# IBUtils2 Utility Release Notes v2.16

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# 1 Release Notes Update History

| Revision | Date | Description |
|---|---|---|
| 2.16 | February 08, 2024 | Initial release of this Release Notes version. This version introduces Changes and New Features . |

# 2 Overview

ibdiagnet scans the fabric using directed route packets and extracts all the available information regarding its connectivity and devices. It then produces the following files in the output directory.

## 2.1 Software Download

Please visit InfiniBand Management Tools page.

## 2.2 Packages

| Package | Version |
|---|---|
| MLNX_OFED | 24.01-0.3.3.1 |
| UFM | 6.16.x |

# 3 Changes and New Features

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|---|---|
| **v.2.16.0** | |
| **PHY Plugin** | Added support for MRCS register. |
| **PHY Plugin** | Added support for PRTL register. |
| **PHY Plugin** | Updated PDDR register. |
| **Cables** | Reduced false-positive errors about an invalid port in the cable plugin for splitted switches. |
| **Cables** | Changed cable info fetch priority from cable plugin to PHY plugin. |
| **v2.15.0** | |
| **Counters** | Added support for PPCNT InfiniBand general counters. |
| **DGX-H100** | Added support for DGX-H100 systems in Rail Validation |
| **db_csv File** | Added the option to report to the db_csv file if no BER threshold is found for a port. |
| **SLRG Register** | Excluded the SLRG register from the default PHY list. |
| **MSPS Register** | Updated MSPS register (added the `power_consumption` field to the dump). |
| **v2.14.0** | |
| **PCIe Connectivity Health Report** | Introduced a new report on PCIe connectivity health based on a comparison of enabled/active speed and width. |
| **Cables** | Removed validation of transceiver firmware versions on the same cable. |
| **v2.13.0** | |
| **Counters** | Added support for "Fast Link Recovery" counters. |
| **Counters** | Added support for On-Demand-Paging (ODP) counters. |
| **Reports** | Added reports for mismatch in cable firmware versions |
| **Reports** | Added reports for cable length. |
| **v2.12.0** | |
| **Programable Port Congestion Control** | Added support for fetching Programable Port Congestion Control Counters (PPCC) at GA level. |
| **FLID** | Added support for FLID at GA level. |
| **SHARP** | Added support for “ad-hoc” trees for SHARP. |
| **iblinkinfo** | Added new dump file in format if iblinkinfo. |
| **v2.11.0** | |
| **Programable Port Congestion Control** | Added support for fetching Programable Port Congestion Control Counters (PPCC).<br>This feature is at Technical Preview level. |
| **FLID** | Added support for FLID.<br>This feature is at Technical Preview level. |

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| **GMP MADs** | Added support for sending GMP MADs from user-space (Kernel bypass).<br>This feature is at Alpha level. |
| **In-band auto-discovery** | In-band auto-discovery for switch management IP.<br>This feature is available only in the UFM package. |
| **PHY plugin** | Added support for IB cable/transceiver diagnostics: SNR and EOM (PEMI). |
| **ibdiagnet's runtime statistics** | Added ibdiagnet's runtime statistics (CPU utilization, Stage duration, MAD statistics). |
| **v2.10.0** | |
| **Cable Information** | Fetching cable info from Common Management Interface Specification (CMIS) compatible cables connected to HCA. |
| **smparquery Uutility** | The smparquery utility is moved from the deprecated package `"ar_info"` to the `"ibutils2"` package. Now, location of the binary file is `"/usr/bin/smparquery"` , instead of `"/usr/sbin/smparquery.` |
| **topodiff Tool** | The topodiff tool supports now more than 4 HCA systems. |
| **Routers stage** | "Routers stage" will be launched by default. |
| **Auto-detection of Outgoing IB Port** | Improved the auto-detection of outgoing IB port. |
| **v2.9.0** | |
| **Proactive FRN (pFRN)** | Added support for Proactive FRN (pFRN) configuration and counters. |
| **HashBasedForwarding** | Added support for HashBasedForwarding (HBF). |
| **PortVLXmitWait** | Added support for vendor spec PortVLXmitWait 64bit. |
| **Hierarchy Info** | Added support for Hierarchy Info (A15 InfiniBand spec):<br>• Port Hierarchy Info<br>• Physical Hierarchy Info |
| **PHY plugin** | Added support for up to 16 fans (START_FANS_SPEED section). |
| **SHARP trees validation** | Added new validations for SHARP trees in fat-tree topology with "parallel" links between switches. |
| **VL Arbitration** | Added support for VL Arbitration. |
| **Cables** | Modified the format for temperature thresholds. How it uses human readable format. |
| **PMPortSamplesControl** | Added PMPortSamplesControl to db_csv. |
| **FDBS file** | Enabled FDBS file creation by default. |
| **DFP dump file** | Improved DFP dump file. |
| **Dump file** | Performance improvements in dump file creation |
| **v2.8.0** | |
| **Cables** | Added support for CMIS cable. |
| **PortVLXmit** | Added support for PortVLXmitFlowCtlUpdateErrors. |
| **PortVLXmit** | Added support for PortVLXmitWait. |

