Intel(R) Cluster Checker 2018 Update 1 for Linux* - Release Notes
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1. OVERVIEW

Intel(R) Cluster Checker verifies the configuration and performance of
Linux*-based clusters and checks the cluster's compliance with the
Intel(R) Scalable System Framework (Intel(R) SSF).

1.1. RELATED PRODUCTS AND SERVICES

Information about Intel(R) software development products is available at
http://www.intel.com/software/products.

These are some of the products related to Intel(R) Cluster Checker:

o Intel(R) SSF is an architectural design foundation that enables development
  and deployment of a wide variety of high-performance, balanced solutions to
  support compute- and data-intensive workloads. Its standards-based
  programmability allows engineers to run diverse workloads on a broadly
  available, common infrastructure, making the power of high-performance
  computing accessible to businesses of all sizes.

  http://www.intel.com/ssf

o The Intel(R) C++ and Fortran Compilers include advanced optimization
  and multithreading capabilities, highly optimized performance
  libraries, and analysis tools for creating fast reliable
  multithreaded applications.

  http://www.intel.com/software/products/compilers

o The Intel(R) MPI Library for Linux*, the Intel(R) Trace Analyzer and
  Collector for Linux*, and the Intel(R) Math Kernel Library Cluster
  Edition for Linux* are the most awarded development tools. They
  create, analyze, and optimize high-performance applications on
  clusters of Intel(R) processor-based systems.

  http://www.intel.com/software/products

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2.  NEW FEATURES
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2.1 WHAT'S NEW IN VERSION 2018 Update 1
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- Enabled provider configuration as part of Framework Definitions.
- Enabled latest Intel(R) Xeon(R) processors.
- Renamed predefined Framework Definition names to be more informative.
- Added support for the SGEMM benchmark.
- Improved memory checking.
- Enhanced user visible message output.
- Added checks for Intel(R) Omni-Path Fabric subnets.
- Bug fixes.


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2.2 OLDER VERSIONS
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2.2.1 Version 2018
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- Added support for Intel(R) Xeon(R) Scalable processors.
- Added Framework Definition feature to allow for customization of analysis.
- Added support for Intel(R) Turbo Boost Technology validation.
- Added support for analysis from multiple database sources.
- Updated samples and SDK.
- Converted documentation to online format.
- Enhanced Intel(R) Omni-Path Architecture validation.
- Added OpenFabrics Interfaces support.
- Enhanced user viewable message output.
- Bug fixes


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2.2.2 VERSION 2017 Update 2
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- Improved support for Intel(R) Xeon Phi(TM) Product Family x200 processors.
- Improved support for Intel(R) Omni-Path Architecture.
- Bug fixes.


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2.2.3 Version 2017 Update 1
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- Added Intel(R) Scalable System Framework Support.
- Deprecated support for Intel(R) Cluster Ready.
- Added additional support for Intel(R) Xeon Phi(TM) Product Family x200
  processors.
- Removed heartbeat functionality.
- Bug fixes.


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2.2.4 Version 2017
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- Added support for Intel(R) Xeon Phi(TM) Product Family x200 processors.
- Added support for the Lustre* file system.
- Significantly improved analysis performance for large databases.
- Extended the API to provide the ability to collect data.
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- The separate analyzer (clck.xml) and data collection (clckd.xml)
configuration
  files were merged into a single file (clck.xml). Previous configuration files
  are not compatible.
- Allows more granular suppressions. See the section on suppressions
  in the User's Guide for more information.
- The asynchronous data collection daemons, clckd and clck-serverd, have been
  replaced by a plugin to the Open Resilient Cluster Manager* (ORCM). See
  orcm/README for more information. The ORCM plugin is a technical preview
  feature; please see the Known Limitation section for its current limitations.
- Databases from previous versions of the product are incompatible with version
  2017 due to database schema changes.
- The samples have been moved online and are no longer distributed as part of
  the product. They are now available at the URL below:
  https://software.intel.com/en-us/product-code-samples?topic=20903

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3. SYSTEM REQUIREMENTS

The following sections describe hardware and software requirements.

3.1. HARDWARE

    - Intel(R) Xeon(R) processor (Intel(R) 64 architecture)
    - 1 GB of RAM recommended
    - 160 MB of free hard disk space required for installation

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3.2. SOFTWARE

Operating Systems:
    - CentOS 6 and 7
    - Red Hat* Enterprise Linux* 6 and 7
    - SUSE* Linux* Enterprise Server 11 and 12
    - Ubuntu* 14.04, 16.04, and 17.04 (See Section 6 for known issues)

Runtimes:
    - Intel(R) MPI Library

    Note: While the full SDK versions of these components fulfill the
        requirement, only the runtime library is required.

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4. INSTALLATION NOTES

Intel(R) Cluster Checker is distributed as part of Intel(R) Parallel
Studio XE 2018 Cluster Edition and also as a standalone package.

