



# Oliot Object Name Service (Oliot-ons)

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## INTRODUCTION

Object Name Service (ONS) is service look-up system on top of Directory Naming Service (DNS). It is located in higher layer of EPC global architecture [<http://www.gs1.org/epcglobal>]. Briefly, this service have a responsibility of looking up services related to given Electronic Product Code (EPC) [[http://www.gs1.org/docs/epcglobal/an\\_overview\\_of\\_EPC.pdf](http://www.gs1.org/docs/epcglobal/an_overview_of_EPC.pdf)].

It should be noted that ONS fully leverages DNS. As a service publisher, you need to add/delete/update service lists related to give EPC as a NAPTR Record form [<http://www.ietf.org/rfc/rfc2915.txt>], leading clients to obtain them by ordinary DNS query (e.g. Java JNDI [<http://tomcat.apache.org/tomcat-7.0-doc/jndi-resources-howto.html>]). For more information, please refer to ONS 2.0.1 specification [[http://www.gs1.org/gsmpt/kc/epcglobal/ons/ons\\_2\\_0\\_1-standard-20130131.pdf](http://www.gs1.org/gsmpt/kc/epcglobal/ons/ons_2_0_1-standard-20130131.pdf)]

## USER GUIDE

### INSTALLATION

We will use BIND9 over Ubuntu 12.04 LTS Linux machine for the tutorial.

Install BIND9

```
>> sudo apt-get install bind9
```

Overwritten tutorial BIND9 setting files to the BIND9 directory (i.e. /etc/bind)

It contains an example zone file and basic configuration

### EXPLANATION OF CONFIGURATION HIERARCHY

Configuration File and Zone Files are on the /etc/bind directory.

There are two important files, and one directory; named.conf.local, named.conf.options, zones directory.

- named.conf.local
  - o This file is used for managing zones. It enables us to set type of zone, designate actual zone file, and configure other options.
- named.conf.options
  - o This file is used for setting general options of named such as allow-query, listening options

- Zones directory
  - o Users can manage this zones directory to add or delete actual zone files which zone information on named.conf.local refers to.

Please note that this directory location and name can be changed, according to named.conf.local.

## HOW TO UPDATE AND MANAGE ONS ZONE FILES

Let us assume that a publisher want to add services related to an item (i.e. urn:epc:id:sgtin:00000000001.01.\*).

Please note that we don't need to modify named.conf.local since this file already has zone directory information managing all the item references under urn:epc:id:sgtin:00000000001.\*.\*

Let us see /etc/bind/zones/1.0.0.0.0.0.0.0.0.gtin.gs1.id.onsepc.com file.

This file contains NAPTRs referring to service-end-points of everyday-objects in item-reference level.

To add the service-end-points of an item, just add the following statements in the end of the file:

...

```
0.1 IN NAPTR 0 0 "t" "http://www.gs1.org/ons/prefix" "!^.*$!003,7!" .
```

```
0.1 IN NAPTR 0 0 "U" "http://www.gs1.org/ons/epcis" "!^.*$!http://[EPCIS-HOST]/[EPCIS-ServiceEndPoint]!" .
```

```
0.1 IN NAPTR 0 0 "U" "http://[Some Extended Service].xml" "!^.*$!!" .
```

First line stands for Company Prefix service which ONS official page supports. Second line stands for EPCIS service. Third line stands for a description file of some extended service. (NOTE: there should be an empty line at the last line in Zone File ( following the specification ))

## RUNNING ONS

There are two ways of executing Bind9.

- (1) Bind9 command (recommended)
  - > Service bind9 stop

```
> service bind9 start
```

(2) Named command

```
> named -g ( debugging execution)
```

Or

```
> named -f ( execution )
```

Or

```
> named -g -p 50 ( debugging execution with using other port (50) )
```

Please note that if you want (2) option, you should stop bind9 service first