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| **PHY plugin** | Updated SLRG_16 and SLTP_16 registers. |
| **PHY plugin** | Added support for PCI Diagnostic Data Pages. |
| **Adapter Cards: Socket-Direct** | Added a list of Socket-Direct HCAs to DB_CSV. |
| **Adapter Cards: Socket-Direct** | Socket-Direct HCAs are excluded from Rail-Optimized Topology validation. |
| **PM Stage Reports Overflow & Threshold** | PM Stage reports overflow & threshold for 3 counters only:<br>• SyncHeaderErrorCounter<br>• UnknownBlockCounter<br>• port_fec_uncorrectable_block_counter |
| **Fat Tree Validation** | Improved "Connectivity group" detection. |
| **ibnetdiscover** | ibnetdiscover file will not be generate in case of the scope file usage. |
| **Fabric Summary** | Fabric Summary now includes number of Socket-Direct HCAs |
| **Error/Warning Reporting** | Error/warning reporting to screen and log files is limited by 5 of each type, DB_CSV includes all errors |
| **v2.7.0** | |
| **Link Speed** | Added support for NDR InfiniBand link speed. |
| **Fat Tree Topology** | Enabled a new Fat Tree Topology validation tool. |
| **Virtualization Stage** | Redesigned the Virtualization stage to asynchronous mode. |
| **AGUID** | AGUID stage is disabled by default.<br>To enable it, use the `'--aguid'` parameter. |
| **db_csv** | db_csv will now contain information about connected ports only. |
| **v2.6.1** | |
| **ibdiagnet** | • Enabled Adaptive Routing validation<br>• Performance improvement of routing checking<br>• Added new counters and diagnostic information:<br>  • SHARP: “SAT” (“Streaming Aggregation”) counters<br>  • PHY: Maximum PLR per second field in PPCNT<br>  • PHY: SLLM register<br>  • PHY: New SymbolBER thresholds<br>  • Adaptive Routing: PortARTrails counter<br>• Added support for SHARP security (AMKEY)<br>• Enabled reporting port counter differences when using `"-pm_pause_time"` (PM_DELTA section in db_csv)<br>• Added Dragonfly+ Topology Validation (--dfp, --dfp_opt [<max_cas>] )<br>• Added the option to report the version on the screen and in log file |
| **ibtopodif** | Added support for “stable” names of RDMA devices based on PCI/slot/function location. |
| **ibnetdiscover dump file (created by ibdiagnet)** | Now the dump file includes Virtual Port info |
| **v2.5.1** | |

