

InfiniDB[®]

Installation Guide

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InfiniDB Installation Guide

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1 Introduction

This guide contains a summary of steps needed to perform an install of InfiniDB Standard and InfiniDB Enterprise.

1.1 Audience

This guide is written for IT administrators who are responsible for implementing the InfiniDB System.

1.2 List of Documentation

The InfiniDB Database Platform documentation consists of several guides intended for different audiences. The documentation is described in the following table:

Document	Description
InfiniDB Administrator's Guide	Provides detailed steps for maintaining InfiniDB.
InfiniDB Apache Hadoop™ Configuration Guide	Installation and Administration of an InfiniDB for Apache Hadoop system.
InfiniDB Concepts Guide	Introduction to the InfiniDB analytic database.
InfiniDB Minimum Recommended Technical Specifications	Lists the minimum recommended hardware and software specifications for implementing InfiniDB.
InfiniDB Multiple UM Configuration Guide	Provides information for configuring multiple User Modules.
InfiniDB SQL Syntax Guide	Provides syntax native to InfiniDB.
Performance Tuning for the InfiniDB Analytics Database	Provides help for tuning the InfiniDB analytic database for parallelization and scalability.
InfiniDB Windows Installation and Administrator's Guide	Provides information for installing and maintaining InfiniDB for Windows.

1.3 Obtaining documentation

These guides reside on our <http://www.infinidb.co> website. Contact support@infinidb.co for any additional assistance.

1.4 Documentation feedback

We encourage feedback, comments, and suggestions so that we can improve our documentation. Send comments to support@infinidb.co along with the document name, version, comments, and page numbers.

1.5 Additional resources

If you need help installing, tuning, or querying your data with InfiniDB, you can contact support@infinidb.co.

2 Preparing for Installation

2.1 Configuration Preparation

Before installing InfiniDB (IDB) there is some preparation necessary. You will need to determine, in consultation with InfiniDB Product Support, the following:

- How many User Modules (UM's) will your system need?
- How many Performance Modules (PM's) will your system need?
- How much disk space will your system need?

2.2 OS Information

For a Linux server installs, the following additional packages need to be installed:

- expect

Note: IDB is certified to run on:

RHEL/CentOS v5, v6

Debian v6, v7

Ubuntu 10.04 LTS, 12.04 LTS

but it should run on any recent Linux system.

Windows Server 2008, 2012

2.3 System Administration Information

Information your system administrator must provide you before you start installing InfiniDB:

- The hostnames of each interface on each node (optional).
- The IP address of each interface on each node.
- The root password for the nodes (all nodes must have the same root password or root ssh keys must be set up between servers).

Example for 3 PM, 1UM system, these are the steps required to configure PM-1 for passwordless ssh. The equivalent steps must be repeated on every PM in the system.

```
[infinidb@cal-pm-1 ~] $ ssh-keygen
[infinidb@cal-pm-1 ~] $ ssh-copy-id -i ~/.ssh/id_rsa.pub cal-pm-1
[infinidb@cal-pm-1 ~] $ ssh-copy-id -i ~/.ssh/id_rsa.pub cal-pm-2
[infinidb@cal-pm-1 ~] $ ssh-copy-id -i ~/.ssh/id_rsa.pub cal-pm-3
[infinidb@cal-pm-1 ~] $ ssh-copy-id -i ~/.ssh/id_rsa.pub cal-um-1
```

- If your site has an NMS and you would like SNMP traps sent to it, then you will need to know its IP address. Additional configuration of the NMS may be required to allow the InfiniDB software to send traps to it.
- InfiniDB supports drive/disk labeling.

2.4 Optional Information

InfiniDB is quite flexible regarding networking. Some options are as follows:

- The interconnect between UM's and PM's can be one or more private VLAN's. In this case InfiniDB will automatically trunk the individual LAN's together to provide greater effective bandwidth between the UM's and PM's.
- The PM's do not require a public LAN access as they only need to communicate with the UM's.
- The UM's most likely require at least one public interface to access the MySQL server front end from the site LAN. This interface can be a separate physical or logical connection from the PM interconnect.
- You can use whatever security your site requires on the public access to the MySQL server front end on the UM's. By default it is listening on port 3306.
- InfiniDB software only requires a TCP/IP stack to be present to function. You can use any physical layer you desire.

2.5 Database Files (DBRoots)

As a general rule of thumb, the number of DBRoots must be equal to or greater than the maximum number of planned PMs.

2.5.1 Local Database Files

If you are using local disk to store the database files, no additional setup is required.

2.5.2 SAN Mounted Database Files

If you are using a SAN to store the database files, the following must be taken into account:

- Each of these DBRoots must be a separate, mountable partition/directory
- InfiniDB will run on most Linux filesystems, but we test most heavily with EXT2. You should have no problems with EXT3 or EXT4, but the journaling in these filesystems can be expensive for a database application. You should carefully evaluate the write characteristics of your chosen filesystem to make sure they meet your specific business needs. In any event, InfiniDB writes relatively few, very large (>64MB) files. You should consult with your Linux system administrator to see if configuring a larger bytes-per-inode setting than the default is available in your chosen filesystem.
- The fstab file must be set up (/etc/fstab). These entries would need to be added to each PM pointing to the all the dbroot(s) being used on all PMs. The 'noauto' option indicates that all dbroots will be associated to every PM but will not be automatically mounted at server startup. The associated dbroots that are assigned to each PM will be specifically mounted to that PM at InfiniDB startup. The following example shows an 'ext2' setup for 4 dbroots total for all PMs, but they can setup any disk type they want:

```
/dev/sda1 /usr/local/Calpont/data1 ext2 noatime,nodiratime,noauto 0 0
/dev/sdd1 /usr/local/Calpont/data2 ext2 noatime,nodiratime,noauto 0 0
/dev/sde1 /usr/local/Calpont/data3 ext2 noatime,nodiratime,noauto 0 0
/dev/sdg1 /usr/local/Calpont/data4 ext2 noatime,nodiratime,noauto 0 0
```

2.6 Amazon Setup

InfiniDB executes in on Amazon in both EC2 and VPC environments. We have a public AMI that we recommend using. It has InfiniDB already packaged and it comes with an Amazon-Installer script that makes it easy to launch new instances and to create, format, and attach EBS Volumes.

You can also install the InfiniDB packages yourself in a single or a set of instances. You would need to perform some setup within each instance along with the setup of the EBS Volumes you plan to use. Then you would manually run the InfiniDB install script called postConfigure.

The following sections document the Amazon environment setup and steps needed for each type of installation (AMI or Standard).

2.6.1 Amazon Environment Initial Setup

It is assumed that the user has basic knowledge of the setup and use of Amazon EC2 or VPC (i.e., launching instances, creating Key-Pairs, creating EBS volumes, etc.) before installing and configuring InfiniDB. The following links will assist in the initial setup of Amazon EC2 and VPC:

Getting Started with Amazon EC2:

<http://docs.amazonwebservices.com/AWSEC2/latest/GettingStartedGuide/Welcome.html>

Getting Started with Amazon VPC:

<http://docs.aws.amazon.com/AmazonVPC/latest/GettingStartedGuide/ExerciseOverview.html>

Creating and Attaching an EBS Volume (used when performing the Standard, non-AMI installation):

<http://docs.amazonwebservices.com/AWSEC2/latest/UserGuide/AmazonEBS.html>

2.6.2 InfiniDB Amazon Machine Image (AMI)

This AMI is used to set up both single or multiple instances. It has the InfiniDB package installed along with other setup requirements, like allowing root-password logging between the Instances (needed for installation).

The 'root' directory in this AMI contains a README file that has basic instructions on how to configure and install the InfiniDB within the Amazon EC2 or VPC environment. It also contains an Amazon Configuration file and Amazon Installer script that is used. These are documented below.

2.6.2.1 Ephemeral and EBS Storage

This AMI is pre-configured with up to 4 Ephemeral storage drives for local disk storage use. Each disk has 414 Gigabytes of space. This would be used to store files like data source files that are used by the Bulk Loader.

The number of Ephemeral disk available is based on the size of instance that is used. Refer to this link for additional details:

<http://docs.amazonwebservices.com/AWSEC2/latest/UserGuide/InstanceStorage.html>

These 4 disks are mapped to the following device names:

```
/dev/sdb  
/dev/sdc  
/dev/sdd  
/dev/sde
```

The Amazon Installer Script will also create EBS volumes for User Module and DBRoot Data storage used, when configured to do so in the Amazon Configuration file.

It will use device names starting at /dev/sdf, /dev/sdh, and so on to /dev/sdz if you have that many DBRoot disks configured.

2.6.2.2 AWS securityCredential page

1. Create and download the X.509 Certifications Keys, which consist of a certificate file and a private key file.
 - These files are required to run the APIs on the Instance by the InfiniDB Software.

2.6.2.3 AWS Management Console page

1. Create and download a Key-Pair
2. Create an EC2 or VPC Security Group with the following Inbound Rules:
 - SSH
 - ICMP
 - Custom TCP rule with port range 8600-8800
 - If you want access to run InfiniDB from an external location into the Amazon instance, you must set up another custom TCP rule with port 3306
3. Select and Launch the InfiniDB-*release#* from the AMIs menu:
 - We recommend using the High-Memory Quadruple Extra Large (m2.4xlarge) Instance type to get optimal performance with the 8 cores and 68 GiB of memory. The minimum requirement for a single server installation is the High-Memory Double Extra Large (m2.2xlarge) Instance type. The minimum requirement for a multi-server installation is the Extra Large (m1.xlarge) Instance type.
4. SCP the certificate file and a private key file onto the instance, recommend placing in the /root directory. If another directory is used, that directory must exist on all instances before installation takes place.

2.6.2.4 Amazon Instance Login

You get the ssh login command from the Management Console page when you select the Instance you launched with the AMI. Here is an example of the command below:

```
ssh -i mykey.pem root@ec2-xx-xx-xxx-xxx.compute-1.amazonaws.com
```

NOTE: InfiniDB does require installing and running as root user for AWS.

Amazon Instance

1. Log onto the instance via SSH
2. Amazon Configuration File(s) - You will need to edit one of these files based on the type of system you would like to startup
 - The default configuration file that the Amazon Installer Script uses is called `amazonConfig.xml`. The file is setup as a Multi-Instance system with 1-UMs, 2-PMs, and one 100Gb EBS storage attached to each PM.
 - There is also a Single Instance InfiniDB System configuration file called `amazonConfig-1pm.xml`. You can use this file to startup a Single Instance that has UM and PM functionality running. It will have one 100Gb EBS storage attached. You could start with this file if you only need a very basic one Instance system.
 - The 2 parameters that have to be set in either file are for the x.509 files, other parameters can be changed as needed. Documented further in the Amazon Configuration File Section
 - The region Parameter is defaulted to run in the US East (Virginia) region. If you are running in any other region, you will need to change the Region Parameter. InfiniDB has provided a simple `get-region` command to retrieve this information.
3. Amazon Installer script
 - Once an Amazon Configuration is setup, run the Amazon Installer Script. You must be in the root directory to run this command:
 - To use the default configuration file `amazonConfig.xml`:

```
# ./amazonInstaller
```
 - To use the Single Instance or other configuration file

```
# ./amazonInstaller -c amazonConfig-1pm.xml
```

2.6.2.5 Amazon Configuration File

The Amazon Configuration File that comes with the InfiniDB AMI contains the parameters (required and optional) that can be set based on the type of System you want to run. The default configuration file, `amazonConfig.xml` is listed out below with a brief description of each parameter.

The two x.509 entries (at the bottom of the file) must be set and the others can be changed as needed.

EC2 Environment Setup options:

InfiniDB can be installed on existing instances or it will create the needed instances based on the number of User and Performance Modules that are specified. To install on existing Instances, uses these 2 parameters:

- `UserModuleInstances`
- `PerformanceModuleInstances`

VPC Environment Setup options:

The VPC subnet ID is required parameter.

Assigning the VPC Private IP Addresses for the User and Performance Modules can be done one of these 3 ways:

- You can specify a list of the IP addresses to be used
- You can specify an IP Address in the parameter 'VPCStartPrivateIP' and InfiniDB will assign the IP Address to the create Instances starting with this IP address
- You can specify the word 'autoassign' in the parameter 'VPCStartPrivateIP' if you want Amazon to auto-assign IP Addresses within the subnet range

Copy of the amazonConfig.xml file:

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- $Id: amazonConfig.xml 2830 2012-04-08 17:38:58Z dhill $ -->
<!-- Used with the amazonInstaller script-->
<Calpont Version="V1.0.0">
  <SystemConfig>
    <!-- System Name-->
    <SystemName>calpont-1</SystemName>

    <!-- System Type: combined (um and pm functionality on same instance)
       separate (um and pm functionality on separate instances) -->
    <SystemType>separate</SystemType>

    <!-- VPC Configuration Setup -->
    <!-- subnet ID -->
    <!-- The ID of the Amazon VPC subnet in which to launch the instance(s) -->
    <SubNetID>unassigned</SubNetID>

    <!-- VPC Starting Private IP Address -->
    <!-- Requires the SubNetID to be setup -->
    <!-- Use this if you want InfiniDB to assigned IP Addresses starting with
       this one -->
    <!-- Set value to 'autoassign' if you want Amazon to auto-assign IP Addresses
       within the subnet range -->
    <VPCStartPrivateIP>unassigned</VPCStartPrivateIP>

    <!-- User Modules Private IP Address list, use when running on an Amazon
       VPC -->
    <!-- Requires the SubNetID to be setup -->
    <!-- This list would start with um1, list is seperated by commands. i.e
       'ip1,ip2,ip3' -->
    <!-- IGNORED when VPCStartPrivateIP is set -->
    <UserModulePrivateIP>unassigned</UserModulePrivateIP>

    <!-- Performance Modules Private IP Address list, use when running on a
       Amazon VPC -->
    <!-- Requires the SubNetID to be setup -->
    <!-- This list would start with pm2, list is seperated by commands. i.e
       'ip1,ip2,ip3' -->
    <!-- IGNORED when VPCStartPrivateIP is set -->
    <PerformanceModulePrivateIP>unassigned</PerformanceModulePrivateIP>

    <!-- Elastic IP to Module Assignment -->
    <!-- Example usages: x.x.x.x:um1 -->
    <!-- Example usages: x.x.x.x:um1,y.y.y.y:pm1 -->
    <ElasticIPs>unassigned</ElasticIPs>

    <!-- Number of User Modules: n/a for combination system type -->
    <UserModuleCount>1</UserModuleCount>
```

```
<!-- User Modules Instances list, use existing instances instead of Launching
new ones -->
<!-- This list would start with um1, list is seperated by commands. i.e
'id1,id2,id3' -->
<UserModuleInstances>unassigned</UserModuleInstances>

<!-- User Modules Instance Type, default to local Instance Type -->
<UserModuleInstanceType>unassigned</UserModuleInstanceType>