To install Intel(R) Cluster Checker as part of Intel(R) Parallel
Studio XE 2018 Cluster Edition, please refer to the Intel(R) Parallel
Studio XE 2018 Cluster Edition documentation.

To install the standalone package, run the following commands:

```
% tar -xzf l_clck_p_2018.1.<package#>.tgz -C /tmp
% cd /tmp/l_clck_p_2018.1.<package#>
% ./install.sh
```

Notes:
- The default Intel(R) Cluster Checker install path is
  /opt/intel/clck/2018.1.<package#>.

- Intel(R) Cluster Checker needs to be installed on all nodes.
  This can either be accomplished either by installing into a
  shared directory or by installing a local copy on each node.
  Both options are supported by the installer.

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5. DOCUMENTATION

This release of Intel(R) Cluster Checker includes the following
documentation:

The Getting Started Guide walks through using Intel(R) Cluster Checker
for the first time.

The Intel(R) Cluster Checker User's Guide contains information about how to
use,
configure, and extend Intel(R) Cluster Checker. The User's Guide describes the
basic usage models, contains information about specific configuration options,
explains how to embed Intel(R) Cluster Checker functionality into other
applications, shows how to add new checks to the tool, and demonstrates how to
modify existing checks.

The Intel(R) Cluster Checker API reference describes the API that may
be used to embed Intel(R) Cluster Checker functionality into other
software programs.

The documentation can be found at https://software.intel.com/en-us/intel-
cluster-checker-support/documentation.

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6. KNOWN LIMITATIONS AND TROUBLESHOOTING

The following is a list of known issues in this release.

- Data collection behavior and functionality

    o If the temporary directory used during collection is located on a shared
      file system, the directory will not be deleted.

    o The ORCM plugin is a technical preview feature.

    o Databases located on NFS file systems mounted with the "nolock"
      option are not supported. Not all data from concurrent data
      collection instances per database will be written to the
      database and the database may become corrupted. A single data

collector instance per database can usually be used successfully
in this case.

o The error "Error: disk I/O error" may be generated when accessing a
database located on a Lustre file system. The Lustre file system must
be mounted with the "-o flock" option.

o The 'iozone' data provider does not execute correctly on
diskless clusters.

o If collecting data as root, the value of the
CLCK_SHARED_TEMP_DIR environment variable must be set to the
fully-qualified path of a directory accessible on all nodes.

o When running on Ubuntu*, it is necessary to run with privileged access
in order to ensure that hardware uniformity checks based on the operation
of lshw's run properly.

o When collecting data on Ubuntu*, if the installed "which" command does
not support --skip-functions and --skip-alias, a few providers will need
additional configuration and a few providers will not run successfully.
The following providers must be configured for the specification of
absolute binary location:
- cpuid
- cpupower
- dmesg
- ibstat
- lscpu
- numactl
- opahfirev
- opasmaquery
Refer to Intel(R) Cluster Checker User Manual, Chapter 6 for details about
specifying absolute binary paths for the above mentioned providers.

In addition, there are limitations to validating
Intel(R) SSF compliance when running on Ubuntu.
It is not recommended to use Intel(R) Cluster Checker for Intel(R) SSF
compliance when
running on Ubuntu.

- Analysis behavior and functionality

o Clusters containing dual port InfiniBand* adapters where the
second port is unused should suppress the
'infiniband-port-physical-state-not-linkup' and
'infiniband-port-state-not-active' signs. See Chapter 4 of the
User's Guide for more information on how to suppress signs.

o When using the Linux* boot parameter isolcpus with an Intel(R) Xeon
Phi(TM) processor using default MPI settings, MPI based applications may
fail. If possible, change or remove the isolcpus Linux* boot parameter.
If this is not possible and you are using the Intel(R) MPI Library, you
can try setting I_MPI_PIN to off. Refer to the Intel(R) Cluster Checker
reference manual for details on specifying environment variables for
tests.

o When run with dgemm/dgemm_cpu_performance or
stream/stream_memory_bandwidth_performance
       framework, "stream-outlier" or "dgemm-data-is-substandard" may be
observed
       as the corresponding provider scripts may not yield the expected
performance with SNC-2/SNC-4 cluster mode
       and Flat memory mode configurations for Intel(R) Xeon Phi(TM) processor.
       There may be an issue with the kernel itself (BZ#1479763), documented at
https://access.redhat.com/errata/RHBA-2017:2581
       If there are no corresponding diagnoses, the signs may be suppressed.

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7. TECHNICAL SUPPORT

If you did not register Intel(R) Cluster Checker during installation, please do
so at the Intel(R) Software Development Products Registration Center at
http://registrationcenter.intel.com. Registration entitles you to free
technical
support, product updates and upgrades for the duration of the support term.

For information about how to find Technical Support, Product Updates, User
Forums,
FAQs, tips and tricks, and other support information, please visit:
http://www.intel.com/software/products/support/

Note: If your distributor provides technical support for this product, please
contact them for support rather than Intel.

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