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# OpenNSL 3.2.0.5 Release Notes

Version 0.1

2-Sep-2016

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## 1 Overview

This document provides a general description of the OpenNSL release. It also describes the supported platforms, API additions or changes, resolved issues and any relevant open issues.

OpenNSL 3.2.0.5 release adds support for the following:

SDK upgrade to version 6.4.11

Add support for OFDPA driver API's

- OpenFlow Data Plane Abstraction (OF-DPA) is a component that implements an adaptation layer between OpenFlow and the Broadcom Silicon SDK. These APIs are the driver layer for an OpenFlow agent for OpenFlow configuration on Broadcom silicon. This API set is part of the OpenNSL library and represents hardware tables to an OpenFlow agent in terms of OpenFlow constructs such as flow tables, the group table, and ports.

OF-DPA Flow and Group table APIs are added. They are used to administer Flow and Group tables as the names suggest. Support is added for the following flow and group tables:

- VLAN flow table
- Bridging flow table
- L2 Interface group table

Also added are OF-DPA Port table APIs. These APIs are used to manage switch ports in the OpenFlow domain of an OpenFlow switch.

Add support for additional platform configuration properties

Add support for Celestica Smallstone platform

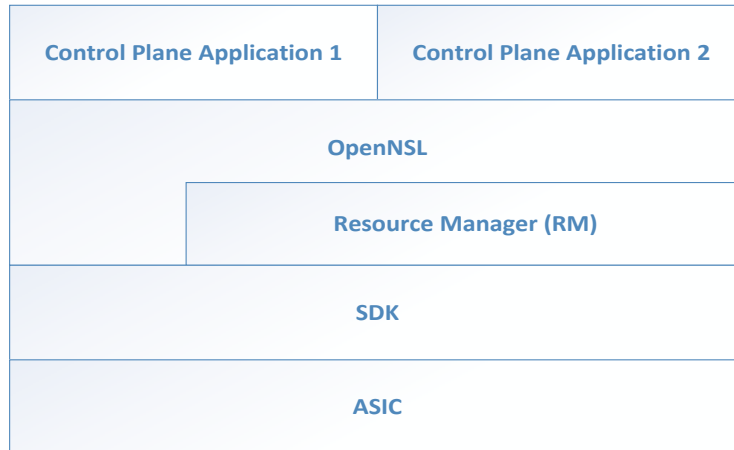
Add support for Dell S6100 platform

- Existing S6000 OpenNSL library is enhanced to also support Dell S6100 platform

Adds support for Resource Manager

- Resource Manager (RM) is used for partitioning switch resources and ensuring traffic/resource isolation among control plane applications. It mediates access to the hardware resources from multiple logical switch pipelines. The RM API is a layer in the OpenNSL library above the SDK API as mentioned in the below block diagram. Currently this covers only a subset of modules in the SDK.

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Added RM support for additional API's

Adds support for the following modules

- Field Processor
- Quality of Service (QoS)
- Class of Service (CoS)
- VxLAN
- Mirror
- Flex Statistics
- Tunnel

Adds support for the following enhancements

- Support for Trunk failover API's
- Support for additional API's in Field module
- Support for additional API's in Packet module
- Support for L2 cache management APIs
- Support for L2 table activity API's
- Support for additional port management API's
- Support for additional Spanning Tree APIs
- Support for additional L2 callback events
- Support for additional OSPF v4/v6 API's
- Support for an API to get OpenNSL revision
- Support for Dell S6000 Switch
- Support for customizing platform initialization
- For ASxxxx platorms, the number of KNET filters increased to 1024
- Licensing changes for specific OpenNSL modules
- Support for Diagnostics shell
- Support for API's required for Black Hole Detection (BHD) application

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Adds support for the following sample applications

- Mirroring
- Field Processor
- STP
- Link monitor
- VxLAN
- Packet Transmit
- Resource Manager

For product documentation, please refer to the 'doc/html/index.html' file in the OpenNSL package, or access the following URL: <http://broadcom-switch.github.io/OpenNSL/doc/html/index.html>.

## **2 Deliverables**

### **2.1 Date of Delivery**

OpenNSL version 3.2.0.5 is released on 2<sup>nd</sup> Sep 2016. This is based on SDK version 6.4.11.

### **2.2 Distribution Method**

OpenNSL is distributed via Broadcom's DOCSAFE and Broadcom's GitHub forums.

### **2.3 Items included in this release**

Following are the items included in this release:

- OpenNSL library for supported platforms
- OpenNSL header files
- OpenNSL documentation
- OpenNSL example applications and supporting software.

### 3 Platform Support

This release contains support for the following platforms:

Platform	Broadcom Switching Silicon
Interface Masters Niagara 2948-6XL switch	Trident-II (BCM56850_A1)
Wedge Switch	Trident-II (BCM56850_A1)
Celestica Redstone-XP	Trident-II (BCM56850_A1)
Celestica Smallstone-XP	Trident-II (BCM56850_A1)
Accton AS5712	Trident-II (BCM56854_A2)
Dell S6000	Trident-II (BCM56850_A1)
Dell S6100	Tomahawk (BCM56960_A0)

### 4 Testing

The following table lists the high level testing done on OpenNSL API's using the sample applications.