<!-- User Modules Security Group, default to local Security Group -->
<UserModuleSecurityGroup>unassigned</UserModuleSecurityGroup>

<!-- Use EBS Volumes for User Module data storage? -->
<!-- Applicable for system type = 'separate' only -->
<UseUMEBSVolumes>y</UseUMEBSVolumes>

<!-- Size of User Module EBS Volumes in gigibytes -->
<!-- Applicable for system type = 'separate' only -->
<UMEBSVolumeSize>10</UMEBSVolumeSize>

<!-- User Module MySQL Database Auto Sync -->
<!-- Setting this enables the Automatic syncing of the MySQL Database from
the Primary User Module to other User Modules. And will sync the
database when a new User Module is Added -->
<UserModuleAutoSync>y</UserModuleAutoSync>

<!-- User Module MySQL Database Auto Sync Time in Minutes -->
<UserModuleSyncTime>10</UserModuleSyncTime>

<!-- Number of Performance Modules -->
<PerformanceModuleCount>2</PerformanceModuleCount>

<!-- Performance Modules Instances list, use existing instances instead of
Launching new ones -->
<!-- This list would start with pm2, list is seperated by commands. i.e
'id1,id2,id3' -->
<PerformanceModuleInstances>unassigned</PerformanceModuleInstances>

<!-- Number of DBRoots assigned to each Performance Module -->
<DBRootsPerPM>1</DBRootsPerPM>

<!-- Use EBS Volumes for (um/pm) data storage (system type = 'combined')? -->
<!-- Use EBS Volumes for pm data storage (system type = 'separate')? -->
<UsePMEBSVolumes>y</UsePMEBSVolumes>

<!-- Size of Back-End Data EBS Volumes in gigibytes -->
<PMEBSVolumeSize>100</PMEBSVolumeSize>

<!-- SNMP Trap Receiver IP Address: 0.0.0.0 means no snmptraps will be
forwarded -->
<SNMPTrapIPAddr>0.0.0.0</SNMPTrapIPAddr>

<!-- Total UM Memory Size, default to postConfigure setting -->
<!-- Use xxG for Gigibytes, ie. 16G, xxM for megabytes, ie. 256M -->
<TotalUmMemory>unassigned</TotalUmMemory>

<!-- Blocks Cache Size Percentage, default to postConfigure setting -->
<NumBlocksPct>unassigned</NumBlocksPct>

<!-- Root Password or 'ssh' for ssh-key setup -->
<RootPassword>Calpont1</RootPassword>
```

```

<!-- License Key, default to 30 days -->
<LicenseKey>unassigned</LicenseKey>

<!-- Enables Automatic Amazon Instance/Volume tagging -->
<!-- When set 'y', Instance Name Tags will be set to
      'system-name'-'module-name' -->
<!-- DBRoot Volume Name Tags will be set to 'system-name'-'dbrootID' -->
<!-- User Module Volume Name Tags will be set to
      'system-name'-'module-name' -->
<AutoTagging>y</AutoTagging>

<!-- Amazon EC2 region your running in, run ec2-describe-regions to get valid
      region names -->
<Region>us-east-1</Region>

<!-- x.509 Certification File with directory location.
      i.e. /root/cert-xxxx -->
<x509CertificationFile>unassigned</x509CertificationFile>

<!-- x.509 Private Key File with directory location.
      i.e. /root/pk-xxxx -->
<x509PrivateFile>unassigned</x509PrivateFile>
</SystemConfig>
</Calpont>

```

NOTE: The RootPassword is correctly set in the Configuration Files that are installed, it's just commented out in this document.

2.6.2.6 Amazon Installer Script

The Amazon Installer Script is used to setup and start the InfiniDB Amazon System based on the provided Amazon Configuration File. After configuring the Amazon part, it will run the InfiniDB installer script (postConfigure).

It also has a 'help' option for usage information:

```
# ./amazonInstaller -h
```

This is the Amazon InfiniDB AMI System Configuration and Installation tool.
It will Configure and startup an Amazon InfiniDB System.

It will read the system configuration settings from /root/amazonConfig.xml. The user can provide a different configuration file with the -c option. If no amazonConfig.xml exists, then the user will be prompted for settings.

```

Usage: amazonInstaller -c 'config.xml' -h -l -v -pc -d
  -h  Help
  -c  system config file, default is '/root/amazonConfig.xml'
  -l  logfile for postConfigure output, default is /root/postConfigure.log
  -v  InfiniDB version
  -pc postConfigure failure System Cleanup, used to run System Cleanup if
      InfiniDB fails to install
  -d  Delete Cluster, used to delete Instances and Volumes on a shutdowned
      system. It requires the -c argument for the name of local Amazon
      Configure File '-c' option

```

The following output is an example from a run of amazonInstaller using the default configuration file (1-UM / 2-PM). It contains output from the postConfigure run also.

```
./amazonInstaller

This is the Amazon InfiniDB AMI System Configuration and Installation tool.
It will Configure and startup an Amazon InfiniDB System.
It will read the system configuration settings from /root/amazonConfig.xml

=== Setting up system 'calpont-1' based on these settings ===

System Type = separate
Number of User Modules = 1 (m2.2xlarge)
Using EBS Volumes for User Module storage = y
User Module EBS Volume Size = 10
Number of Performance Modules = 2 (m1.xlarge)
Number of DBRoots per Performance Modules = 1
Using EBS Volumes for Performance Module (DBRoot) storage = y
DBRoot EBS Volume Size = 100
SNMP Trap Receiver IP Address = 0.0.0.0
Instance and Volume Name Auto Tagging = enabled
Amazon Region = us-east-1

===== Launch Instances =====

Local Instance for pm1: i-b122f0d4
Creating Instance Tag for pm1

Launched Instance for um1: i-b122f0d1
Launched Instance for pm2: i-cd567bae
SCP x.509 files to um1
SCP x.509 files to pm2
Creating Instance Tag for um1
Creating Instance Tag for pm2

===== Create and Attach Volumes =====

Created Volume for module um1
Create Volume for DBRoot #1 on module pm1
Created Volume for DBRoot #2 on module pm2
Attach Volume and format : vol-50557f31:/dev/sdf1 for module um1
Attach Volume and format : vol-742ec818:/dev/sdh1
Attach Volume and format : vol-e341b98d:/dev/sdh2
Creating Volume Tag for um1
Creating Volume Tag for DBRoot #1
Creating Volume Tag for DBRoot #2

===== InfiniDB Configuration Setup and Installation =====

----- Updating InfiniDB Configuration File (Calpont.xml) -----

----- Running the System Installer Script (postConfigure)-----

This is the Calpont InfiniDB System Configuration and Installation tool.
It will Configure the Calpont InfiniDB System and will perform a Package
Installation of all of the Servers within the System that is being configured.

IMPORTANT: This tool should only be run on the Parent OAM Module
           which is a Performance Module, preferred Module #1

With the no-Prompting Option being specified, you will be required to have the following:
```

1. Root user ssh keys setup between all nodes in the system or use the password command line option.
2. A Configure File to use to retrieve configure data, default to Calpont.xml.rpmsave or use the '-c' option to point to a configuration file.

The Calpont Configuration Data is taken from /usr/local/Calpont/etc/ Calpont.xml.rpmsave

Do you want to utilize the configuration data from the saved copy? [y,n] >

==== Setup System Server Type Configuration =====

There are 2 options when configuring the System Server Type: single and multi

- 'single' - Single-Server install is used when there will only be 1 server configured on the system. It's a shorter install procedure used for POC testing, as an example. It can also be used for production systems, if the plan is to stay single-server.
- 'multi' - Multi-Server install is used when you want to configure multiple servers now or in the future. With Multi-Server install, you can still configure just 1 server now and add on addition servers/ modules in the future. This is used more for production installs.

Select the type of System Server install [1=single, 2=multi] (2) >

Installing on Amazon System (EC2 or VPC services) [y,n] (y) >

Using EC2 services [y,n] (y) >

For Amazon EC2/VPC Instance installs, these files will need to be installed on the local instance:

1. X.509 Certificate
2. X.509 Private Key

Are these files installed and ready to continue [y,n] (y) >

Enter Name and directory of the X.509 Certificate (/root/cert-MyCertFile.pem) >

Enter Name and directory of the X.509 Private Key (/root/pk-MyPKFile.pem) >

==== Setup System Module Type Configuration =====

There are 2 options when configuring the System Module Type: separate and combined

- 'separate' - User and Performance functionality on separate servers.
- 'combined' - User and Performance functionality on the same server

Select the type of System Module Install [1=separate, 2=combined] (1) >

Enter System Name (myinfinidb_ec2) >

Enter the Local Module Name or exit [pmx,exit] (pml) >

==== Storage Configuration = external =====

==== Setup Memory Configuration =====

NOTE: Using the default setting for 'NumBlocksPct' at 70%
Using previous configuration setting for 'TotalUmMemory' = 8G

Select the type of Data Storage [1=internal, 2=external] (2) >

```
===== Setup the Module Configuration =====

----- User Module Configuration -----

Enter number of User Modules [1,1024] (1) >
Enter Starting Module ID for User Module [1,1024] (1) >

*** User Module #1 Configuration ***

Enter EC2 Instance ID (i-b122f0d1) >
Getting Private IP Address for Instance i-b122f0d1, please wait...
Private IP Address of i-b122f0d1 is 10.202.213.87

----- Performance Module Configuration -----

Enter number of Performance Modules [1,1024] (2) >
Enter Starting Module ID for Performance Module [1,1023] (1) >

*** Parent OAM Module Performance Module #1 Configuration ***

Enter EC2 Instance ID (i-b122f0d4) >
Getting Private IP Address for Instance i-b122f0d4, please wait...
Private IP Address of i-b122f0d4 is 10.202.213.135

Enter the list (Nx,Ny,Nz) or range (Nx-Nz) of dbroot IDs assigned to module 'pm1' (1) >

Enter Volume Name assigned to 'DBRoot1' (vol-742ec818) >
Enter Device Name for volume 'vol-742ec818' (/dev/sdd1) >

*** Performance Module #2 Configuration ***

Enter EC2 Instance ID (i-cd567bae) >
Getting Private IP Address for Instance i-cd567bae, please wait...
Private IP Address of i-cd567bae is 50.17.49.47

Enter the list (Nx,Ny,Nz) or range (Nx-Nz) of dbroot IDs assigned to module 'pm2' (2) >

Enter Volume Name assigned to 'DBRoot2' (vol-e341b98d) >
Enter Device Name for volume 'vol-e341b96d' (/dev/sdd2) >

===== InfiniDB SNMP-Trap Process Check =====

InfiniDB is packaged with a SNMP-Trap Process.
If the system where InfiniDB is being installed already has SNMP-Trap Process
running, then you have the option of disabling InfiniDB's SNMP-Trap Process.
Not having the InfiniDB SNMP_trap Process will effect the generation of InfiniDB Alarms
and associated SNMP Traps. Please reference the Calpont InfiniDB Installation Guide for
additional information.

InfiniDB SNMP-Trap Process is enabled, would you like to disable it [y,n](n)>

InfiniDB SNMP Process successfully enabled

===== Setup the Network Management System (NMS) Server Configuration =====

This would be used to receive SNMP Traps from InfiniDB, like a Network Control Center
Enter IP Address(es) of NMS Server (0.0.0.0) >

===== Setup the External Device Configuration =====
```


External Devices are devices like a storage array or a Ethernet Switch that can be setup to be monitored by InfiniDB with a ping test. If device fails, InfiniDB will report a failure alarm.

Would you like to add an External Device? [y,n] (n) >

===== System Installation =====

System Configuration is complete, System Installation is the next step.

Would you like to continue with the System Installation? [y,n] (y) >

Enter the Package Type being installed to other servers [rpm,deb,binary] (rpm) >

Performing an InfiniDB System install using RPM packages located in the /root/directory.

Next step is to enter the password to access the other Servers.

This is either the root password or you can default to using a ssh key

If using the root password, the password needs to be the same on all Servers.

Enter the 'root' password, hit 'enter' to default to using a ssh key, or 'exit' >

----- Performing Install on 'um1 / i-b122f0d1' -----

Install log file is located here: /var/log/Calpont/um1_rpm_install.log

----- Performing Install on 'pm2 / i-cd567bae' -----

InfiniDB Package being installed, please wait DONE

Install log file is located here: /var/log/Calpont/pm2_rpm_install.log

===== Checking InfiniDB System Logging Functionality =====

The InfiniDB system logging is setup and working on local server

InfiniDB System Configuration and Installation is Completed

===== Infinidb System Startup =====

System Installation is complete. If any part of the install failed, the problem should be investigated and resolved before continuing.

Would you like to startup the InfiniDB System? [y,n] (y) >

----- Starting InfiniDB on 'um1' -----

```
[root@ip-xx-xx-xxx-xxx ~]# ssh root@x.xx.xx.xx /etc/init.d/infinidb restart
root@xx.xx.xx.xx's password:
Shutting down Calpont InfiniDB Database Platform
Starting Calpont InfiniDB Database Platform
Starting MySQL. SUCCESS!
[root@ip-xx-xx-xx-xx ~]# InfiniDB successfully started
```

----- Starting InfiniDB on 'pm2' -----

```
[root@ip-xx-xx-xxx-xxx ~]# ssh root@x.xx.xx.xx /etc/init.d/infinidb restart
root@xx.xx.xx.xx's password:
Shutting down Calpont InfiniDB Database Platform
Starting Calpont InfiniDB Database Platform
[root@ip-xx-xx-xx-xx ~]# InfiniDB successfully started
```

----- Starting InfiniDB on local server -----

```
Starting Calpont InfiniDB Database Platform
InfiniDB successfully started

InfiniDB Database Platform Starting, please wait ..... DONE

System Catalog Successfully Created

InfiniDB Install Successfully Completed, System is Active

Enter the following command to define InfiniDB Alias Commands

. /usr/local/Calpont/bin/calpontAlias

Enter 'idbmysql' to access the InfiniDB MySQL console
Enter 'cc' to access the InfiniDB OAM console

postConfigure Successfully Completed, system is ready to use
```

2.6.2.7 Standard Amazon Install Requirements

You can install the InfiniDB package onto Amazon instances that you have launched in an EC2 or VPC environment. These are the Instance requirements:

- Supported Linux version as mentioned in the “OS Information” Section
 - Contains the following packages
 - expect
 - Amazon EC2 API

2.6.2.8 InfiniDB Standard Amazon Install - Single Instance

As mentioned previously, you can also startup a standard Amazon single instance and install and run InfiniDB yourself.

- From the AWS Management Console page:
 1. Create and download a Key-Pair
 2. Create a Security Group with the following Inbound Rules:
 - SSH
 - ICMP
 - Custom TCP rule with port range 8600-8800
 - If you want access to run InfiniDB from an external location into the Amazon instance, you must set up another custom TCP rule with port 3306
 3. Select and Launch the Amazon Linux AMI Instance type
 - We recommend selecting Extra Large as minimum Instance Type
 4. Create an EBS Volume. We recommend this step not only to have a larger storage area, but to have permanent, reliable storage for the database that can be attached to any instance:
 - Attach Volume to running instance
 - Log into Instance:
 - Format and mount disk as shown in the "Format the Disk Partitions Section" below.

5. SCP the InfiniDB Package (RPM or Binary) to the Instance
6. Change to root user using sudo:

