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Switch Abstraction Interface

Change Proposal

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| **Title** | **SFLOW API’s** |
| **Authors** | **DELL** |
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**Contents**

[List of Changes i](#_Toc413770451)

[1 Overview 1](#_Toc413770452)

[2 Specification 1](#_Toc413770453)

[2.1 Changes to sai.h 1](#_Toc413770454)

[2.2 Changes to saitypes.h 1](#_Toc413770455)

[2.3 Changes to saiport.h 1](#_Toc413770456)

[2.4 Changes in saitypes.h 1](#_Toc413770457)

[2.5 New definitions in saisflow.h 2](#_Toc413770458)

[3 Appendix 4](#_Toc413770459)

# List of Changes

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| Version | Changes | Name | Date |
| 0.9.2 | Proposal for sFlow – Version 1 |  | 2/5/15 |
| 0.9.2 | Version 2 Modified with the following changes   * Made SFLOW Enable/Disable a port based attribute * Removed the bit map definition for SFLOW Packet Type * Modified the comment for SFLOW Fast Path |  | 2/16/15 |
| 0.9.2 | Version 3 Removed the sFlow fast path attributes. Included in the appendix for future addition. |  | 3/11/15 |

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# Overview

Proposal for saisflow.h interface

# Specification

**Mandatory**

Implements sFlow management functions like

* Creating a sFlow session
* Destroying the sFlow session
* Adding ports to the session
* Removing ports from the session

## Changes to sai.h

typedef enum \_sai\_api\_t {

SAI\_API\_SFLOW= 15, /\* sai\_sflow\_api\_t \*

} sai\_api\_t;

## Changes to saitypes.h

#define UINT32 sai\_sflow\_session\_id\_t

## Changes to saiport.h

typedef enum \_sai\_port\_attr\_t

{

/\* READ-WRITE \*/

/\* Sflow session [sai\_sflow\_session\_id\_t/uint32\_t] \*/

SAI\_PORT\_ATTR\_INGRESS\_SFLOW\_ENABLE

/\* READ-WRITE \*/

/\* Sflow session [sai\_sflow\_session\_id\_t/uint32\_t] \*/

SAI\_PORT\_ATTR\_EGRESS\_SFLOW\_ENABLE

} sai\_port\_attr\_t

## Changes in saitypes.h

typedef struct \_sai\_sflow\_packet\_type\_list\_t

{

uint32\_t num\_types ;

uint32\_t \*type\_list; /\* **sai\_sflow\_packet\_type\_t \*/**

} sai\_sflow\_packet\_type\_list\_t ;

typedef enum \_sai\_sflow\_packet\_type\_t

{

SAI\_SFLOW\_PACKET\_TYPE\_UNICAST ,

SAI\_SFLOW\_PACKET\_TYPE\_MULTICAST,

SAI\_SFLOW\_PACKET\_TYPE\_BROADCAST,

SAI\_SFLOW\_PACKET\_TYPE\_UNKNOWN\_UNICAST ,

SAI\_SFLOW\_PACKET\_TYPE\_UNREGISTERED\_MULTICAST ,

} **sai\_sflow\_packet\_type\_t**;

## New definitions in saisflow.h

typedef enum \_sai\_sflow\_type\_t

{

/\* Copy the sample packets to CPU \*/

SAI\_SFLOW\_SLOW\_PATH,

} **sai\_sflow\_type\_t**;

typedef enum \_sai\_sflow\_attr\_t

{

/\* CREATE + READ-WRITE \*/

/\* sFlow sampling rate of type uint32 \*/

SAI\_SFLOW\_ATTR\_SAMPLE\_RATE,

/\* CREATE + READ-WRITE \*/

/\* sFlow Enable/Disable of type bool \*/

SAI\_SFLOW\_ATTR\_ADMIN\_STATE,

/\* CREATE + READ-WRITE \*/

/\* Packet Types to be sampled of type sai\_sflow\_packet\_type\_list\_t. Unicast, multicast, broadcast

Unknown unicast or unknown multicast. Either one or all can be chosen\*/

SAI\_SFLOW\_ATTR\_PACKET\_TYPE,

/\* CREATE + READ-ONLY \*/

/\* sFlow switching type sai\_sflow\_type. Default would be SAI\_SFLOW\_SLOW\_PATH \*/

SAI\_SFLOW\_ATTR\_TYPE,

} **sai\_sflow\_attr\_t**;

/\*

\* Routine Description:

\* Create sFlow session.