Sample Application	Test description
L2 firewall	Verified L2 entry addition and deletion by checking the traffic from/to a destination. This application is also tested by booting it in warm boot mode.
Routing	Created host and default routes and verified that traffic is routed as per the routes added. This application is also tested by booting it in warm boot mode.
Trunk	Added few ports to a trunk and verified that the traffic is distributed across the trunk members. This application is also tested by booting it in warm boot mode.
KNET	Created a Linux interface that maps to a front panel port with a specified IP and net mask and verified the configured parameters from the Linux shell.
BST	Verified display and clearing of basic BST counters.
sFlow	Verified configuration, display of sFlow sampling rate along with the sampling of packets to CPU at configured rate.
Warm Boot	Verified restarting of OpenNSL driver in Warm Boot mode and ensured that the L2,

	VLAN, Port and L3 state is retained without impacting data forwarding.
Field Processor	Verified configuration of Field process QSET, rules, and actions to block traffic from specific range of source IPv4 addresses.
VxLAN	Verified configuration of VxLAN tunnel, encapsulation and de-capsulation of a packet by sending traffic.
Statistics	Verified updating of port counters on sending traffic.
Packet Transmit	Transmitted desired number of pre-defined packets onto a port and verified that the packets are received correctly on the traffic generator connected to it.
Resource Manager	Verified the following RM functionality. <ul style="list-style-type: none"><li>• Display of RM profile</li><li>• Able to add/delete L2 entry if both the port and VLAN belongs to the requested client.</li><li>• Failed to add/delete L2 entry if the port or VLAN does not belong to the requested client.</li><li>• Updation of profile with the port list and VLAN list.</li></ul>

## 5 Issues resolved

ID	Description
FP-243330	Fix segmentation fault on invoking <code>opennsl_mirror_destination_get</code> API

## 6 Known Issues

ID	Description
FP-230782	QSFP ports on Accton AS5712 platform are not supported
FP-233309	Warmboot feature is not supported on Accton AS5712

## 7 Previous Releases

Date	Release Number	Feature Set
10 <sup>th</sup> Aug 2016	3.2.0.4	Fixes to support <code>bcm_qos_port_map_get()</code> API



## OpenNSL 3.2.0.5 Release Notes

		Opened up additional hash controls that can be used for trunk/ECMP traffic hashing
22 <sup>nd</sup> Jul 2016	3.2.0.2	Add support for the following: <ul style="list-style-type: none"><li>• API's required for Black Hole Detection (BHD) application</li><li>• Enhanced existing S6000 library to also support S6100 platform.</li></ul>
21 <sup>st</sup> Jun 2016	3.2.0.1	Add support for the following: <ul style="list-style-type: none"><li>• additional platform configuration properties</li><li>• Celestica Smallstone platform</li><li>• OF-DPA driver API's</li></ul>
12 <sup>th</sup> May 2016	3.1.0.12	Adds support for VRRP API's Adds support for additional port API's
4 <sup>th</sup> May 2016	3.1.0.11	Adds support for the following. <ul style="list-style-type: none"><li>• Support for additional API's in L2 and Port module</li><li>• Support for ALPM feature</li></ul>
19 <sup>th</sup> Apr 2016	3.1.0.10	Adds support for Resource Manager.
11 <sup>th</sup> Apr 2016	3.1.0.9	Adds support for the following. <ul style="list-style-type: none"><li>• Support for additional API's in Field module</li><li>• Support for additional API's in Packet module</li><li>• Support for an API to get OpenNSL revision</li></ul>
24 <sup>th</sup> Mar 2016	3.1.0.8	Adds the following new features: <ul style="list-style-type: none"><li>• Support for CoS module.</li><li>• Support for CoS API's</li><li>• Support for L2 table activity API's</li><li>• Support for additional port management API's</li></ul>
9 <sup>th</sup> Mar 2016	3.1.0.7	<ul style="list-style-type: none"><li>• SDK upgrade to version 6.4.10</li><li>• Support for customizing platform initialization</li><li>• Support for VXLAN, Mirroring, Field Processor, QoS, Flex Statistics and Tunnel modules</li><li>• Support for Dell S6000 Switch</li><li>• Support for L2 cache management APIs</li></ul>

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		<ul style="list-style-type: none"><li>• Support for Trunk failover</li><li>• Increased the number of KNET filters from 128 to 256.</li><li>• Support for additional Spanning Tree APIs</li><li>• Support for additional L2 callback events</li><li>• Licensing changes for specific OpenNSL modules.</li></ul>
4 <sup>th</sup> Dec 2015	3.0.0.4	<ul style="list-style-type: none"><li>• SDK upgrade to 6.4.8</li><li>• Support for Accton AS5712 Switch</li><li>• Support for Broadcom reference platform with Tomahawk B0 switching silicon</li><li>• Support for sFlow</li><li>• Added API's to support for L3 statistics and resilient ECMP</li><li>• Pruning reserved fields from structures and enumerations</li></ul>