```
# sudo /bin/bash
```
7. Perform the single server install process (either local or external disk depending on configuration. See the "postConfigure for Single Server" below.
8. Log into Instance and you are ready to use InfiniDB:

```
idbmysql
```

2.6.2.9 InfiniDB Standard Amazon Install - Multi-Instance

You can also startup a standard Amazon multi-instance and install and run InfiniDB. You will need to create an Instance for each module that will be defined.

1. From the AWS securityCredential page:
 - Create and download the X.509 Certifications Keys, which consist of a certificate file and a private key file.
 - These files are required to access the instances and also need to be installed on the instances to allow ssh/scp and running of the APIs between the instances. They will be placed in the same directory and the InfiniDB install script, postConfigure, will request their location during install time.
2. From the AWS Management Console page:
 - Create and download a Key-Pair
 - Create a Security Group with the following Inbound Rules:
 - SSH
 - ICMP
 - Custom TCP rule with port range 8600-8800
 - If you want access to run InfiniDB from an external location into the Amazon instance, you must set up another custom TCP rule with port 3306
 - Select and Launch the Amazon Linux AMI Instance type:
 - Select number of Instances to start based on the total number of User and Performance Modules
 - We recommend selecting Extra Large as minimum Instance Type
 - Create an EBS Volume. We recommend this step not only to have a larger storage area, but to have permanent, reliable storage for the database that can be attached to any instance. A volume will need to be created for each PM:
 - Attach Volume(s) to each running PM instance. For a standard instance, attach a single volume to each PM.
 - Log into PM instance:

- a. Format and mount disk as shown in the "Format the Disk Partitions" below
 - When mounting, match the dbroot ID # to the Performance Module ID #, example is PM #1 will mount to /usr/local/Calpont/data1
3. For each instance, perform the following:
 - Change to root user using sudo:

```
# sudo /bin/bash
```
 - Change the password of the 'root' account to be identical across all instances.
 - Update the ssh config file:

```
# vi /etc/ssh/sshd_config
PasswordAuthentication yes
PermitRootLogin yes
# service ssh restart
```
 - Add to /home/ec2-user/.bash_profile:

```
sudo /bin/bash
```
 - SCP the certificate file and a private key file onto each instance in the same directory, this will be used during the install process
 - SCP the InfiniDB Package (RPM or Binary) to the Performance-Module #1 Instance
 - Log into the Performance-Module #1 Instance and run the install script as shown in "postConfigure for Amazon Multi-Server Configuration".

2.6.2.10 Format the Disk Partitions

On each Performance-module instance with an EBS Volume attached, you will need for format the volumes disk partition with the following commands:

Run this command first to get the device name:

```
fdisk -l
```

Then run the following, the example is using the device name of /dev/sdc, which would have been found in the previous command:

```
mkfs /dev/sdc
fdisk /dev/sdc
mke2fs /dev/sdc1
mkdir -p /usr/local/Calpont/data1
mount /dev/sdc1 /usr/local/Calpont/data1 -t ext2 -o rw
df -h
```

2.7 Preparation Summary

All of this hardware needs to be configured by your system administrator prior to installing InfiniDB. In order to have the smoothest installation experience, it is very important that all the hardware, including all the networking, SAN's, etc., be operational before attempting to install InfiniDB. Ensure this hardware successfully starts on a system reboot before installing InfiniDB.

3 Performance Optimization Considerations

There are optimizations that should be made when using InfiniDB listed below. As always, please consult with your network administrator for additional optimization considerations for your specific installation needs.

- Disk I/O Scheduler - should be changed from 'cfq' to 'deadline' for each Database Partition LUN on the Performance Module. Modify `/etc/rc.d/rc.local` to include the following:

```
for scsi_dev in <each mapped drive letter>: do
    echo deadline > /sys/block/$scsi_dev/queue/scheduler
done
```

- GbE NIC settings:

- Modify `/etc/rc.d/rc.local` to include the following:

```
/sbin/ifconfig eth0 txqueuelen 10000
```

- Modify `/etc/sysctl.conf` for the following:

```
# increase TCP max buffer size
net.core.rmem_max = 16777216
net.core.wmem_max = 16777216
# increase Linux autotuning TCP buffer limits
# min, default, and max number of bytes to use
net.ipv4.tcp_rmem = 4096 87380 16777216
net.ipv4.tcp_wmem = 4096 65536 16777216
# don't cache ssthresh from previous connection
net.ipv4.tcp_no_metrics_save = 1
# recommended to increase this for 1000 BT or higher
net.core.netdev_max_backlog = 2500
# for 10 GigE, use this
# net.core.netdev_max_backlog = 30000
```

4 Installing and Configuring InfiniDB

4.1 InfiniDB Software Installation

This section is for a new installation only. If you are performing a software upgrade, please see “Upgrading InfiniDB”.

4.1.1 Installation Overview

Installation Note 1: If you are installing InfiniDB for Windows, please see the InfiniDB Windows Installation and Administrator’s Guide.

Installation Note 2: If you are upgrading from InfiniDB Community 2.2.x to InfiniDB 4, please see the “Upgrading Community 2.2.x to InfiniDB 4”.

Installation Note 3: If you are upgrading from InfiniDB 4 to InfiniDB 4 Enterprise, please see the “Upgrading InfiniDB”.

Installation Note 4: If you are re-configuring from InfiniDB Single-Server to Multiple-Server, please see the “Upgrading Standard Install to Enterprise Install

If a user has been testing on InfiniDB Community and now wants to upgrade to InfiniDB Enterprise, this would be the procedure they would need to follow.

4.2 RPM or DEB Upgrade to Enterprise

If your initial InfiniDB Standard installation was with RPMs or DEBs, you can upgrade to InfiniDB Enterprise by simply installing the appropriate package on each server that InfiniDB is installed.

Note: In order to upgrade from InfiniDB Standard to InfiniDB Enterprise in an RPM or DEB installation, it must be done on the **same** release package (release numbering must match exactly.)

- For example, if you currently have InfiniDB Standard 4.6 installed, you should install the InfiniDB 4.6 Enterprise package.
- You cannot install the 4.6 Enterprise package onto an InfiniDB Standard 4.0.x installation nor can you install the 4.6 Enterprise package on a 4.5.x Standard installation. You must perform a full software upgrade in this case (See “Upgrading InfiniDB” in this Guide for more information.)

Place the enterprise package (RPMs or DEBs) in the **/root** directory on each server in the instance and perform the commands below. InfiniDB does not have to be stopped in order to run these commands.

For RPM installation:

- Download and unpack the Enterprise tarball, which will generate the RPMs.

```
# tar -zxf infinidb-ent-release#.x86_64.tar.gz
```
- Install the Enterprise RPMs

```
# rpm -ivh infinidb-enterprise-release#.x86_64.rpm
```

For DEB installation:

- Download and unpack the Enterprise tarball, which will generate the DEBs.

```
# tar -zxvf infinidb-ent-release#.amd64.deb.tar.gz
```

- Install the Enterprise DEBs

```
# dpkg -i infinidb-enterprise-release#.amd64.deb
```

4.3 Binary Upgrade to Enterprise

Since there is no stand-alone Enterprise package for binary installations, you must perform a full upgrade using the Enterprise binary package in order to upgrade from InfiniDB Community to InfiniDB Enterprise. Please see the binary upgrade procedure in the “Upgrading InfiniDB” section in this Guide for more information.

Re-Configuring from Single-Server to Multi-Server”.

Installation Note 5: Prior to installation, the server(s) to be used should have been mapped out by a systems administrator. Please see “Preparing for Installation”.

There are several types of installs presented in this document:

- RPM Install for Single/Multiple Server
- DEB Install for Single/Multiple Server
- Binary Install for Single/Multiple Server

NOTE: The Binary install procedure would be used to run InfiniDB as a non-root user.

Please reference the appropriate section for the type of install being performed.

4.4 Download and Installation

4.4.1 RPM Download

An RPM install would be done on a system that supports RPMs like RHEL5 or CentOS systems.

Example of rpms:

```
infinidb-libs-release#.x86_64.rpm
infinidb-mysql-release#.x86_64.rpm
infinidb-platform-release#.x86_64.rpm
infinidb-storage-engine-release#.x86_64.rpm
infinidb-enterprise-release#.x86_64.rpm
```

4.4.1.1 Initial Download/Install of RPMs

Install InfiniDB as user *root* on the server designated as PM1:

Note: You may setup users and permissions for a InfiniDB account just as you would in MySQL. Consult the MySQL documentation for further information on these procedures.

- Download the package `infinidb-release#.x86_64.rpm.tar.gz` (RHEL5 64-BIT) (`infinidb-ent-release#.x86_64.rpm.tar.gz` for InfiniDB Enterprise) into the **/root** directory of the server where you are installing InfiniDB.

- Unpack the tarball, which will generate the RPMs:

```
# tar -zxvf infinidb-release#.x86_64.rpm.tar.gz
```

For Enterprise Customers:

```
# tar -zxvf infinidb-ent-release#.x86_64.rpm.tar.gz
```

- Install the RPMs. The InfiniDB software will be installed in `/usr/local/Calpont`.

- For single server and UM/PM combination servers:

```
# rpm -ivh infinidb*release#.rpm
```

- For multi-server (i.e., 1UM, 2PM) on PM1:

```
# rpm -ivh infinidb-platform-release#.x86_64.rpm
infinidb-libs-release#.x86_64.rpm
```

- For multi-server (i.e., 1UM, 2PM) Enterprise Customers on PM1:


```
# rpm -ivh infinidb-platform-release#.x86_64.rpm
infinidb-libs-release#.x86_64.rpm
infinidb-enterprise-release#.x86_64.rpm
```

4.4.2 DEB Download

A DEB install would be done on a system that supports DEBs like Debian or Ubuntu systems.

Example of debs:

```
infinidb-libs-release#.amd64.deb
infinidb-mysql-release#.amd64.deb
infinidb-platform-release#.amd64.deb
infinidb-storage-engine-release#.amd64.deb
infinidb-enterprise-release#.amd64.deb
```

4.4.2.1 Initial Download/Install of DEB package

Install InfiniDB as user *root* on the server designated as PM1:

Note: You may setup users and permissions for a InfiniDB account just as you would in MySQL. Consult the MySQL documentation for further information on these procedures.

- Download the package `infinidb-release#.amd64.deb.tar.gz` (DEB 64-BIT) (`infinidb-ent-release#.amd64.deb.tar.gz` for Enterprise) into the **/root** directory of the server where you are installing InfiniDB.

- Unpack the tarball, which will generate the DEBs:

```
# tar -zxf infinidb-release#.amd64.deb.tar.gz
```

For Enterprise Customers:

```
# tar -zxf infinidb-ent-release#.amd64.deb.tar.gz
```

- Install the InfiniDB DEBs. The InfiniDB software will be installed in `/usr/local/Calpont`.

- For single server and UM/PM combination servers:

```
# dpkg -i infinidb*release#*.deb
```

- For multi-server (i.e., 1UM, 2PM) on PM1:

```
# dpkg -i infinidb-libs-release#.amd64.deb
infinidb-platform-release#.amd64.deb
```

- For multi-server (i.e., 1UM, 2PM) Enterprise Customers on PM1:

```
# dpkg -i infinidb-libs-release#.amd64.deb
infinidb-platform-release#.amd64.deb
infinidb-enterprise-release#.amd64.deb
```

4.4.3 Binary Download

A Binary install would be done on a system that doesn't support RPM or DEB package installs or if the user would just prefer to work with the binaries instead of package software. The Binary install would also need to be used for use with a non-root user.

4.4.3.1 Initial Download/Install of Binary package - root user

Install InfiniDB as user *root* on the server designated as PM1:

Note: You may setup users and permissions for a InfiniDB account just as you would in MySQL. Consult the MySQL documentation for further information on these procedures.

- Download the package `infinidb-release#.x86_64.bin.tar.gz` (Binary 64-BIT) (`infinidb-ent-release#.x86_64.bin.tar.gz` for Enterprise) into the **/usr/local** directory of the server where you are installing InfiniDB. Also copy this package to **/root** if doing a multi-server install so that `postConfigure` can use it for installation on the other servers.
- Unpack the tarball, which will generate the `/usr/local/Calpont` directory.

```
# tar -zxvf infinidb-release#.x86_64.bin.tar.gz
```

For Enterprise Customers:

```
# tar -zxvf infinidb-ent-release#.x86_64.bin.tar.gz
```

- Run the post install scripts. The InfiniDB software will be installed in `/usr/local/Calpont`.

```
# /usr/local/Calpont/bin/post-install
```

4.4.3.2 Initial Download/Install of Binary package - non-root user

InfiniDB can be installed to run as a non-root user using the binary tar file installation. These procedures will also allow you to change the installation from the default install directory into a user-specified directory. There are some features that will not be available if you do not, at some point, have root access.

Features that will not be available if you do not have root access or cannot have the system administrator perform certain actions:

- Automatic system startup. The system administrator must install the InfiniDB startup script using the normal method for your platform. He must also install the InfiniDB defaults file. See `post-installation` at the end of this section.
- Data Duplication. The system administrator must install and maintain data duplication settings.
- Package management. Only the binary tar file installation method is available for non-root users.

For the purpose of these instructions, the following assumptions are:

- Non-root user "infinidb" is used.
- Installing on Redhat 5 Enterprise Edition. Please make relevant adjustment as needed for other OS.
- Installation directory is `/home/infinidb/Calpont`

Tasks involved:

- Create the non-root user (by root user)
- Update sudo configuration (by root user)
- Modify `fstab` if using SAN Mounted files (by root user)
- Uninstall existing InfiniDB installation if needed (by root user)
- Update permissions on certain directories that InfiniDB writes (by root user)
- Set up defaults file
- InfiniDB Installation (by non-root user)
- Enable InfiniDB to start automatically at boot time

Creation of the non-root user (by root user)

Before beginning the binary tar file installation you will need your system administrator to set up accounts for you on every InfiniDB node. The account name must be the same on every node. The password used must be the same on every node. If you subsequently change the password on one node, you must change

it on every node. The user-id must be the same on every node as well. In the examples below we will use the account name 'infinidb' and the password 'calpont'. Additionally, every node must have a basic Linux server package setup and additionally have expect (and all its dependencies) installed.

- create new user

```
adduser infinidb -u 1000
```

The value for user-id must be the same for all nodes.

- Assign password to newly created user

```
passwd infinidb
```

- Log in as user infinidb

```
su - infinidb
```

- Choose an installation directory in which the non-root user has full read-write access. The installation directory must be the same on every node. In the examples below we will use the path '/home/infinidb/Calpont'.

On each host add the following to your startup environment (.bashrc, .profile, etc.)