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| **Rail Optimized Topology Validation** | Checks links between compute nodes and leaf switches to provide rail optimized topology ( `--rail_validation, --rail_validation_opt [<regex>]` ). |
| **Service Level** | Customization SL for GMP MADs in ibdiagnet ( `--sl` ). |
| **General** | • Added output similar to the results of the "ibnetdiscovery"<br>• ibdiagnet: Disabled the output by default for AR/FDBS files in routing stage<br>• Moved SHARP performance counters to db_csv<br>• Dumped by default FEC_MODE section in db_csv<br>• Improved AR connectivity check |
| **v2.4.0** | |
| **General** | • Flexible output control options (--enable_output , --disable_output, --path)<br>• Discovery only mode (-discovery_only)<br>• Support for MLNX Congestion Control counters<br>• “Fabric Summary” is enabled by default.<br>• Dates and versions in “nodes_info” file are printed in human-readable format.<br>• Dump files include ibdiagnet version and command line parameters.<br>• Added split mode to IBNL for “InfiniBand Smart Director Switches” (CS8500) |
| **Performance Improvements** | The performance of following steps in ibdiagnet have been improved:<br>• Routing validation<br>• Network discovery<br>• Virtualization stage<br>• Dump creation |

## 3.1 Changes in Command Line Parameters

| Version | Tool | Parameter Name | Status | Description |
|---|---|---|---|---|
| **2.16.0** | ibdiagpath | --lids_list | New | Using the lids utility for creating scope file. |
| **2.15.0** | ibdiagnet | --skip | Deprecated | vs_cap_smp & vs_cap_gmp values will be ignored.<br><br />SMP & GMP capabilities will be retrieve every time. |
| | ibdiagpath | --adaptive_routing | New | Using adaptive routing tables to look up for possible paths. |
| **2.12.0** | ibdiagnet | --sharp_opt | Changed | Added a new option "- [ad_hoc]" which indicates the ad-hoc trees support in SHARP, and prevents warnings for tree_id duplication in the fabric<br>Value: <[csc][dsc][dscp][ad_hoc]> |

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| **2.11.0** | ibdiagnet | --ppcc | New | This parameters enables fetching PPCC (Port Programable Congestion Control) counters.<br>Possible values:<br>• File path: In this cases ibdiagnet loads from file PPCC Algorithms<br>• Folder path: ibdiagnet loads all files from the directory<br>• Wildcard: ibdiagnet loads files according to wildcard matching.<br>For more information on the supported wildcard syntax refer to the manual page by typing `man 7 glob |
| | | --verbs | Experimental | Send and receive GMPs via ibverbs instead of ibumad library. |
| **2.9.0** | ibdiagnet | --r_opt | Deprecated | The same functionality is supported by --disable_output option<br>Value: skip_far |
| | | | Removed | Values: vs, far, rn, drnc, crnc |
| | | --pm_get_all | New | Get all PM counters by activate the following flags: --per_slvl_cntrs --sc --extended_speeds pm_per_lane |
| | | --pm_clear_all | New | Clear all PM counters by activate the following flags: --scr --pc |
| | | --ft_roots_regex_opt | New | Regular expression to select topology root nodes. To be applied to switch descriptions.<br>Value: <regular expression> |
| **2.8.0** | --r_opt | dump_only_skip_routing_tables | Added | Skips routing tables (LFTs) retrieving |
| | rn | Deprecated | Dumps routing notification data to file (enabled by default) | |
| | drnc | Deprecated | Dumps routing notification port counters to file (enabled by default) | |
| **2.7.0** | ibdiagnet | --ft | New | Enables Fat Tree Topology Validation (default - disabled) |
| | | --aguid | New | Collects AGUIDs |
| | | --enable_spst | Removed | SPST mode is enabled by default. Option was deprecated in 2.6.1 |