\*

\* Arguments:

\* [in] session\_id - sflow session\_id

\* [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\_sflow\_session\_fn)(

\_Inout\_ sai\_sflow\_session\_id\_t session\_id,

\_In\_ uint32\_t attr\_count,

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

/\*

\* Routine Description:

\* Delete sFlow session.

\*

\* Arguments:

\* [in] session\_id - sflow session\_id

\*

\* Return Values:

\* SAI\_STATUS\_SUCCESS on success

\* Failure status code on error

\*/

typedef sai\_status\_t (\*sai\_delete\_sflow\_session\_fn)(

\_In\_ sai\_sflow\_session\_id\_t session\_id);

/\*

\* Routine Description:

\* Set sFlow attributes on a port.

\*

\* Arguments:

\* [in] session\_id – session on which sflow should be set

\* [in] attr - attribute value

\*

\* Return Values:

\* SAI\_STATUS\_SUCCESS on success

\* Failure status code on error

\*/

typedef sai\_status\_t (\*sai\_set\_sflow\_attribute\_fn)(

\_In\_ sai\_sflow\_session\_id\_t session\_id,

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

/\*

\* Routine Description:

\* Get sFlow attributes on a port.

\*

\* Arguments:

\* [in] session\_id - session on which sflow attributes should bre

\* [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\_sflow\_attribute\_fn)(

\_In\_ sai\_sflow\_session\_id\_t session\_id,

\_In\_ uint32\_t attr\_count,

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

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

typedef struct \_sai\_sflow\_api\_t

{

sai\_create\_sflow\_session\_fn create\_sflow\_session;

sai\_delete\_sflow\_session\_fn delete\_sflow\_session;

sai\_set\_sflow\_attribute\_fn set\_sflow\_attribute;

sai\_get\_sflow\_attribute\_fn get\_sflow\_attribute;

} **sai\_sflow\_api\_t**;

# Appendix

The following provides a list of possible attributes that can be added if an NPU supports sFlow in HW

typedef enum \_sai\_sflow\_attr\_t

{

…..

/\* All the attributes below are mandatory for SAI\_SFLOW\_FAST\_PATH \*/

/\* CREATE + READ-ONLY \*/

/\* sFlow Source MAC Address [sai\_mac\_t]\*/

SAI\_SFLOW\_ATTR\_SRC\_MAC\_ADDRESS,

/\* CREATE + READ-ONLY \*/

/\* sFlow Destination MAC Address [sai\_mac\_t]\*/

SAI\_SFLOW\_ATTR\_DST\_MAC\_ADDRESS,

/\* CREATE + READ-ONLY \*/

/\* sFlow VLAN Id [sai\_vlan\_id\_t]\*/

SAI\_SFLOW\_ATTR\_VLAN\_ID,

/\* CREATE + READ-ONLY \*/

/\* sFlow collector’s next hop information. Destination port shall be retrieved by that information [sai\_port\_id\_t]\*/

SAI\_SFLOW\_ATTR\_DST\_PORT,

/\* CREATE + READ-ONLY \*/

/\* sFlow collector address required for hardware switching [sai\_ip\_address\_t] \*/

SAI\_SFLOW\_ATTR\_SRC\_IP\_ADDRESS,

/\* CREATE + READ-ONLY \*/

/\* sFlow agent address required for hardware switching [sai\_ip\_address\_t ] \*/

SAI\_SFLOW\_ATTR\_DST\_IP\_ADDRESS,

/\* CREATE + READ-ONLY \*/

/\* sFlow Header UDP information [uint16\_t] \*/

SAI\_SFLOW\_ATTR\_L4\_UDP\_DST\_PORT,

/\* CREATE + READ-ONLY \*/

/\* sFlow Header UDP source port [uint16\_t] \*/

SAI\_SFLOW\_ATTR\_L4\_UDP\_SRC\_PORT,

/\* CREATE + READ-ONLY \*/

/\* sFlow Header Datagram size [uint16\_t] \*/

SAI\_SFLOW\_ATTR\_L4\_UDP\_DATAGRAM\_SIZE,

} sai\_sflow\_attr\_t