```
export INFINIDB_INSTALL_DIR=$HOME/Calpont
export PATH=$INFINIDB_INSTALL_DIR/bin:$INFINIDB_INSTALL_DIR/mysql/bin:/usr/sbin:$PATH
export LD_LIBRARY_PATH=$INFINIDB_INSTALL_DIR/lib:$INFINIDB_INSTALL_DIR/mysql/lib/mysql
```

Note that these commands must be available to non-interactive shells. Once changes have been made, verify by running 'ssh user@host env' to ensure these values are displayed.

You must log off and log back in for these environment variables to be effective.

Update sudo configuration (by root user)

The sudo configuration file on each node will need to be modified to add in the non-root user. The recommended way is to use the Unix command, visudo. The following example will add the 'infinidb' user:

```
visudo
```

- Add the following line for the non-root user:

```
infinidb ALL = NOPASSWD: ALL
```

- Comment out the following line, which will allow the user to login without 'tty'

```
#Defaults    requiretty
```

Modify fstab if using SAN Mounted Database Files (by root user)

If you are using a SAN to store the database files, an 'users' option will need to be added to the fstab entries (by the root user). For more information, please see the "SAN Mounted Database Files" section earlier in this guide. Example entries:

```
/dev/sda1 /home/infinidb/Calpont/data1 ext2 noatime,nodiratime,noauto,users 0 0
/dev/sdd1 /home/infinidb/Calpont/data2 ext2 noatime,nodiratime,noauto,users 0 0
```

The disk device being used will need to have its user permissions set to the non-root user name. This is an example command run as 'root' user setting the user ownership of dbroot /dev/sda1 to non-root user of 'infinidb':

```
mke2fs dbroot (i.e., /dev/sda1)
mount /dev/sda1 /tmpdir
chown -R infinidb.infinidb /tmpdir
umount /tmpdir
```

Uninstall existing InfiniDB installation, if needed (by root user)

If InfiniDB has ever before been installed on any of the planned hosts as a root user install, you must have the system administrator verify that no remnants of that installation exist. The non-root installation will not be successful if there are InfiniDB files owned by root on any of the hosts.

- Verify the InfiniDB installation directory does not exist:
The /usr/local/Calpont directory should not exist at all unless it is your target directory, in which case it must be completely empty and owned by the non-root user.
- Verify the /etc/fstab entries are correct for the new installation.
- Verify the /etc/default/infinidb directory does not exist.
- Verify the /var/lock/subsys/mysql-Calpont file does not exist.
- Verify the /tmp/StopCalpont file does not exist.
- There should not be any files or directories owned by root in the /tmp directory
- Remove the existing infinidb service:

```
chkconfig infinidb off
chkconfig mysql-Calpont off
chkconfig --del infinidb
chkconfig --del mysql-Calpont
```

Update permissions on certain directories that InfiniDB writes (by root user)

InfiniDB needs to write to the following directories, which generally are setup for root user write only. The following commands should be executed to make these directories writeable for other users:

```
chmod 777 /var/log
chmod 777 /dev/shm
```

InfiniDB installation (by non-root user)

You should be familiar with the general InfiniDB installation instructions in this guide as you will be asked the same questions during installation.

- Log in as non-root user (infinidb, in our example)

Note: Ensure you are at your home directory before proceeding to the next step

- Now place the Calpont InfiniDB binary tar file in your home directory on the host you will be using as PM1. Untar the binary distribution package to the `/home/infinidb` directory:

```
tar -xf infinidb-release#.x86_64.bin.tar.gz
```

For Enterprise Customers:

```
tar -xf infinidb-ent-release#.x86_64.bin.tar.gz
```

- Run post installation:

```
./Calpont/bin/post-install --installdir=$HOME/Calpont
```

- Run the 3 command lines that were outputted by the previous post-install command, which would look like the following. See the “InfiniDB Configuration” in this guide for more information:

```
export INFINIDB_INSTALL_DIR=/home/infinidb/Calpont
export LD_LIBRARY_PATH=/home/infinidb/Calpont/lib:/home/infinidb/Calpont/mysql/lib/mysql
/home/infinidb/Calpont/bin/postConfigure -i /home/infinidb/Calpont
```

- a. When prompted for package type, enter 'binary'

Enter the Package Type being installed to other servers [rpm,deb,binary] (rpm) > **binary**

- b. When prompted for password, enter the non-user account password OR just hit enter if you have setup the non-root user with password-less ssh keys on all nodes (Please see the “System Administration Information” section earlier in this guide for more information on ssh keys.)

Set up Defaults file (by root user)

Set up the Defaults file for each InfiniDB server:

- Copy `/home/infinidb/Calpont/bin/infinidb.def` to `/etc/default/infinidb` (this is a rename of the file)
- In this default file, change the installation directory entry (`INFINIDB_INSTALL_DIR`) to `/home/infinidb/Calpont`

Post-installation (by root user)

Optional items to assist in InfiniDB auto-start and logging:

- To configure InfiniDB to start automatically at boot time, perform the following steps in each InfiniDB server:
 - Add the following to the `/etc/rc.local` file:

```
su - infinidb -c '/home/infinidb/Calpont/bin/infinidb start'
```

Note: Make sure the above entry is added to the `rc.local` file that gets executed at boot time. Depending on the OS installation, `rc.local` could be in a different location.

- Infinidb will setup and log using your current system logging application in the directory `/var/log/Calpont`. Perform the following if you want to setup to have the InfiniDB logs archived daily and deleted after 7 defaults (default setting):

- Copy file `/home/infinidb/Calpont/bin/calpontLogRotate` to `/etc/logrotate.d/calpont` **(this is a rename of the file)**

4.4.3.3 Moving an Installation to another directory

InfiniDB does not recommend moving an existing InfiniDB installation, but, if you need to, the following instructions can be used as a guideline to accomplishing this task.

CAUTION: You must read and thoroughly understand these procedures. Failure to correctly complete this process may render your database unstartable.

- Stop InfiniDB
- Backup your database and installation directory
- Move or rename the old installation directory. Be careful to preserve the relationship of the directories in the new installation directory and also preserve any symbolic links. The Linux `tar` command is a good choice to do this, but you should consult your Linux administrator if you're not sure how to do this.
- Edit the following files and change all occurrences of the old directory name to the new directory name:

```
/etc/init.d/infinidb
/etc/init.d/mysql-Calpont
/etc/default/infinidb
<infinidb-dir>/etc/Calpont.xml
<infinidb-dir>/mysql/my.cnf
<infinidb-dir>/data1/systemFiles/dbrm/BRM_saves_current
```

4.5 Additional Installation Considerations

The InfiniDB MySQL daemon utilizes port 3306. If another MySQL service or another application is running and utilizing port 3306, the InfiniDB MySQL daemon will need to use another port. This can be done one of 2 ways.

1. Manually change the InfiniDB MySQL config file to use a different port. This would need to be done on each server that the InfiniDB MySQL Daemon runs. This port number needs to be the same on all servers.

To use a different port, update the 2 locations in the following file:

```
/usr/local/Calpont/mysql/my.cnf
port          = 3306
port          = 3306
```

2. `postConfigure` will also check the port availability. If the default is in-use on any server that the InfiniDB MySQL runs, it will prompt the user to enter another port and if that port is available, then it will configure all of the InfiniDB MySQL config files to use that port. Also `postConfigure` has a command line argument where you can specify which port to use.

```
./postConfigure -port 3307
```

You must reserve the following ports to run the InfiniDB software:
8600 - 8700, and 8800

4.6 InfiniDB Configuration

The postConfigure script configures the InfiniDB system.

Note 1: If you are upgrading from InfiniDB Community 2.2.x to InfiniDB 4, please see “Upgrading Community 2.2.x to InfiniDB 4” before continuing.

Note 2: Please see the InfiniDB Multiple-UM Configuration Guide if you want the Local PM Query capability/configuration as there are additional options to be considered.

4.6.1 Common Installation Examples

During postConfigure, there are 2 questions that are asked where the answer given determines the path that postConfigure takes in configuring the system. Those 2 questions are as follows:

```
Select the type of server install [1=single, 2=multi] (2) >
```


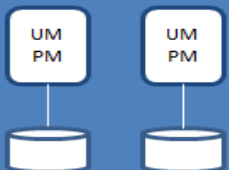
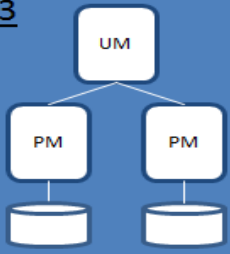
and

```
Select the Type of Module Install being performed:
```

1. Separate - User and Performance functionalites on separate servers
 2. Combined - User and Performance functionalites on the same server
- ```
Enter Server Type ID [1-2] (1) >
```

The following diagram illustrates some common configurations and helps to provide answers to the above questions:

Common InfiniDB Installation Examples

| Configuration          | <u>1</u>                                                                            | <u>2</u>                                                                             | <u>3</u>                                                                              |
|------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                        |  |  |  |
| Type of Server Install | Single                                                                              | Multiple                                                                             | Multiple                                                                              |
| Type of Module Install | Combined                                                                            | Combined                                                                             | Separate                                                                              |

Notes to Installation choices:

- Going from one configuration to another will require a re-installation of the InfiniDB software.
- If installing a single combined functionality server with no plans to add additional servers, configuration #1 should be chosen.

- If installing a single combined functionality server with plans of adding additional servers, configuration #2 should be chosen. A re-installation of the software will not be needed and can be accomplished by using the OAM addModule command.
- As a general rule of thumb, the number of DBRoots should be equal to or greater than the maximum number of planned PMs.

## 4.6.2 postConfigure for Single Server

The following is a transcript of a typical run of the InfiniDB configuration script. Plain-text formatting indicates output from the script and **bold text** indicates responses to questions. After each question there is a short discussion of what the question is asking and what some typical answers might be. You will not see these discussions the running the actual configuration script.

```
/usr/local/Calpont/bin/postConfigure
```

```
This is the InfiniDB System Configuration and Installation tool.
It will Configure the InfiniDB System based on Operator inputs and
will perform a Package Installation of all of the Modules within the
System that is being configured.
```

```
IMPORTANT: This tool should only be run on the Parent OAM Module
 which is either a Performance Module, preferred Module #1.
```

```
Instructions:
```

```
Press 'enter' to accept a value in (), if available or
Enter one of the options within [], if available, or
Enter a new value
```

```
===== Setup System Server Type Configuration =====
```

```
There are 2 options when configuring the System Server Type: single and multi
```

```
'single' - Single-Server install is used when there will only be 1 server
configured on the system. It's a shorter install procedure used for POC testing, as
an example. It can also be used for production systems, if the plan is to stay
single-server.
```

```
'multi' - Multi-Server install is used when you want to configure multiple
servers now or in the future. With Multi-Server install, you can still configure
just 1 server now and add on addition servers/ modules in the future. This is used
more for production installs.
```

```
Select the type of System Server install [1=single, 2=multi] (2) > 1
```

Notes: By this time you should have decided how your system is going to be laid out [e.g. the number of User Modules (UM's), Performance Modules (PM's), etc].

```
Performing a Single Server Install.
```

```
Enter System Name (calpont-1) > myinfinidb2
```



Notes: You should give this system a name that will appear in various OAM utilities, SNMP messages, etc. The name can be composed of any number of printable characters and spaces.

==== Setup High Availability Data Storage Mount Configuration =====

There are 2 options when configuring the storage: internal and external

'internal' - This is specified when a local disk is used for the dbroot storage or the dbroot storage directories are manually mounted externally but no High Availability Support is required

'external' - This is specified when the dbroot directories are externally mounted and High Availability Failover Support is required.

Select the type of Data Storage [1=internal, 2=external] (1) > **<Enter>**

Notes: Choosing internal and using softlinks to point to an externally mounted storage will allow you to use any format (i.e., ext2, ext3, etc.).

Enter the list (Nx,Ny,Nz) or range (Nx-Nz) of dbroot IDs assigned to module 'pm1'  
(1) > 1,2

Notes: The installer will set up the number of dbroot directories based on this answer.

==== InfiniDB SNMP-Trap Process Check =====

InfiniDB is packaged with a SNMP-Trap Process. If the system where InfiniDB is being installed already has SNMP-Trap Process running, then you have the option of disabling InfiniDB's SNMP-Trap Process.

Additional information: Not having the InfiniDB SNMP\_trap Process will affect the generation of InfiniDB Alarms and associated SNMP Traps. Please reference the Calpont InfiniDB Installation Guide for Installs for addition information.

InfiniDB SNMP-Trap Process is enabled, would you like to disable it (y,n) [n] > **<Enter>**

Notes: If you choose to disable (y) but still want the InfiniDB snmp-traps to be generated and sent to a Network Management System, please see the "snmptrap Configuration" section below.

==== Setup the Network Management System (NMS) Server Configuration =====

This would be used to receive SNMP Traps from InfiniDB, like a Network Control Center

Enter IP Address(es) of NMS Server (0.0.0.0) > **<Enter>**

**NOTE: Setting 'NumBlocksPct' to 50%**

**Setting 'TotalUmMemory' to 25% of total memory. Value set to 4G**

Notes: The default maximum for a single server is 16Gb.

Running the Infindb Mysql setup scripts

```
Starting MySQL.. [OK]
Shutting down MySQL. [OK]
```

```
Starting Calpont InfiniDB Database Platform
Starting MySQL.
```

```
Starting InfiniDB Database Plaform, please wait..... DONE
```

```
System Catalog Successfully Created
```

```
InfiniDB Install Successfully Completed, System is Active
```

```
Enter the following command to define InfiniDB Alias Commands
```

```
. /usr/local/Calpont/bin/calpontAlias
```

```
Enter 'idbmysql' to access the mysqld console
```

```
Enter 'cc' to access the InfiniDB OAM console
```

You should proceed with “Final System Configuration”.

### 4.6.3 postConfigure for Multiple Server Configuration

The following is a transcript of a typical run of the InfiniDB configuration script. Plain-text formatting indicates output from the script and bold text indicates responses to questions. After each question there is a short discussion of what the question is asking and what some typical answers might be. You will not see these discussions the running the actual configuration script.

#### # /usr/local/Calpont/bin/postConfigure

```
This is the InfiniDB System Configuration and Installation tool.
It will Configure the InfiniDB System based on Operator inputs and
will perform a Package Installation of all of the Modules within the
System that is being configured.
```

```
IMPORTANT: This tool should only be run on the Parent OAM Module
 which is either a Management Module #1 or Performance Module.
```

```
Instructions:
```

```
 Press 'enter' to accept a value in (), if available or
 Enter one of the options within [], if available, or
 Enter a new value
```