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| **2.6.1** | ibdiagnet | --smp_window | Upper limit and default are changed | Max: 256; default: 16 |
| | | --gmp_window | Upper limit and default are changed | Max: 16384; default: 256 |
| | | --am_key | New | Specifies default AMKEY for the fabric |
| | | --am_key_file | New | Specifies the path to file (AMKEY per GUID) |
| | | --smdb | New | Specifies the path to OpenSM SMDB file (required for Adaptive Routing & Dragonfly+ Topology validation) |
| | | --ber_threshold_table | New | Specifies the path to BER thresholds table file (BER per FEC) |
| | | --create_ber_threshold_table | New | Creates template file of BER threshold table |
| | | --enable_spst | Deprecated | SPST mode is enabled by default |
| | | --dfp | New | Enabling DFP Topology Validation (default - disabled) |
| | | --dfp_opt | New | Specifies comma separated DFP Topology Validation options |
| | dfp_opt | <max_cas> | - | Specifies max number of CAs for “Root” switch in Dragonfly+ island (default: 1).<br>This parameter is mutual exclusive with --smdb |
| | ibdmchk | --FAR | New | Adds support for input FAR file |
| **2.5.1** | ibdiagnet | --sl | New | Specifies the SL to be used (default=0) |
| | | --rail_validation | New | Enabling Rail Optimized Topology Validation (default - disabled) |
| | | --rail_validation_opt | New | Specifies comma separated Rail Optimized Topology Validation options |
| | | --clear_congestion_counters | New | Dumping Congestion Counters and clearing them |
| | | --fec_mode | Deprecated | FEC_MODE section will be dump to "db_csv" by default |
| | --rail_validation_opt | <regex> | - | Specifies regular expression to filter HCA nodes from reports. To be applied to HCAs node descriptions |
| **2.4.0** | ibdiagnet | --enable_output | New | Enable creation of specific dump file |
| | | --disable_output | New | Disable specific dump file |

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| | | --path | New | Set custom path for specific dump file |
| | | --discovery_only | New | Discover IB fabric, save topology information into “db_csv” file and exit |
| | | --smp_window | Upper limit is changed | New max is 128 |
| | | --gmp_window | Upper limit is changed | New max is 8192 |
| | ibtopodiff | --ibnl_dir | New | Set path for IBNL files |

# 4 Bug Fixes

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| **2.16.0** | • Fixed an issue related to the execute command from the switches<br>• Fixed an issue related to fetching multiple Congestion Control counters |
| **2.15.0** | • Fixed an issue related to loading the 'HWInfo.technology' field from a file.<br>• Removed 'PERF' records duplicates in the 'db_csv' file. |
| **2.14.0** | • Fixed an issue related to retrieving RX/TX Power fields in the cable report |
| **2.13.0** | • Fixed a crash in SHARP stage that occurred when one or more switches was reset |
| **2.11.0** | • Fixed the DB_CSV file which contained non-ASCII characters |
| **2.9.0** | • Fixed PCIe plugin behavior to support scope file<br>• Fixed the wrong number of SHARP active jobs in fabric summary |
| **2.8.0** | • Fixed an unexpected exit when detected HCAs with invalid GUID in discovery stage<br>• Fixed an issue that corrupted the ibdaignet reporting for other nodes when encountering an HCA with an invalid LID<br>• Fixed a possible crash in SHARP validation mode when SHARP version is not specified in command line parameters<br>• Fixed the wrong values in "switchguid" and in "remote port" fields in ibnetdiscover file |
| **2.6.1** | • Fixed an issue that caused ibtopodiff not to recognize IB Routers<br>• Fixed the reset flow for PHY/PCI counters |
| **2.5.1** | • Fixed an issue that resulted in GUIDs being printed in Mkey Mmanager in HEX format<br>• Fixed an issue that resulted in error messages being printed with the correct node GUID instead of the value "zero"<br>• Fixed an issue that loaded duplicates and half links from the neighbors file of MKey manager<br>• Fixed an issue that printed errors/warning status in stages<br>• Fixed an issue that resulted in a critical error in case of duplicate names with HCA/mlx patterns |
| **2.4.0** | • Fixed an issue that caused ibdiagnet to skip PCIe counters for some HCAs, if more than one HCA was installed in the host.<br>• Fixed an issue that caused ibdiagnet to report a wrong value for SLRG 16nm register.<br>• Fixed an issue that caused ibdiagnet to report a wrong value in SMP access register.<br>• Fixed an issue that caused ibdiagnet to report a wrong number of “Aggregation Nodes” in “Fabric Summary” table |

# 5 Legal Notices and 3rd Party Licenses

| Product | Version | Legal Notices and 3rd Party Licenses |
|---|---|---|
| ibutils2 | 2.16 | • License<br>• 3rd Party Notice<br>• 3rd Party Unify Notice |

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