

# Network Attachment Point - Surrogate Agent (NAP-SA) Interface Specification

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## Introduction

This document specifies the communication interface between a Surrogate Agent (SA) and a Network Attachment Point (NAP) for sharing information within an extended NAP (eNAP) node. The information exchanges is primarily used as a registration to ICN of a ready-to-use surrogate server. The message exchange at this stage is the FQDN information that tells the NAP which FQDN the surrogate is assigned to and its IP address.

Figure 1 illustrates a network topology and the location of various surrogate related software modules. A detailed description of all modules can be found in the document specification series provided along with this one. The elements drawn in red are the one described in this document.

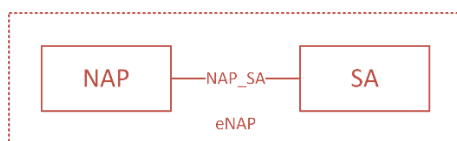


Figure 1: Network topology and location of software modules

## Primitives

### NAP\_SA\_ACTIVATE

**When generated:** This primitive is issued by SA whenever a static surrogate is fully operational and should be used.

Table 1: NAP\_SA\_ACTIVATE primitive payload fields

Field	Type	Description
FQDN	uint32_t	The hashed version of the FQDN
IP address	uint32_t	The IP address of the surrogate server in network byte order

**Action upon arrival:** Using the scope path */management/dnsLocal*, the surrogate NAP informs any other application subscribed to this particular scope path that the local FID entries must be flushed by unpublish and re-advertise the availability of information under */http/hashedFqdn*.

### NAP\_SA\_DEACTIVATE

**When generated:** This primitive is issued by SA whenever a static surrogate is supposed to be removed from the network.

Table 2: NAP\_SA\_DEACTIVATE primitive payload fields

Field	Type	Description
FQDN	uint32_t	The hashed version of the FQDN
IP address	uint32_t	The IP address of the surrogate server in network byte order

**Action upon arrival:** Using the scope path */management/dnsLocal*, the surrogate NAP informs any other application subscribed to this particular scope path that the local FID entries must be flushed by unpublish and re-advertise the availability of information under */http/hashedFqdn*.

## Realisation

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The NAP-SA interface is realised via a netlink socket with the primitive name as the netlink message type and the primitive fields as the payload in the order of occurrence in the previous section. The enumeration for the netlink message types is as follows:

```
enum NapSaApi
{
    NAP_SA_ACTIVATE,
    NAP_SA_DEACTIVATE
};
```

Note, both NAP and SA must create the enumeration above internally.

Furthermore, SA requires the unique PID the NAP is listening for activation/deactivation messages. This PID is specified in a Blackadder-wide enumeration to ensure that each listening module using a unique PID which is guaranteed to be unused. This enumeration comes with the Blackadder API, located under `blackadder/lib/blackadder_enums.hpp`:

```
enum PortIdentifiers
{
    PID_BLACKADDER=9999,
    PID_NAP_PROXY_LISTENER=39682,
    PID_PROXY_NAP_SENDER,
    PID_HTTPPROXY_NAP_LISTENER,
    PID_NAP_HTTPPROXY_SENDER,
    PID_MOLY_LISTENER,
    PID_MOLY_BOOTSTRAP_LISTENER,
    PID_NAP_SA_LISTENER
};
```