```
===== Setup System Server Type Configuration =====
```

```
There are 2 options when configuring the System Server Type: single and multi
```

```
'single' - Single-Server install is used when there will only be 1 server
configured on the system. It's a shorter install procedure used for POC testing, as
```

an example. It can also be used for production systems, if the plan is to stay single-server.

'multi' - Multi-Server install is used when you want to configure multiple servers now or in the future. With Multi-Server install, you can still configure just 1 server now and add on additional servers/ modules in the future. This is used more for production installs.

Select the type of System Server install [1=single, 2=multi] (2) > **2**

Notes: By this time you should have decided how your system is going to be laid out [e.g. the number of User Modules (UM's), Performance Modules (PM's), etc].

Installing on Amazon System (EC2 or VPC services) [y,n] (n) > **<Enter>**

Notes: Just Enter as we are not installing on an Amazon Instance.

==== Setup System Module Type Configuration =====

There are 2 options when configuring the System Module Type: separate and combined

'separate' - User and Performance functionality on separate servers.

'combined' - User and Performance functionality on the same server

Select the type of System Module Install [1=separate, 2=combined] (2) > **1**

Enter System Name (unassigned) > **myinfinidb2**

Notes: You should give this system a name that will appear in various OAM utilities, SNMP messages, etc. The name can be composed of any number of printable characters and spaces.

Enter the Local Module Name or exit [pmx,exit] (pm1) > **<Enter>**

Notes: By this time you should have decided how your system is going to be laid out [e.g. the number of User Modules (UM's), Performance Modules (PM's), etc].

==== Setup High Availability Data Storage Mount Configuration =====

There are 2 options when configuring the storage: internal and external

'internal' - This is specified when a local disk is used for the dbroot storage or the dbroot storage directories are manually mounted externally but no High Availability Support is required

'external' - This is specified when the dbroot directories are externally mounted and High Availability Failover Support is required.

Select the type of Data Storage [1=internal, 2=external] (1) > **2**

==== Setup Memory Configuration =====

NOTE: Using the default setting for 'NumBlocksPct' at 70%  
Setting 'TotalUmMemory' to 50% of total memory (Combined Server Install  
maximum value is 32G). Value set to 4G

==== Setup the Module Configuration =====

----- User Module Configuration -----

Enter number of User Modules {1-1024} (1) > **<Enter>**

Enter Starting Module ID for User Module (1) > **<Enter>**

Notes: By this time you should have decided how your system is going to be laid out.

\*\*\* User Module #1 Configuration \*\*\*  
\*\*\* User Module #1 Configuration \*\*\*

Enter Nic Interface #1 Host Name (unassigned) > **server1.mycompany.com**

Enter Nic Interface #1 IP Address of server1 (0.0.0.0) > **10.0.0.5**

Notes: If you have a DNS server, once the host name has been entered, the IP Address will display. If not found, then you will need to enter the IP Address.

Enter Nic Interface #2 Host Name (unassigned) > **<Enter>**

Notes: If you have only one NIC, then hitting Enter here will end the NIC configuration for this host. If you supply a host name, you will receive additional prompts for the IP Address(es).

----- Performance Module Configuration -----

Enter number of Performance Modules [1,1024] (1) > **2**

Enter Starting Module ID for Performance Module [1,1023] (1) > **<Enter>**

\*\*\* Parent OAM Module Performance Module #1 Configuration \*\*\*

Enter Nic Interface #1 Host Name (unassigned) > **server2.mycompany.com**

Enter Nic Interface #1 IP Address of server2 (0.0.0.0) > **10.0.0.6**

Enter Nic Interface #2 Host Name (unassigned) > **<Enter>**

Enter the list of dbroot IDs (separated by commas) assigned to module 'pm1' (1) >  
**1,2**

Notes: By this time you should have decided how your system is going to be laid out. This entry should correspond to the number of dbroot entries specific to this PM1 server entered in the PM1 server's fstab (See the above Database Files (DBRoots) section). Not all entries from the fstab would necessarily be entered, some entries might be for other PMs. In this example, the first 2 entries are for PM1.

\*\*\* Performance Module #2 Configuration \*\*\*

```
Enter Nic Interface #1 Host Name (unassigned) > server3.mycompany.com
Enter Nic Interface #1 IP Address of server3 (0.0.0.0) > 10.0.0.7
Enter Nic Interface #2 Host Name (unassigned) > <Enter>
Enter the list of dbroot IDs (separated by commas) assigned to module 'pm1' (1) >
3,4
```

Notes: By this time you should have decided how your system is going to be laid out. This entry should correspond to the number of dbroot entries specific to this PM2 server entered in the PM2 server's fstab (See the above Database Files (DBRoots) section). Not all entries from the fstab would necessarily be entered, some entries might be for other PMs. In this example, the first 2 entries are for PM2.

===== InfiniDB SNMP-Trap Process Check =====

InfiniDB is packaged with a SNMP-Trap Process. If the system where InfiniDB is being installed already has SNMP-Trap Process running, then you have the option of disabling InfiniDB's SNMP-Trap Process.  
Additional information: Not having the InfiniDB SNMP\_trap Process will effect the generation of InfiniDB Alarms and associated SNMP Traps. Please reference the Calpont InfiniDB Installation Guide for Installs for addition information.

```
InfiniDB SNMP-Trap Process is enabled, would you like to disable it (y,n) [n] >
<Enter>
```

Notes: If you choose to disable (y) but still want the InfiniDB snmp-traps to be generated and sent to a Network Management System, please see the "snmptrap Configuration" section below.

===== Setup the Network Management System (NMS) Server Configuration =====

This would be used to receive SNMP Traps from InfiniDB, like a Network Control Center  
Enter IP Address(es) of NMS Server (0.0.0.0) > **<Enter>**

Notes: By this time you should have decided how your system is going to be laid out.

===== Setup the External Device Configuration =====

External Devices are devices like a storage array or a Ethernet Switch that can be setup to be monitored by InfiniDB with a ping test. If device fails, InfiniDB will report a failure alarm.

```
Would you like to add an External Device? [y,n] (n) > <Enter>
```

Notes: Leave this setting at its default, unless otherwise directed by InfiniDB Product Support

===== System Server Installation =====

System Configuration is complete, System Server Installation is the next step. The Calpont InfiniDB Package will be distributed and installed on all of the other system Servers.

Would you like to continue with the System Server Installations? [y,n] (y) >  
**<Enter>**

Enter the Package Type being installed to other servers [rpm,deb,binary] (rpm) >  
**rpm**

Performing an InfiniDB System install using RPM packages located in the /root/ directory.

Next step is to enter the password to access the other Servers. This is either the or you can default to use a ssh key. If using the root password, the password needs to be the same on all Servers.

Enter the 'root' password, hit 'enter to default to using a ssh key or 'exit' >  
**XXXXXXXX**  
Confirm password > **XXXXXXXX**

----- Performing Install on Module 'um1 / server1' -----

Install log file is located here: /var/log/Calpont/ um1\_rpm\_install.log

----- Performing Install on Module 'pm2 / server2' -----

Install log file is located here: /var/log/Calpont/ pm2\_rpm\_install.log

InfiniDB System Configuration and Installation is Completed

**Notes: The Binary Installation will show slightly different status output.**

===== Infinidb System Startup =====

System Installation is complete. If any part of the install failed, the problem should be investigated and resolved before continuing.

Would you like to startup the InfiniDB System? [y,n] (y) > **<Enter>**

----- Starting InfiniDB on Server 'um1' -----

InfiniDB successfully started

----- Starting InfiniDB on Server 'pm2' -----

InfiniDB successfully started

----- Starting InfiniDB on local Server -----

InfiniDB successfully started

----- Starting InfiniDB System -----

Starting InfiniDB Database Platform  
InfiniDB successfully started

```
InfiniDB Database Platform Starting, please wait DONE
Run Upgrade Script.. DONE
System Catalog Successfully Created
InfiniDB Install successfully Completed, System is Active
Enter the following command to define InfiniDB Alias Commands
. /usr/local/Calpont/bin/calpontAlias
Enter 'idbmysql' to access the mysqld console
Enter 'cc' to access the InfiniDB OAM console
```

This ends the configuration process for a multiple server configuration. You should proceed with “Final System Configuration”.

## 4.7 Amazon Installation

Before proceeding with an Amazon standard installation, please see the “Amazon Setup” for preparation of the Amazon server.

As mentioned in the Amazon Setup section, InfiniDB will run on both an EC2 and VPC environment. The only difference you will see in the postConfigure installation process is where you select a VPC install, it will prompt for the VPC-Subnet-ID. The rest of the postConfigure install process will be the same.

### 4.7.1 postConfigure for Amazon Single Server Configuration

The postConfigure setup for a single server Amazon setup is the same process as the postConfigure for Single Server above.

### 4.7.2 postConfigure for Amazon Multi-Server Configuration

The following is a transcript of a typical run of the InfiniDB configuration script for an Amazon configuration. Plain-text formatting indicates output from the script and bold text indicates responses to questions. After each question there is a short discussion of what the question is asking and what some typical answers might be. You will not see these discussions the running the actual configuration script.

```
/usr/local/Calpont/bin/postConfigure
```

```
This is the InfiniDB System Configuration and Installation tool.
It will Configure the InfiniDB System based on Operator inputs and
will perform a Package Installation of all of the Modules within the
System that is being configured.
```

IMPORTANT: This tool should only be run on the Parent OAM Module

which is either a Management Module #1 or Performance Module.

#### Instructions:

Press 'enter' to accept a value in (), if available or  
Enter one of the options within [], if available, or  
Enter a new value

#### ===== Setup System Server Type Configuration =====

There are 2 options when configuring the System Server Type: single and multi

'single' - Single-Server install is used when there will only be 1 server configured on the system. It's a shorter install procedure used for POC testing, as an example. It can also be used for production systems, if the plan is to stay single-server.

'multi' - Multi-Server install is used when you want to configure multiple servers now or in the future. With Multi-Server install, you can still configure just 1 server now and add on addition servers/ modules in the future. This is used more for production installs.

Select the type of System Server install [1=single, 2=multi] (2) > **2**

**Notes:** By this time you should have decided how your system is going to be laid out [e.g. the number of User Modules (UM's), Performance Modules (PM's), etc].

Installing on Amazon System (EC2 or VPC services) [y,n] (n) > **Y**

Using EC2 services [y,n] (n) > **Y**

**Notes:** Select 'Y' as we are now installing on an Amazon EC2 Instance.

For Amazon EC2 Instance installs, these files will need to be installed on the local instance:

1. X.509 Certificate
2. X.509 Private Key

Are these files installed and ready to continue (y,n) [y] > **<Enter>**

Enter Name and directory of the X.509 Certificate (unassigned) >  
**/root/my\_x.509\_certificate.pem**

Enter Name and directory of the X.509 Private Key (unassigned) >  
**/root/pk-my\_x.509\_privatekey.pem**

**Notes:** These files are the x.509 files that you SCP'd onto the Amazon instance.

#### ===== Setup System Module Type Configuration =====

There are 2 options when configuring the System Module Type: separate and combined

'separate' - User and Performance functionality on separate servers.



'combined' - User and Performance functionality on the same server

Select the type of System Module Install [1=separate, 2=combined] (2) > **1**

NOTE: Using the default setting for 'NumBlocksPct' at 86%  
Setting 'TotalUmMemory' to 50% of total memory (Separate Server  
Install maximum value is 32G). Value set to 512M

Enter System Name (unassigned) > **myinfinidb\_EC2**

Notes: You should give this system a name that will appear in various OAM utilities, SNMP messages, etc.  
The name can be composed of any number of printable characters and spaces.

Enter the Local Module Name or exit [pmx,exit] (pm1) > **<Enter>**

Notes: By this time you should have decided how your system is going to be laid out [e.g. the number of  
User Modules (UM's), Performance Modules (PM's), etc].

==== Setup High Availability Frontend MySQL Data Storage Mount Configuration =====

There are 2 options when configuring the storage: internal and external

'internal' - This is specified when a local disk is used for the dbroot  
storage or the dbroot storage directories are manually mounted externally  
but no High Availability Support is required

'external' - This is specified when the dbroot directories are externally  
mounted and High Availability Failover Support is required.

Select the type of Data Storage [1=internal, 2=external] (2) > **2**

==== Setup High Availability Data Storage Mount Configuration =====

There are 2 options when configuring the storage: internal and external

'internal' - This is specified when a local disk is used for the dbroot  
storage or the dbroot storage directories are manually mounted externally but  
no High Availability Support is required

'external' - This is specified when the dbroot directories are externally  
mounted and High Availability Failover Support is required.

Select the type of Data Storage [1=internal, 2=external] (1) > **2**

==== Setup the Module Configuration =====

----- User Module Configuration -----

Enter number of User Modules {1-1024} (1) > **<Enter>**

Enter Starting Module ID for User Module (1) > **<Enter>**

Notes: By this time you should have decided how your system is going to be laid out.

\*\*\* User Module #1 Configuration \*\*\*

Enter EC2 Instance ID (unassigned) > **i-b122f0d1**

Getting Private IP Address for Instance i-b122f0d1, please wait...

Private IP Address of i-b122f0d1 is 10.202.213.87

Enter Volume Name assigned to module 'um1' (unassigned) > **vol-abf456d0**

Enter Device Name assigned to module 'um1' (unassigned) > **/dev/sdf1**

----- Performance Module Configuration -----

Enter number of Performance Modules [1,1024] (1) > **2**

Enter Starting Module ID for Performance Module [1,1023] (1) > **<Enter>**

\*\*\* Parent OAM Module Performance Module #1 Configuration \*\*\*

Enter EC2 Instance ID (unassigned) > **i-b122f0d4**

Getting Private IP Address for Instance i-b122f0d4, please wait...

Private IP Address of i-b122f0d4 is 10.202.213.135

Enter the list (Nx,Ny,Nz) or range (Nx-Nz) of dbroot IDs assigned to module 'pm1' (unassigned) > **1**

Enter Volume Name assigned to 'DBRoot1' () > **vol-742ec818**

Enter Device Name for volume 'vol-742ec818' () > **/dev/sdh**

Checking if Volume vol-742ec818 is attached , please wait...

Volume vol-742ec818 is attached

Make sure its device **/dev/sdh** is mounted to dbroot directory /usr/local/Calpont/data1

Notes: By this time you should have decided how your system is going to be laid out. This entry should correspond to the number of dbroot entries entered in the PM1 server's fstab (See the above "Database Files (DBRoots)").

\*\*\* Performance Module #2 Configuration \*\*\*

Enter EC2 Instance ID (unassigned) > **i-b122f0d2**

Getting Private IP Address for Instance i-b122f0d2, please wait...

Private IP Address of i-b122f0d2 is 10.202.34.205

Enter the list (Nx,Ny,Nz) or range (Nx-Nz) of dbroot IDs assigned to module 'pm1' (unassigned) > **2**

Enter Volume Name assigned to 'DBRoot1' () > **vol-dc2ec8b0**

Enter Device Name for volume 'vol-742ec818' () > **/dev/sdi**

Checking if Volume vol-dc2ec8b0 is attached , please wait...

Volume vol-dc2ec8b0 is attached

Make sure its device **/dev/sdi** is mounted to dbroot directory /usr/local/Calpont/data2

Notes: By this time you should have decided how your system is going to be laid out. This entry should correspond to the number of dbroot entries entered in the PM2 server's fstab (See the above "Database Files (DBRoots)").

===== InfiniDB SNMP-Trap Process Check =====

InfiniDB is packaged with a SNMP-Trap Process. If the system where InfiniDB is being installed already has SNMP-Trap Process running, then you have the option of disabling InfiniDB's SNMP-Trap Process.

Additional information: Not having the InfiniDB SNMP\_trap Process will effect the generation of InfiniDB Alarms and associated SNMP Traps. Please reference the Calpont InfiniDB Installation Guide for Installs for addition information.

InfiniDB SNMP-Trap Process is enabled, would you like to disable it (y,n) [n] >

**<Enter>**

Notes: If you choose to disable (y) but still want the InfiniDB snmp-traps to be generated and sent to a Network Management System, please see the "snmptrap Configuration" section below.

===== Setup the Network Management System (NMS) Server Configuration =====

This would be used to receive SNMP Traps from InfiniDB, like a Network Control Center

Enter IP Address(es) of NMS Server (0.0.0.0) > **<Enter>**

Notes: By this time you should have decided how your system is going to be laid out.

===== Setup the External Device Configuration =====

External Devices are devices like a storage array or a Ethernet Switch that can be setup to be monitored by InfiniDB with a ping test. If device fails, InfiniDB will report a failure alarm.

Would you like to add an External Device? [y,n] (n) > **<Enter>**

Notes: Leave this setting at its default, unless otherwise directed by InfiniDB Product Support

===== System Server Installation =====

System Configuration is complete, System Server Installation is the next step. The Calpont InfiniDB Package will be distributed and installed on all of the other system Servers.

Would you like to continue with the System Server Installations? [y,n] (y) >

**<Enter>**

Enter the Package Type being installed to other servers [rpm,deb,binary] (rpm) >

**rpm**

Performing an InfiniDB System install using RPM packages located in the /root/ directory.

Next step is to enter the password to access the other Servers. This is either the or you can default to use a ssh key. If using the root password, the password needs to be the same on all Servers.

Enter the 'root' password, hit 'enter to default to using a ssh key or 'exit' >

**XXXXXXXX**

Confirm password > **XXXXXXXX**

**----- Performing Install on Module 'um1 / i-b122f0d1' -----**

Install log file is located here: /var/log/Calpont/  
um1\_rpm\_install.log

**----- Performing Install on Module 'pm2 / i-b122f0d2' -----**

Install log file is located here: /var/log/Calpont/  
pm2\_rpm\_install.log

InfiniDB System Configuration and Installation is Completed

**Notes: The Binary Installation will show slightly different status output.**

===== Infinidb System Startup =====

System Installation is complete. If any part of the install failed, the problem should be investigated and resolved before continuing.

Would you like to startup the InfiniDB System? [y,n] (y) > **<Enter>**

**----- Starting InfiniDB on Server 'um1' -----**

InfiniDB successfully started

**----- Starting InfiniDB on Server 'pm2' -----**

InfiniDB successfully started

**----- Starting InfiniDB on local Server -----**

InfiniDB successfully started

**----- Starting InfiniDB System -----**

Starting InfiniDB Database Platform

InfiniDB successfully started

InfiniDB Database Platform Starting, please wait ..... DONE

Run Upgrade Script.. DONE

System Catalog Successfully Created

InfiniDB Install successfully Completed, System is Active

Enter the following command to define InfiniDB Alias Commands

