

DNS Out Of Protocol Signalling



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One-click nameserver deployment

presented by Jeroen Bulten at the



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On anycast nodes

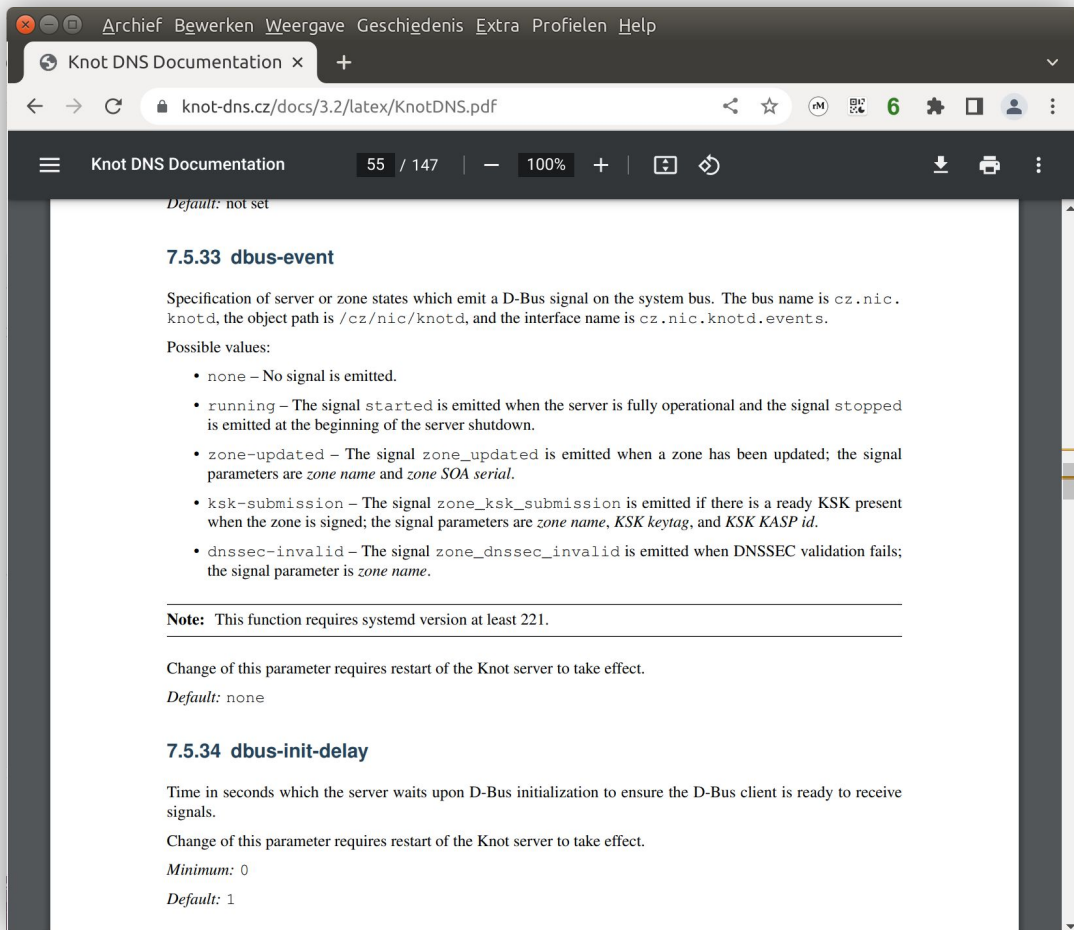
1. Don't announce prefix yet
2. Load zones
when all zones are loaded:
3. Announce prefix



Motivation

- Feature in Knot-DNS
- Uses D-Bus
 - Publish/subscribe
 - Specified under freedesktop.org¹
- SIDN One-click deploy Knot-DNS only

1. freedesktop.org is a "collaboration zone" for standards and specifications, and not a formal standards organization.



Requirements

- What other conditions are interesting to signal?
- What associated action could they have?
- What publish/subscribe mechanism suit those best?

Condition	Action
All zones are loaded and ready (<i>started</i>)	BGP start announcing prefix
A zone is (about to) expire	BGP stop announcing prefix (<i>for some zones</i>)
DNSSEC signatures are (about to) expire	BGP stop announcing prefix (<i>for some zones</i>)
Query rate is exceeding a threshold	lengthen BGP path <i>demotivate the anycast node</i>
A zone is loaded/updated (<i>SOA serial</i>)	Zone validation

DNS Out Of Protocol Signalling

- Existing signalling stays within the DNS realm
 - NOTIFY / Extended DNS Errors monitoring agent
- D-Bus
 - local to the nameserver
 - SASL for security [RFC 4422]
 - Linux native, support for BSDs

```
import dbus, dbus.mainloop.glib
from gi.repository import GLib

def sig_started(*args, **kwargs):
    print("Server started")

def sig_updated(*args, **kwargs):
    (zone, serial) = args
    print("Updated zone=%s to serial=%d" % (zone, serial))

knotd = dbus.SystemBus().get_object('cz.nic.knotd', '/cz/nic/knotd',
    follow_name_owner_changes=True, introspect=False)

events_if = dbus.Interface(knotd, dbus_interface='cz.nic.knotd.events')
events_if.connect_to_signal("started", sig_started)
events_if.connect_to_signal("zone_updated", sig_updated)

dbus.mainloop.glib.DBusGMainLoop(set_as_default=True)
GLib.MainLoop().run()
```

DNS Out Of Protocol Signalling

- New in version -01
 - Co-authors from four Open Source nameservers

BIND / ISC

Cathy Almond

PowerDNS / Open Xchange

Peter van Dijk

Knot-DNS / CZ.NIC

Daniel Salzman

NSD / NLnet Labs

Willem Toorop

- Looking for:
 - Statements of interest
 - anycast operators in particular*
 - Conditions / Actions

“ “ *I'm not sure if D-Bus is the right choice for the event signaling... Maybe we just don't know how to do it better.*