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Switch Abstraction Interface

Change Proposal

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| **Title** | **Mirroring API’s** |
| **Authors** | **DELL** |
| **Status** | **In Review** |
| **Type** | **Standards Track** |
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| **SAI-Version** | **V0.9.2** |

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# List of Changes

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| --- | --- | --- | --- |
| Version | Changes | Name | Date |
| 0.9.2 | Proposal for Mirror – Version 1 |  | 2/5/15 |
| 0.9.2 | Version 2. Updated with the following changes   * Made the Mirror enable/Disable a port based attribute * Replaced all instances of SPAN with Mirroring * Added a new field for GRE Protocol Type |  | 2/16/15 |
| 0.9.2 | Version 3. Updated the following changes   * Removed the argument mirror\_type from create and added as an attribute. Appendix has more details. * Changed according to the unified objet id proposal |  | 3/17/15 |

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# Overview

Proposal for saimirror.h interface

# Specification

**Mandatory**

* Implements port mirroring management functions like
* Creating a mirror session
* Specifying the type of mirroring
* Adding source ports to the session
* Removing the source ports from the session
* Destroying the session
* Specifying various parameters to create a session

## Changes to sai.h

typedef enum \_sai\_api\_t {

SAI\_API\_MIRROR= 14, /\* sai\_mirror\_api\_t \*/

} sai\_api\_t;

## Changes to saiport.h

typedef enum \_sai\_port\_attr\_t

{

/\* READ-WRITE \*/

/\* Mirror session [sai\_object\_list\_t] \*/

SAI\_PORT\_ATTR\_INGRESS\_MIRROR\_SESSION

/\* READ-WRITE \*/

/\* Mirror session [sai\_object\_list\_t] \*/

SAI\_PORT\_ATTR\_EGRESS\_MIRROR\_SESSION

} sai\_port\_attr\_t

## New definitions in saimirror.h

/\* Specify the type of mirroring \*/

typedef enum \_sai\_mirror\_type\_t {

/\* Local span \*/

SAI\_MIRROR\_TYPE\_LOCAL = 1,

/\* Remote span \*/

SAI\_MIRROR\_TYPE\_REMOTE,

/\* Enhanced Remote span \*/

SAI\_MIRROR\_TYPE\_ENHANCED\_REMOTE,

} **sai\_mirror\_type\_t**;

typedef enum \_sai\_erspan\_encapsulation\_type\_t

{

/\* L2 Tunnel Encapsulation \*/

SAI\_MIRROR\_L2\_TUNNEL,

/\* L3 Tunnel Encapsulation \*/

SAI\_MIRROR\_L3\_GRE\_TUNNEL,

} **sai\_erspan\_encapsulation\_type\_t**;

typedef enum \_sai\_mirror\_session\_attr\_t {

/\* CREATE + READ-ONLY \*/

/\* Mirror type SPAN/RSPAN/ERSPAN- mandatory for create [sai\_mirror\_type\_t]\*/

SAI\_MIRROR\_SESSION\_ATTR\_TYPE,

/\* CREATE + READ-ONLY \*/

/\* Destination/Analyser/Monitor Port - mandatory for create [sai\_object\_id\_t]\*/

SAI\_MIRROR\_SESSION\_ATTR\_MONITOR\_PORT,

/\* CREATE + READ-ONLY \*/

/\* Class-of-Service (Traffic Class) - mandatory for create [uint8\_t] \*/

SAI\_MIRROR\_SESSION\_ATTR\_COS,

/\* CREATE + READ-ONLY \*/

/\* Valid for RSPAN and ERSPAN

\* L2 header TPID if vlanId is not zero - mandatory for create [uint16\_t]\*/

SAI\_MIRROR\_SESSION\_ATTR\_VLAN\_TPID,

/\* CREATE + READ-ONLY \*/

/\* Valid for RSPAN and ERSPAN L2 header VlanId - mandatory for create [sai\_vlan\_id\_t]\*/

SAI\_MIRROR\_SESSION\_ATTR\_VLAN\_ID,

/\* CREATE + READ-ONLY \*/

/\* Valid for RSPAN and ERSPAN packet priority - mandatory for create [uint8\_t] \*/

SAI\_MIRROR\_SESSION\_ATTR\_VLAN\_PRI,

/\* All attributes below are Valid only for ERSPAN \*/

/\* CREATE + READ-ONLY \*/

/\* Encapsulation type - sai\_erspan\_encapsulation\_type\_t - mandatory for create \*/