```
. /usr/local/Calpont/bin/calpontAlias
```

Enter 'idbmysql' to access the mysqld console

Enter 'cc' to access the InfiniDB OAM console

This ends the configuration process for a Amazon EC2 multiple server configuration. You should proceed with “Final System Configuration”.

## 4.8 InfiniDB Aliases

The following InfiniDB Aliases will be created via the postConfigure script:

```
calpontOAMconsole = /usr/local/Calpont/bin/calpontConsole
idbmysql = /usr/local/Calpont/mysql/bin/mysql
 --defaults-file=/usr/local/Calpont/mysql/my.cnf -u
 root
cc = /usr/local/Calpont/bin/calpontConsole
cmconsole = /usr/local/Calpont/bin/calpontConsole

calpontOAMconsole: Launches the Calpont InfiniDB OAM Console
idbmysql: Launches the Calpont InfiniDB MySQL Console
cc: Launches the Calpont InfiniDB OAM Console
cmconsole: Launches the Calpont InfiniDB OAM Console
```

These aliases are provided for convenience only and may be modified at your discretion.

## 4.9 Final System Configuration

### 4.9.1 System Status

Log onto PM1 and verify that the InfiniDB software has started by entering the command.

#### 4.9.1.1 Single Server Status Display

```
cc getsystemstatus
getsystemstatus Tue Jan 12 08:07:02 2012
System myinfinidb1
System and Module statuses
Component Status Last Status Change

System ACTIVE Mon Jan 11 17:54:46 2012
Module pm1 ACTIVE Mon Jan 11 17:54:45 2012
```

#### 4.9.1.2 Multi-Server Status Display

```
cc getsystemstatus
getsystemstatus Wed Jan 13 14:40:26 2012
System myinfinidb2
System and Module statuses
```

| Component  | Status | Last Status Change       |
|------------|--------|--------------------------|
| System     | ACTIVE | Wed Jan 13 14:40:24 2012 |
| Module um1 | ACTIVE | Wed Jan 13 14:40:16 2012 |
| Module pm1 | ACTIVE | Wed Jan 13 14:40:23 2012 |
| Module pm2 | ACTIVE | Wed Jan 13 14:39:58 2012 |

## 4.9.2 snmptrap Configuration

If you choose to have the InfiniDB snmptrap daemon disabled by postConfigure (due to that there is already a snmptrap daemon running on the system), but you still want the InfiniDB snmp-traps to be generated and sent to a Network Management System, the following procedure should be used:

- Stop the current running snmptrap daemon with service or directly running the script in /etc/init.d

```
service snmptrapd stop
cd /etc
```
- Edit the snmptrapd.conf to add in the InfiniDB entries (10.100.3.41 in the below example is the IP address of the NMS server catching the traps):

```
forward .1.3.6.1.2.1.88 10.100.3.41
forward .1.3.6.1.4.1.2021 10.100.3.41
forward default 10.100.3.41
traphandle .1.3.6.1.2.1.88 /usr/local/Calpont/bin/trapHandler agentTrap
traphandle UCD-SNMP-MIB::ucdavis /usr/local/Calpont/bin/trapHandler
processAlarm
```

- Start the current running snmptrap daemon with service or directly running the script in /etc/init.d

```
service snmptrapd start
```

## 4.9.3 Setting Permissions

Please see “Granting Access for Users” in the InfiniDB Administrator’s Guide on setting initial permissions for user accounts.

## 5 Logging Into and Using InfiniDB

### 5.1 Logging into InfiniDB

Logging into InfiniDB is simply typing the following at a Linux command prompt, assuming the aliases have been created:

```
idbmysql
```

**Note:** If you have a previously created database, you may specify the database name when logging in:

```
idbmysql mydb
```

### 5.2 Using InfiniDB

Once in, standard procedures for syntax may be followed. Please reference the **InfiniDB SQL Syntax Guide** for further information. The following example shows a simple table creation and query within InfiniDB:

```
mysql> use mydb;
Database changed
```

```
mysql> create table mytable1 (col1 int, col2 varchar(10)) engine=infinidb;
Query OK, 0 rows affected (5.80 sec)
```

```
mysql> insert into mytable1 values (1, 'Row 1 Test'), (2, 'Row 2 Test');
Query OK, 2 rows affected (0.49 sec)
Records: 2 Duplicates: 0 Warnings: 0
```

```
mysql> select * from mytable1;
+-----+-----+
| col1 | col2 |
+-----+-----+
| 1 | Row 1 Test |
| 2 | Row 2 Test |
+-----+-----+
2 rows in set (0.15 sec)
```

```
mysql>
```

## 6 Upgrading InfiniDB

### 6.1 Important Release Upgrade Note

This release may be upgraded from a 3.x.x release.

For existing InfiniDB 2.2 customers:

- If your configuration consists of multiple dbroots on multiple PMs, please contact Support for this configuration prior to upgrading.

### 6.2 InfiniDB Software Upgrade

This section is for a upgrade only. If you are performing a new install, please see “Installing and Configuring InfiniDB”.

#### 6.2.1 Upgrade Overview

**Upgrade Note 1:** Calpont.xml modifications you have made are not automatically carried forward on an upgrade. These modifications will need to be incorporated back into Calpont.xml once the upgrade has occurred.

**Upgrade Note 2:** If you are upgrading from InfiniDB Community 2.2.x to InfiniDB 4, please see the “Upgrading Community 2.2.x to InfiniDB 4”.

**Upgrade Note 3:** If you are upgrading InfiniDB for Windows, please see the InfiniDB Windows Installation and Administrator’s Guide.

**Upgrade Note 4:** If you are upgrading from InfiniDB Standard to InfiniDB Enterprise, please see the “Upgrading Standard Install to Enterprise Install”.

**Upgrade Note 5:** If you are re-configuring from InfiniDB Single-Server to Multiple-Server, please see the “Upgrading Standard Install to Enterprise Install”

If a user has been testing on InfiniDB Community and now wants to upgrade to InfiniDB Enterprise, this would be the procedure they would need to follow.

### 6.3 RPM or DEB Upgrade to Enterprise

If your initial InfiniDB Standard installation was with RPMs or DEBs, you can upgrade to InfiniDB Enterprise by simply installing the appropriate package on each server that InfiniDB is installed.

**Note:** In order to upgrade from InfiniDB Standard to InfiniDB Enterprise in an RPM or DEB installation, it must be done on the **same** release package (release numbering must match exactly.)

- For example, if you currently have InfiniDB Standard 4.6 installed, you should install the InfiniDB 4.6 Enterprise package.



- You cannot install the 4.6 Enterprise package onto an InfiniDB Standard 4.0.x installation nor can you install the 4.6 Enterprise package on a 4.5.x Standard installation. You must perform a full software upgrade in this case (See “Upgrading InfiniDB” in this Guide for more information.)

Place the enterprise package (RPMs or DEBs) in the **/root** directory on each server in the instance and perform the commands below. InfiniDB does not have to be stopped in order to run these commands.

For RPM installation:

- Download and unpack the Enterprise tarball, which will generate the RPMs.

```
tar -zxf infinidb-ent-release#.x86_64.tar.gz
```

- Install the Enterprise RPMs

```
rpm -ivh infinidb-enterprise-release#.x86_64.rpm
```

For DEB installation:

- Download and unpack the Enterprise tarball, which will generate the DEBs.

```
tar -zxf infinidb-ent-release#.amd64.deb.tar.gz
```

- Install the Enterprise DEBs

```
dpkg -i infinidb-enterprise-release#.amd64.deb
```

## 6.4 *Binary Upgrade to Enterprise*

Since there is no stand-alone Enterprise package for binary installations, you must perform a full upgrade using the Enterprise binary package in order to upgrade from InfiniDB Community to InfiniDB Enterprise. Please see the binary upgrade procedure in the “Upgrading InfiniDB” section in this Guide for more information.

## Re-Configuring from Single-Server to Multi-Server”.

InfiniDB upgrades follow the same basic path as for an installation. There are several types of upgrades presented in this chapter:

- RPM Upgrade for Single/Multiple Server
- DEB Upgrade for Single/Multiple Server
- Binary Upgrade for Single/Multiple Server

**NOTE:** The Binary upgrade procedure would be used to run InfiniDB as a non-root user.

Please reference the appropriate section for the type of install being performed.

### 6.4.1 Amazon Upgrade

An upgrade of an Amazon instance will follow these same upgrade procedures regardless if the initial installation was performed thru an Amazon Machine Image (AMI) or thru an Amazon Standard installation.

#### 6.4.1.1 Amazon Upgrade from Standard to Enterprise

If you are upgrading an Amazon instance from standard InfiniDB to InfiniDB Enterprise, you would need to unpack the tarball and place the enterprise RPMs (or DEBs) on each server in the instance and perform the following command:

For RPM installation:

```
rpm -ivh infinidb-enterprise-release#.x86_64.rpm
```

For DEB installation:

```
dpkg -i infinidb-enterprise-release#.amd64.deb
```

### 6.5 Stopping InfiniDB

You must stop the InfiniDB system before performing any type of upgrade. The following command should be used:

If upgrading from a release 2.0 and above, the following command should be used:

```
/usr/local/Calpont/bin/calpontConsole shutdownsystem y
```

If upgrading from a release earlier than 2.0, the following command should be used:

```
/usr/local/Calpont/bin/calpontConsole stopsystem INSTALL y
```

Note: If aliases have been set up, you may use them also(e.g., cc shutdownsystem y)

### 6.6 Download and Installation

#### 6.6.1 RPM Download

An RPM upgrade would be done on a system that supports RPMs like RHEL5 or CentOS systems.

Example of rpms:

```
infinidb-libs-release#.x86_64.rpm
infinidb-mysql-release#.x86_64.rpm
infinidb-platform-release#.x86_64.rpm
infinidb-storage-engine-release#.x86_64.rpm
infinidb-enterprise-release#.x86_64.rpm
```

### 6.6.1.1 Initial Download/Install of RPMs

Install InfiniDB as user *root* on the server designated as PM1:

**Note:** You may setup users and permissions for a InfiniDB account just as you would in MySQL. Consult the MySQL documentation for further information on these procedures.

- Download the package into the **/root** directory `infinidb-release#.x86_64.tar.gz` (RHEL5 64-BIT) to the server where you are installing InfiniDB.

- Make a backup of InfiniDB MySQL Configuration file.

```
mv /usr/local/Calpont/mysql/my.cnf
 /usr/local/Calpont/mysql/my.cnf.rpmsave
```

- Unpack the tarball, which will generate the RPMs.

