:</strong></td>
<td>20</td>
</tr>
<tr>
<td><strong>Session ID:</strong></td>
<td>153967809600000001</td>
</tr>
<tr>
<td><strong>Accounting unique ID:</strong></td>
<td>0a61a726b7f18a45a673c5b02b673b0e2</td>
</tr>
<tr>
<td><strong>Username:</strong></td>
<td>atodemo</td>
</tr>
<tr>
<td><strong>Group name:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Realm:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>NAS IP address:</strong></td>
<td>192.168.182.1</td>
</tr>
<tr>
<td><strong>NAS port ID:</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>NAS port type:</strong></td>
<td>Wireless-802.11</td>
</tr>
<tr>
<td><strong>Start time:</strong></td>
<td>16 Oct 2018, 1:51 p.m.</td>
</tr>
<tr>
<td><strong>Update time:</strong></td>
<td>16 Oct 2018, 2:21 p.m.</td>
</tr>
<tr>
<td><strong>Stop Time:</strong></td>
<td>16 Oct 2018, 2:21 p.m.</td>
</tr>
<tr>
<td><strong>Interval:</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Session time:</strong></td>
<td>1803</td>
</tr>
<tr>
<td><strong>Authentication:</strong></td>
<td></td>
</tr>
</tbody>
</table>
What’s next?

(you are going to see some prototypes and mock-ups)
### DEVICE STATUS

<table>
<thead>
<tr>
<th>Local time</th>
<th>22 Sep 2018, 12:20 a.m.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uptime</td>
<td>1 days, 6 hours and 21 minutes</td>
</tr>
</tbody>
</table>

### RAM STATUS

<table>
<thead>
<tr>
<th>Total</th>
<th>128.159744 MB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free</td>
<td>95.518144 MB</td>
</tr>
<tr>
<td>Buffered</td>
<td>3.497984 MB</td>
</tr>
<tr>
<td>Shared</td>
<td>0.467424 MB</td>
</tr>
</tbody>
</table>

### LOAD STATUS

| Load average     | 0, 0, 0       |

### INTERFACE STATUS: MINIX

<table>
<thead>
<tr>
<th>Mode</th>
<th>adhoc</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSID</td>
<td>ninux.org</td>
</tr>
<tr>
<td>Channel</td>
<td>36</td>
</tr>
<tr>
<td>Frequency</td>
<td>5.16 GHz</td>
</tr>
<tr>
<td>Transmission Power</td>
<td>14 dBm</td>
</tr>
<tr>
<td>Signal</td>
<td>-59 dBm</td>
</tr>
<tr>
<td>Noise</td>
<td>-92 dBm</td>
</tr>
</tbody>
</table>
Change build

Organization: OpenWRT Summit
Category: NNXX Basilicata
Version: 0.2

Change log:

Descriptive text indicating what has changed since the previous version, if applicable

Created: May 11, 2018, 1:12 p.m.
Modified: May 16, 2018, 12:54 p.m.
Version: 0.2

Change log:

descriptive text indicating what has changed since the previous version, if applicable

Created: May 11, 2018, 1:12 p.m.
Modified: May 16, 2018, 12:54 p.m.

FIRMWARE IMAGES

Firmware image: NNXX Basilicata v0.2: lede-ar71xx-generic-ti-wdr4300-v1-squashfs-sysupgrade_1.bin

Organization: OpenWRT Summit

File: Currently: lede-ar71xx-generic-ti-wdr4300-v1-squashfs-sysupgrade_1.bin
Change: Choose File: No file chosen

Type: TP-Link WDR4300 v1

Created: May 11, 2018, 1:14 p.m.
Modified: May 16, 2018, 12:54 p.m.
<table>
<thead>
<tr>
<th>Build</th>
<th>Created</th>
<th>Modified</th>
</tr>
</thead>
<tbody>
<tr>
<td>NNXX Basilicata v0.2</td>
<td>May 11, 2018, 1:12 p.m.</td>
<td>May 16, 2018, 12:54 p.m.</td>
</tr>
</tbody>
</table>

Select build to change

Search

Action:
- Delete selected builds
- Upgrade devices of the selected build

Go: 1 of 2 selected

ADD BUILD +
Experimental features

- Native Ubiquiti AirOS configuration backend
- Native Raspbian configuration backend
Big vendors seek vendor lock-in
We seek to make easier connecting the unconnected
do you like our goal?

Let’s join forces!
Thank you!

Find out more at OpenWISP.org