SAI\_MIRROR\_SESSION\_ATTR\_ENCAP\_TYPE,

/\* CREATE + READ-ONLY \*/

/\* tunnel IP header version - mandatory for create [uint8\_t]\*/

SAI\_MIRROR\_SESSION\_ATTR\_IPHDR\_VERSION,

/\* CREATE + READ-ONLY \*/

/\* tunnel header TOS - mandatory for create [uint8\_t]\*/

SAI\_MIRROR\_SESSION\_ATTR\_TOS,

/\* CREATE + READ-ONLY \*/

/\* tunnel header TTL - mandatory for create [uint8\_t]\*/

SAI\_MIRROR\_SESSION\_ATTR\_TTL,

/\* CREATE + READ-ONLY \*/

/\* tunnel source IP - mandatory for create [sai\_ip\_address\_t] \*/

SAI\_MIRROR\_SESSION\_ATTR\_SRC\_IP\_ADDRESS,

/\* CREATE + READ-ONLY \*/

/\* tunnel destination IP - mandatory for create [sai\_ip\_address\_t] \*/

SAI\_MIRROR\_SESSION\_ATTR\_DST\_IP\_ADDRESS,

/\* CREATE + READ-ONLY \*/

/\* L2 source MAC address - mandatory for create [sai\_mac\_t] \*/

SAI\_MIRROR\_SESSION\_ATTR\_SRC\_MAC\_ADDRESS,

/\* CREATE + READ-ONLY \*/

/\* L2 destination MAC address - mandatory for create [sai\_mac\_t] \*/

SAI\_MIRROR\_SESSION\_ATTR\_DST\_MAC\_ADDRESS,

/\* CREATE + READ-ONLY \*/

/\* GRE protocol Id – mandatory for create [uint16\_t] \*/

SAI\_MIRROR\_SESSION\_ATTR\_GRE\_PROTOCOL\_TYPE,

} **sai\_mirror\_session\_attr\_t**;

/\*

\* Routine Description:

\* Create mirror session.

\*

\* Arguments:

\* [out] session\_id - port mirror session

\* [in] attr\_count - number of attributes

\* [in] attr\_list - array of attributes

\*

\* Return Values:

\* SAI\_STATUS\_SUCCESS on success

\* Failure status code on error

\*/

typedef sai\_status\_t (\*sai\_create\_mirror\_session\_fn)(

\_out\_ sai\_object\_id\_t \*session\_id,

\_In\_ uint32\_t attr\_count,

\_In\_ const sai\_attribute\_t \*attr\_list);

/\*

\* Routine Description:

\* Destroy Mirror session.

\*

\* Arguments:

\* [in] session\_id - port mirror session

\*

\* Return Values:

\* SAI\_STATUS\_SUCCESS on success

\* Failure status code on error

\*/

typedef sai\_status\_t (\*sai\_remove\_mirror\_session\_fn)(

\_In\_ sai\_object\_id\_t session\_id);

/\*

\* Routine Description:

\* Set Mirror session attribute.

\*

\* Arguments:

\* [in] session\_id - session\_id to set the attributes

\* [in] attr – attribute value

\*

\* Return Values:

\* SAI\_STATUS\_SUCCESS on success

\* Failure status code on error

\*/

typedef sai\_status\_t (\*sai\_set\_mirror\_session\_attribute\_fn)(

\_In\_ sai\_object\_id\_t session\_id,

\_In\_ const sai\_attribute\_t \*attr);

/\*

\* Routine Description:

\* Get mirroring session attribute.

\*

\* Arguments:

\* [in] session\_id - session\_id to retrieve the attribute

\* [in] attr\_count - number of attributes

\* [inout] attr\_list - array of attributes

\*

\* Return Values:

\* SAI\_STATUS\_SUCCESS on success

\* Failure status code on error

\*/

typedef sai\_status\_t (\*sai\_get\_mirror\_session\_attribute\_fn)(

\_In\_ sai\_object\_id\_t session\_id,

\_In\_ uint32\_t attr\_count,

\_Inout\_ sai\_attribute\_t \*attr\_list);

/\* MIRROR method table retrieved with sai\_api\_query() \*/

typedef struct \_sai\_mirror\_api\_t

{

sai\_create\_mirror\_session\_fn create\_mirror\_session;

sai\_delete\_mirror\_session\_fn delete\_mirror\_session;

sai\_set\_mirror\_session\_attribute\_fn set\_mirror\_session\_attribute;

sai\_get\_mirror\_session\_attribute\_fn get\_mirror\_session\_attribute;

} sai\_mirror\_api\_t;

# Appendix

From: Manickam, Arunsubash   
Sent: Tuesday, March 17, 2015 8:17 AM  
To: 'Tushar Tyagi'; [opencompute-networking@lists.opencompute.org](mailto:opencompute-networking@lists.opencompute.org)  
Subject: RE: [Opencompute-networking] SAI - Mirroring and SFLOW API's for review

Yes agreed will make the change

-Arun

From: Tushar Tyagi [<mailto:tusharty@broadcom.com>]   
Sent: Tuesday, March 17, 2015 2:48 AM  
To: Manickam, Arunsubash; [opencompute-networking@lists.opencompute.org](mailto:opencompute-networking@lists.opencompute.org)  
Subject: RE: [Opencompute-networking] SAI - Mirroring and SFLOW API's for review

Hello Arun,

A small input..

Looking at other sai object create functions, I think that for maintaining consistency in..

*typedef sai\_status\_t (\*sai\_create\_mirror\_session\_fn)(*

*\_Inout\_ sai\_mirror\_session\_id\_t \*session\_id,*

*\_In\_ sai\_mirror\_type\_t mirror\_type,*

*\_In\_ uint32\_t attr\_count,*

*\_In\_ const sai\_attribute\_t \*attr\_list);*

**sai\_mirror\_type\_t mirror\_type** should be moved into the **attr\_list**.

-thanks

Tushar