```
tar -zxf infinidb-release#.x86_64.tar.gz
```

- Erase the RPMS.

- For single server and UM/PM combination servers:

- Upgrading from pre-4.0:

```
rpm -e calpont calpont-mysql calpont-mysqld
```

- Upgrading from post-4.0:

```
rpm -e infinidb-libs infinidb-mysql
 infinidb-platform infinidb-storage-engine
```

- For post-4.0 Enterprise Customers, you must erase an additional RPM:

```
rpm -e infinidb-enterprise
```

- For multi-server (i.e., 1UM, 2PM) on PM1:

- Upgrading from pre-4.0:

```
rpm -e calpont
```

- Upgrading from post-4.0:

```
rpm -e infinidb-libs infinidb-platform
```

- For post-4.0 Enterprise Customers, you must erase an additional RPM:

```
rpm -e infinidb-enterprise
```

- Install the RPMs. The InfiniDB software will be installed in `/usr/local/Calpont`.

- For single server and UM/PM combination servers:

```
rpm -ivh infinidb*release#*.rpm
```

- For multi-server (i.e., 1UM, 2PM) on PM1:
 

```
rpm -ivh infinidb-platform-release#.x86_64.rpm
 infinidb-libs-release#.x86_64.rpm
```
- For multi-server (i.e., 1UM, 2PM) Enterprise Customers on PM1:
 

```
rpm -ivh infinidb-platform-release#.x86_64.rpm
 infinidb-libs-release#.x86_64.rpm
 infinidb-enterprise-release#.x86_64.rpm
```
- For RPM Upgrade, the previous InfiniDB configuration file will be saved as:
 

```
/usr/local/Calpont/etc/Calpont.xml.rpmsave
```
- Any changes made to the my.cnf would need to be manually carried forward to the current my.cnf.

## 6.6.2 DEB Download

A DEB upgrade would be done on a system that supports DEBs like Debian or Ubuntu systems.

Example of debs:

```
infinidb-libs-release#.amd64.deb
infinidb-mysql-release#.amd64.deb
infinidb-platform-release#.amd64.deb
infinidb-storage-engine-release#.amd64.deb
infinidb-enterprise-release#.amd64.deb
```

### 6.6.2.1 Initial Download/Install of DEB package

Install InfiniDB as user *root* on the server designated as PM1:

- Download the package into the **/root** directory
 

```
infinidb-release#.amd64.deb.tar.gz (DEB 64-BIT) (infinidb-enterprise-release#.amd64.deb.tar.gz for Enterprise Customers) to the server where you are installing InfiniDB.
```
- Make backup of InfiniDB MySQL Configuration file.
 

```
mv /usr/local/Calpont/mysql/my.cnf
 /usr/local/Calpont/mysql/my.cnf.rpmsave
```
- Unpack the tarball, which will generate the DEBs.
 

```
tar -zxf infinidb-release#.amd64.deb.tar.gz
```

For Enterprise Customers:

```
tar -zxf infinidb-enterprise-release#.amd64.deb.tar.gz
```
- Remove, purge and install all InfiniDB DEBs:
 

```
cd /root/
```

  - For single server and UM/PM combination servers:
    - Upgrading from pre-4.0:
 

```
dpkg -r calpont calpont-mysql calpont-mysqld
 # dpkg -P calpont calpont-mysql calpont-mysqld
```
    - Upgrading from post-4.0:
 

```
dpkg -r infinidb-libs infinidb-mysql
 infinidb-platform infinidb-storage-engine
```

- ```
# dpkg -P infinidb-libs infinidb-mysql
infinidb-platform infinidb-storage-engine
```
- For post-4.0 Enterprise Customers, you must erase an additional RPM:


```
# dpkg -r infinidb-enterprise
# dpkg -P infinidb-enterprise
```
 - For multi-server (i.e., 1UM, 2PM) on PM1:
 - Upgrading from pre-4.0:


```
# dpkg -r calpont
# dpkg -P calpont
```
 - Upgrading from post-4.0:


```
# dpkg -r infinidb-libs infinidb-platform
# dpkg -P infinidb-libs infinidb-platform
```
 - For post-4.0 Enterprise Customers, you must erase an additional RPM:


```
# dpkg -r infinidb-enterprise
# dpkg -P infinidb-enterprise
```
 - Install the InfiniDB DEBs. The InfiniDB software will be installed in `/usr/local/Calpont`.
 - For single server and UM/PM combination servers:


```
# dpkg -i infinidb*release#.deb
```
 - For multi-server (i.e., 1UM, 2PM) on PM1:


```
# dpkg -i infinidb-libs-release#.amd64.deb
infinidb-platform-release#.amd64.deb
```
 - For multi-server (i.e., 1UM, 2PM) Enterprise Customers on PM1:


```
# dpkg -i infinidb-libs-release#.amd64.deb
infinidb-platform-release#.amd64.deb
infinidb-enterprise-release#.amd64.deb
```
 - Any changes made to the `my.cnf` would need to be manually carried forward to the current `my.cnf`.

6.6.3 Binary Download

A Binary upgrade would be done on a system that doesn't support RPM or DEB package upgrades or if the user would just prefer to work with the binaries instead of package software.

6.6.3.1 Initial Download/Install of Binary package - root user

Install InfiniDB as user *root* on the server designated as PM1:

- Download the package into the `/usr/local` directory the `infinidb-release#.x86_64.bin.tar.gz` (Binary 64-BIT) (`infinidb-enterprise-release#.x86_64.bin.tar.gz` for Enterprise Customers) to the server where you are installing InfiniDB. Also copy this package to `/root` if doing a multi-server upgrade so that `postConfigure` can use it for installation on the other servers.
- Shut down InfiniDB

```
# /usr/local/Calpont/bin/calpontConsole shutdownsystem y
```

- Run pre-uninstall script

```
# /usr/local/Calpont/bin/pre-uninstall
```

- Make backup of InfiniDB Configuration files. This step is important in that it will allow for automatic utilization of the Calpont.xml configuration data when running the postConfigure script.

```
# mv /usr/local/Calpont/etc/Calpont.xml
   /usr/local/Calpont/etc/Calpont.xml.rpmsave
```

```
# mv /usr/local/Calpont/mysql/my.cnf
   /usr/local/Calpont/mysql/my.cnf.rpmsave
```

- Unpack the tarball, which will generate the /usr/local/Calpont directory.

```
# tar -zxvf infinidb-release#.x86_64.bin.tar.gz
```

For Enterprise Customers:

```
# tar -zxvf infinidb-ent-release#.x86_64.bin.tar.gz
```

- Run post-install scripts

```
# /usr/local/Calpont/bin/post-install
```

- Any changes made to the my.cnf would need to be manually carried forward to the current my.cnf.

6.6.3.2 Initial Download/Install of Binary package - non-root user

Install InfiniDB as non-root user (infinidb, in this example) on the server designated as PM1:

- Download the package into the **/home/infinidb** directory the `infinidb-release#.x86_64.bin.tar.gz` (Binary 64-BIT) (`infinidb-ent-release#.x86_64.bin.tar.gz` for Enterprise Customers) to the server where you are installing InfiniDB.

- Shut down Infinidb

```
# /usr/local/Calpont/bin/calpontConsole shutdownsystem y
```

1. Run pre-uninstall script

```
# /usr/local/Calpont/bin/pre-uninstall -installdir=$HOME/Calpont
```

2. Make backup of InfiniDB Configuration files. This step is important in that it will allow for automatic utilization of the Calpont.xml configuration data when running the postConfigure script.

```
# mv /usr/local/Calpont/etc/Calpont.xml
   /usr/local/Calpont/etc/Calpont.xml.rpmsave
```

```
# mv /usr/local/Calpont/mysql/my.cnf
   /usr/local/Calpont/mysql/my.cnf.rpmsave
```

3. Unpack the tarball, which will generate the /usr/local/Calpont directory.

```
# tar -zxvf infinidb-release#.x86_64.bin.tar.gz
```

For Enterprise Customers:

```
# tar -zxvf infinidb-ent-release#.x86_64.bin.tar.gz
```

4. Run post-install scripts

```
# /usr/local/Calpont/bin/post-install -installdir=$HOME/Calpont
```

Any changes made to the my.cnf would need to be manually carried forward to the current my.cnf.

6.7 InfiniDB Configuration

The upgrade for either single server or multiple server follows the same basic steps as for a new install.

6.7.1 postConfigure 'no-prompt' Upgrade option

The installer script 'postConfigure' supports an option called 'no-prompt' install meaning it will automatically run through the postConfigure script using pre-configured settings taken from a Calpont.xml file. During the InfiniDB package upgrade process, the InfiniDB configuration file of Calpont.xml is saved as Calpont.xml.rpmsave. 'postConfigure' reads this file and uses the configuration data when upgrading to a new InfiniDB package. If the 'no-prompt' option is specified, it will just run right through postConfigure and not stopping on the normal prompts where the user can confirm or change the configuration settings. If the 'no-prompt' option is not used, then the prompting will be done and the user can either keep the current setting or change it.

If you are performing an upgrade where no system configuration settings need to be done, using the 'no-prompt' option is a faster way to run the install.

When the 'no-prompt' option is used for multi-server installs, you will either need to setup 'root' user ssh keys between the servers (Please see the "System Administration Information" section earlier in this guide for more information on ssh keys) or provide the root password as a command line option.

The 'no-prompt' defaults to using Calpont.xml.rpmsave located in /usr/local/Calpont/ etc, but the user can provide via a command line option a different file to be used, if so desired.

To get additional information on the 'postConfigure' options, enter:

```
/usr/local/Calpont/bin/postConfigure -h
```

The following is an example command of performing a 'no-prompt' install using Calpont.xml.rpmsave and providing the root password:

```
/usr/local/Calpont/bin/postConfigure -n -p 'root-password'
```

6.7.2 postConfigure for Single Server

The following is a transcript of a typical run of the InfiniDB configuration script. Plain-text formatting indicates output from the script and **bold text** indicates responses to questions. After each question there is a short discussion of what the question is asking and what some typical answers might be. You will not see these discussions the running the actual configuration script.

```
# /usr/local/Calpont/bin/postConfigure
```

```
This is the InfiniDB System Configuration and Installation tool.  
It will Configure the InfiniDB System based on Operator inputs and  
will perform a Package Installation of all of the Modules within the  
System that is being configured.
```

IMPORTANT: This tool should only be run on the Parent OAM Module
which is either a Management Module #1 or Performance Module.

Prompting Instructions:

Press 'enter' to accept a value in (), if available or
Enter one of the options within [], if available, or
Enter a new value

A copy of the InfiniDB Configuration file has been saved during Package
install. It is configured for a Single Server Install.

You have an option of utilizing the configuration data from that file or starting
with the InfiniDB Configuration File that comes with the InfiniDB Package.
You will only want to utilize the old configuration data when performing the same
type of install, i.e. Single or Multi-Server

Do you want to utilize the configuration data from the saved copy? [y,n] > **y**

Notes: The installer will recognize that an existing configuration file exists and will ask if you would like to
use this copy. The existing values will now be displayed as default and you may simply hit <Enter> through
the prompts.

There are 2 options when configuring the System Server Type: single and multi

'single' - Single-Server install is used when there will only be 1 server
configured on the system. It's a shorter install procedure used for POC testing,
as an example. It can also be used for production systems, if the plan is to
stay single-server.

'multi' - Multi-Server install is used when you want to configure multiple
servers now or in the future. With Multi-Server install, you can still configure
just 1 server now and add on addition servers/modules in the future. This is
used more for production installs.

Select the type of System Server install [1=single, 2=multi] (1) > **<Enter>**

Performing the Single Server Install.

Enter System Name (myinfinidb2) > **<Enter>**

Notes: You should give this system a name that will appear in various OAM utilities, SNMP messages, etc.
The name can be composed of any number of printable characters and spaces.

==== Setup High Availability Data Storage Mount Configuration =====

There are 2 options when configuring the storage: storage and local

'internal' - This is specified when a local disk is used for the dbroot storage
or the dbroot storage directories are manually mounted externally but no High
Availability Support is required

'external' - This is specified when the dbroot directories are externally
mounted and High Availability Failover Support is required.

Notes: Choosing internal and using softlinks to point to an externally mounted storage will allow you to use any format (i.e., ext2, ext3, etc.)

Select the type of Data Storage [1=internal, 2=external] (1) > **<Enter>**

Enter the list (Nx,Ny,Nz) or range (Nx-Nz) of dbroot IDs assigned to module 'pm1'
(1) > **<Enter>**

===== InfiniDB SNMP-Trap Process Check =====

InfiniDB is packaged with a SNMP-Trap Process. If the system where InfiniDB is being installed already has SNMP-Trap Process running, then you have the option of disabling InfiniDB's SNMP-Trap Process.

Additional information: Not having the InfiniDB SNMP_trap Process will effect the generation of InfiniDB Alarms and associated SNMP Traps. Please reference the Calpont InfiniDB Installation Guide for Installs for addition information.

InfiniDB SNMP-Trap Process is enabled, would you like to disable it (y,n) [n] > **<Enter>**

Notes: If you choose to disable (y) but still want the InfiniDB snmp-traps to be generated and sent to a Network Management System, please see the “snmptrap Configuration” section below.

===== Setup the External Network Management System (NMS) Server Configuration =====

This would be used to receive SNMP Traps from InfiniDB, like a Network Control Center

Enter IP Address(es) of NMS Server (0.0.0.0) > **<Enter>**

===== Performing Configuration Setup and InfiniDB Startup =====

NOTE: Using previous configuration setting for 'NumBlocksPct' = 50%
Using previous configuration setting for 'TotalUmMemory' = 512M

Running the Infinidb MySQL setup scripts

Starting MySQL..
Shutting down MySQL..

Starting Calpont InfiniDB Database Platform
Starting MySQL..

InfiniDB Database Platform Starting, please wait DONE

Run Upgrade Script.. DONE

InfiniDB Install Successfully Completed, System is Active

Enter the following command to define InfiniDB Alias Commands

. /usr/local/Calpont/bin/calpontAlias

Enter 'idbmysql' to access the InfiniDB MySQL console
Enter 'cc' to access the InfiniDB OAM console

#

6.7.3 postConfigure for Multi-Server Configuration

The following is a transcript of a typical run of the InfiniDB configuration script. Plain-text formatting indicates output from the script and bold text indicates responses to questions. After each question there is a short discussion of what the question is asking and what some typical answers might be. You will not see these discussions the running the actual configuration script.

```
# /usr/local/Calpont/bin/postConfigure
```

```
This is the InfiniDB System Configuration and Installation tool.
It will Configure the InfiniDB System based on Operator inputs and
will perform a Package Installation of all of the Modules within the
System that is being configured.
```

```
IMPORTANT: This tool should only be run on the Parent OAM Module
            which is either a Management Module #1 or Performance Module.
```

```
Prompting Instructions:
```

```
    Press 'enter' to accept a value in (), if available or
    Enter one of the options within [], if available, or
    Enter a new value
```

```
A copy of the InfiniDB Configuration file has been saved during      Package
install.  It is configured for a Multi-Server Install.
```

```
You have an option of utilizing the configuration data from that file or starting
with the InfiniDB Configuration File that comes with the InfiniDB Package.
You will only want to utilize the old configuration data when performing the same
type of install, i.e. Single or Multi-Server
```

```
Do you want to utilize the configuration data from the saved copy? [y,n] > y
```

Notes: The installer will recognize that an existing configuration file exists and will ask if you would like to use this copy. The existing values will now be displayed as default and you may simply hit **<Enter>** through the prompts.

