Debugging a Cluster Using Intel® Cluster Checker

The Intel® Cluster Ready program provides a standards-based cluster architecture that helps clusterware providers and ISVs develop interoperable systems and applications, without the need for one-to-one validation. A cluster design can be certified against the standard architecture using Intel Cluster Checker software. Applications can be tested and registered independently against the same architecture.

With this approach, cluster architects can be sure their cluster will work as expected with any registered application, and ISVs can be sure their applications will run successfully on any Intel Cluster Ready certified system. This enables a many-to-one design approach that can help to improve efficiency and speed time to market.

Using Intel Cluster Checker as a Debugging Tool

Intel Cluster Checker software can be used to certify a cluster and also to debug a cluster if it fails the certification test. It can detect and report a number of issues relating to hardware, software configuration, network performance, and other matters. In many cases, issues can be resolved by looking at the console output or by going into the .out or .xml output files from the run. Two flags are particularly useful when debugging a cluster: the --include_only flag and the --verbosity flag.

Using the --include_only flag

If you're debugging a known issue or want to test a specific component in the cluster, the first step in debugging a problem is to utilize the --include_only flag to examine the subset of the test suite that is reporting issues. The format for the command is --include_only <test module>, and it is used to tell Intel Cluster Checker to run only the test modules you specify (plus any additional modules that are upstream in the dependency list).

Using the --verbosity flag

The next step in debugging your cluster is to use the verbosity flag to control the amount of output you receive from the cluster checker. The format for the flag is --verbose <value>. You can enter any value from 1 to 5, depending on how much output you want to see.

1   Reports the overall success or failure of the test only, with no information on the status of the test modules.

2   Is the default verbosity level. It reports the success or failure of each test module and the overall success or failure. It also provides additional output regarding ailing or indeterminate test modules.

3   Provides the same output as Level 2, but also prints the name of the failing test modules that cause a check to be skipped.

4   Reports the success or failure of each test module and the overall success or failure. It also prints additional output for all test modules, regardless of their success or failure status.

5   Reports all the information in number 4, and also displays the version of each module.

A Simple Example

As an example, suppose you're having disk performance issues and want to debug your hdparm values with as much output from Intel Cluster Checker as possible. In this case, you would use the command: cluster-check myconfig.xml --include_only=hdparm --verbose 5

This will run hdparm and its prerequisites and provide screen and log output.

Going Further with Debug

If the --include_only and --verbosity flags do not provide the information you need to solve your problem, Intel Cluster Checker can provide detailed debug output to assist with trouble-shooting. You can enable debug mode either by using the --debug command line option for all checks, or on a per-check basis using the element tag. Debug output is provided in one or more files named using the format: -.debug. The resulting .debug file will show the commands executed to the compute nodes in the test or tests specified and will include the results of those tests. This should give you more diagnostic information to debug the issue.

Learn More

The following links provide a wealth of information about Intel Cluster Checker and the Intel Cluster Ready Program.

- Intel Cluster Checker Knowledge Base: **http://software.intel.com/en-us/articles/intel-cluster-checker-kb/errors-diagnostics/1/**
- Intel Cluster Ready Knowledge Base: **http://software.intel.com/en-us/articles/intel-cluster-ready-kb/all/1/**
- Intel Cluster Ready Program: **intel.com/go/cluster**