```
There are 2 options when configuring the System Server Type: single and multi
```

```
'single' - Single-Server install is used when there will only be 1 server
configured on the system. It's a shorter install procedure used for POC testing,
as an example. It can also be used for production systems, if the plan is to
stay single-server.
```

```
'multi'   - Multi-Server install is used when you want to configure multiple
servers now or in the future. With Multi-Server install, you can still configure
just 1 server now and add on addition servers/modules in the future. This is
used more for production installs.
```

```
Select the type of System Server install [1=single, 2=multi] (2) > 2
```

```
Installing on Amazon System (EC2 or VPC services) [y,n] (n) > <Enter>
```

There are 2 options when configuring the System Module Type: separate and combined

'separate' - User and Performance functionality on separate servers.

'combined' - User and Performance functionality on the same server

Select the type of System Module Install [1=separate, 2=combined] (1) > **<Enter>**

Enter System Name (myinfinidb2) > **<Enter>**

Enter the Local Module Name or exit [pmx,exit] (pm1) > **<Enter>**

==== Setup High Availability Data Storage Mount Configuration =====

There are 2 options when configuring the storage: storage and local

'internal' - This is specified when a local disk is used for the dbroot storage or the dbroot storage directories are manually mounted externally but no High Availability Support is required

'external' - This is specified when the dbroot directories are externally mounted and High Availability Failover Support is required.

Select the type of Data Storage [1=internal, 2=external] (1) > **<Enter>**

Notes: Choosing internal and using softlinks to point to an externally mounted storage will allow you to use any format (i.e., ext2, ext3, etc.)

==== Setup Memory Configuration =====

NOTE: Using the default setting for 'NumBlocksPct' at 70%

Setting 'TotalUmMemory' to 50% of total memory (Combined Server Install maximum value is 32G). Value set to 4G

===== Setup the Module Configuration =====

----- User Module Configuration -----

Enter number of User Modules [1,1024] (1) > **<Enter>**

Enter Starting Module ID for User Module [1,1024] (1) > **<Enter>**

*** User Module #1 Configuration ***

Enter Nic Interface #1 Host Name (server1) > **<Enter>**

Enter Nic Interface #1 IP Address of server1 (10.0.0.5) > **<Enter>**

Enter Nic Interface #2 Host Name (unassigned) > **<Enter>**

----- Performance Module Configuration -----

Enter number of Performance Modules [1,1024] (2) > **<Enter>**

Enter Starting Module ID for Performance Module [1,1024] (1) > **<Enter>**

*** Parent OAM Module Performance Module #1 Configuration ***

Enter Nic Interface #1 Host Name (server2) > **<Enter>**

Enter Nic Interface #1 IP Address of server2 (10.0.0.6) > **<Enter>**

Enter Nic Interface #2 Host Name (unassigned) > **<Enter>**

Enter the list (Nx,Ny,Nz) or range (Nx-Nz) of dbroot IDs assigned to module 'pm1' (1,2) > **<Enter>**

*** Performance Module #2 Configuration ***

Enter Nic Interface #1 Host Name (server3) > **<Enter>**

Enter Nic Interface #1 IP Address of server3 (10.0.0.7) > **<Enter>**

Enter Nic Interface #2 Host Name (unassigned) > **<Enter>**

Enter the list (Nx,Ny,Nz) or range (Nx-Nz) of dbroot IDs assigned to module 'pm2' (3,4) > **<Enter>**

===== InfiniDB SNMP-Trap Process Check =====

InfiniDB is packaged with a SNMP-Trap Process. If the system where InfiniDB is being installed already has SNMP-Trap Process running, then you have the option of disabling InfiniDB's SNMP-Trap Process.

Additional information: Not having the InfiniDB SNMP_trap Process will effect the generation of InfiniDB Alarms and associated SNMP Traps. Please reference the Calpont InfiniDB Installation Guide for Installs for addition information.

InfiniDB SNMP-Trap Process is enabled, would you like to disable it [y,n])n) > **<Enter>**

Notes: If you choose to disable (y) but still want the InfiniDB snmp-traps to be generated and sent to a Network Management System, please see the “snmptrap Configuration” section below.

===== Setup the External Network Management System (NMS) Server Configuration =====

This would be used to receive SNMP Traps from InfiniDB, like a Network Control Center

Enter IP Address(es) of NMS Server (0.0.0.0) > **<Enter>**

===== Setup the External Device Configuration =====

External Devices are devices like a storage array or a Ethernet Switch that can be setup to be monitored by InfiniDB with a ping test. If device fails, InfiniDB will report a failure alarm.

Would you like to add an External Device? [y,n] (n) > **<Enter>**

===== Setup the External Network Management System (NMS) Server Configuration =====

Enter IP Address(es) of NMS Server (0.0.0.0) > **<Enter>**

===== System Installation =====

System Configuration is complete, System Module Installation is the next step.
Would you like to continue with the System Installations? [y,n] (y) > <Enter>

Enter the Package Type being installed to other servers [rpm,deb,binary] (rpm) >
rpm

Performing an InfiniDB System install using RPM packages located in the /root/
directory.

Next step is to enter the password to access the other Servers.
This is either the root password or you can default to using a ssh key. If using
the root password, the password needs to be the same on all Servers.

Enter the 'root' password, hit 'enter' to default to using a ssh key, or 'exit' >
XXXXXXXX

Confirm password > **XXXXXXXX**

----- Performing Install on Module 'um1 / server1' -----
Install log file is located here: /var/log/Calpont/ um1_rpm_install.log

----- Performing Install on Module 'pm2 / server3' -----
Install log file is located here: /var/log/Calpont/ pm2_rpm_install.log

InfiniDB Package being installed, please wait DONE

===== Checking InfiniDB System Logging Functionality =====

The InfiniDB system logging is setup and working on local server

InfiniDB System Configuration and Installation is Completed

===== Infinidb System Startup =====

System Installation is complete. If any part of the install failed,
the problem should be investigated and resolved before continuing.

Would you like to startup the InfiniDB System? [y,n] (y) > **<Enter>**

----- Starting InfiniDB on 'um1' -----

```
[root@server1 bin]# ssh root@10.100.10.5 /etc/init.d/infinidb restart
root@10.100.10.5's password:
Shutting down Calpont InfiniDB Database Platform
Starting Calpont InfiniDB Database Platform
Starting MySQL.[ OK ]
[root@server1 bin]# InfiniDB successfully started
```

----- Starting InfiniDB on 'pm2' -----

```
[root@server3 bin]# ssh root@10.100.10.15 /etc/init.d/infinidb restart
Shutting down Calpont InfiniDB Database Platform
Starting Calpont InfiniDB Database Platform
[root@server3 bin]# InfiniDB successfully started
```

```
----- Starting InfiniDB on local server -----

Starting Calpont InfiniDB Database Platform
InfiniDB successfully started

InfiniDB Database Platform Starting, please wait ..... DONE

Run Upgrade Script.. DONE

InfiniDB Install Successfully Completed, System is Active

Enter the following command to define InfiniDB Alias Commands

. /usr/local/Calpont/bin/calpontAlias

Enter 'idbmysql' to access the mysqld console
Enter 'cc' to access the InfiniDB OAM console
```

6.8 Final System Configuration

6.8.1 System Status

Once the nodes have fully rebooted, log onto PM1 and verify that the InfiniDB software has started by entering the command:

6.8.1.1 Single Server Status Display

```
# cc getsystemstatus
getsystemstatus Tue Jan 12 08:07:02 2010
System myinfinidb1
System and Module statuses
```

Component	Status	Last Status Change
System	ACTIVE	Mon Jan 11 17:54:46 2010
Module pm1	ACTIVE	Mon Jan 11 17:54:45 2010

6.8.1.2 Multi-Server Status Display

```
# cc getsystemstatus
getsystemstatus Wed Jan 13 14:40:26 2010
System myinfinidb2
System and Module statuses
```

Component	Status	Last Status Change
System	ACTIVE	Wed Jan 13 14:40:24 2010
Module um1	ACTIVE	Wed Jan 13 14:40:16 2010
Module pm1	ACTIVE	Wed Jan 13 14:40:23 2010
Module pm2	ACTIVE	Wed Jan 13 14:39:58 2010

6.8.2 snmptrap Configuration

If you choose to have the InfiniDB snmptrap daemon disabled by postConfigure (due to that there is already a snmptrap daemon running on the system), but you still want the InfiniDB snmp-traps to be generated and sent to a Network Management System, the following procedure should be used:

5. Stop the current running snmptrap daemon with service or directly running the script in /etc/init.d

```
# service snmptrapd stop
# cd /etc
```
6. Edit of the NMS the snmptrapd.conf to add in the InfiniDB entries (10.100.3.41 in the below example is the IP address server catching the traps):

```
forward .1.3.6.1.2.1.88 10.100.3.41
forward .1.3.6.1.4.1.2021 10.100.3.41
forward default 10.100.3.41
traphandle .1.3.6.1.2.1.88 /usr/local/Calpont/bin/trapHandler agentTrap
traphandle UCD-SNMP-MIB::ucdavis /usr/local/Calpont/bin/trapHandler
processAlarm
```
7. Start the current running snmptrap daemon with service or directly running the script in /etc/init.d

```
# service snmptrapd start
```

7 Upgrading Standard Install to Enterprise Install

If a user has been testing on InfiniDB Community and now wants to upgrade to InfiniDB Enterprise, this would be the procedure they would need to follow.

7.1 RPM or DEB Upgrade to Enterprise

If your initial InfiniDB Standard installation was with RPMs or DEBs, you can upgrade to InfiniDB Enterprise by simply installing the appropriate package on each server that InfiniDB is installed.

Note: In order to upgrade from InfiniDB Standard to InfiniDB Enterprise in an RPM or DEB installation, it must be done on the **same** release package (release numbering must match exactly.)

- For example, if you currently have InfiniDB Standard 4.6 installed, you should install the InfiniDB 4.6 Enterprise package.
- You cannot install the 4.6 Enterprise package onto an InfiniDB Standard 4.0.x installation nor can you install the 4.6 Enterprise package on a 4.5.x Standard installation. You must perform a full software upgrade in this case (See “Upgrading InfiniDB” in this Guide for more information.)

Place the enterprise package (RPMs or DEBs) in the **/root** directory on each server in the instance and perform the commands below. InfiniDB does not have to be stopped in order to run these commands.

For RPM installation:

- Download and unpack the Enterprise tarball, which will generate the RPMs.

```
# tar -zxf infinidb-ent-release#.x86_64.tar.gz
```
- Install the Enterprise RPMs

```
# rpm -ivh infinidb-enterprise-release#.x86_64.rpm
```

For DEB installation:

- Download and unpack the Enterprise tarball, which will generate the DEBs.

```
# tar -zxf infinidb-ent-release#.amd64.deb.tar.gz
```
- Install the Enterprise DEBs

```
# dpkg -i infinidb-enterprise-release#.amd64.deb
```

7.2 Binary Upgrade to Enterprise

Since there is no stand-alone Enterprise package for binary installations, you must perform a full upgrade using the Enterprise binary package in order to upgrade from InfiniDB Community to InfiniDB Enterprise. Please see the binary upgrade procedure in the “Upgrading InfiniDB” section in this Guide for more information.

8 Re-Configuring from Single-Server to Multi-Server

If a user has been testing on an Single-Server and now wants to go to an Multiple-Server, this would be the procedure they would need to follow.

8.1 Backing Up Single-Server

You must stop the InfiniDB system before performing any type of upgrade. The following command should be used:

1. Stop the EE InfiniDB system
 - If upgrading from a release 2.0 and above, the following command should be used:

```
# /usr/local/Calpont/bin/calpontConsole shutdownsystem y
```
 - If upgrading from a release earlier than 2.0, the following command should be used:

```
# /usr/local/Calpont/bin/calpontConsole stopsystem INSTALL y
```
2. Backup the Single-Server database (dependent on the size of your database and space available). Please see the Performing Backup and Recovery chapter in the InfiniDB Administrator's Guide.
3. If using external storage for data (i.e. /usr/local/Calpont/data1), unmount it.

```
# umount /usr/local/Calpont/data1
```

8.2 Upgrading InfiniDB

Upgrade the Single-Server version of InfiniDB following the associated software upgrade procedure in the "Upgrading InfiniDB".

Important: While in the postConfigure process, you MUST stop during the middle of postConfigure at the following:

```
===== System Server Installation =====
```

```
System Configuration is complete, System Server Installation is the next step. The
InfiniDB Package will be distributed and installed on all of the other system
modules. Would you like to continue with the System Server Installations? [y,n] (y)
>
```

If you plan on using your existing Single-Server database, follow the steps below in another server session before continuing.

8.3 Single-Server Database Usage

You must choose one of the options below to either use or remove the InfiniDB Community 2.2.x database.

8.3.1 Using the existing Single-Server Database

Since the Single-Server and Multiple-Server configurations use the same directory structure for the Extent Map (DBRM) files, no additional steps are needed to continue to use the Single-Server database.

8.3.2 Removing the existing Single-Server Database

If you don't want to use your existing Single-Server database, you will need to remove the associated database files.

1. Remove the back-end database files
2. Remove the database files (needed regardless of location of storage):
 - # `rm -rf /usr/local/Calpont/data1/000.dir`
- Remove the extent map files (needed regardless of location of storage):

For a pre-2.1 database:

```
# rm -rf /usr/local/Calpont/dbrm/*
```

For a post-2.1 database:

```
# rm -rf /usr/local/Calpont/data1/systemFiles/dbrm/*
```

- Remove the Front-end Database Schema files
 - All database schemas except the calpontsys, mysql and test schemas should be removed from the `/usr/local/Calpont/mysql/db` directory:

Example:

```
# rm -rf /usr/local/Calpont/mysql/db/myschema1
```

8.4 Complete Multiple-Server Upgrade

Complete the Multiple-Server installation by selecting 'y' or simply hitting Enter:

```
===== System Server Installation =====
```

```
System Configuration is complete, System Server Installation is the next step. The
InfiniDB Package will be distributed and installed on all of the other system
modules. Would you like to continue with the System Server Installations? [y,n] (y)
> <Enter>
```

9 Upgrading Community 2.2.x to InfiniDB 4

If a user has been testing on InfiniDB Community 2.2.x and now wants to go to InfiniDB 4, this would be the procedure they would need to follow.

9.1 Removing and Backing Up InfiniDB Community 2.2.x

You must stop and remove the InfiniDB system before performing any type of upgrade. The following command should be used:

1. Stop the CE InfiniDB service

```
# /etc/init.d/infinidb stop
```

2. Un-install the CE InfiniDB package

If installed via RPMs:

```
# rpm -e calpont calpont-mysql calpont-mysqld
```

If installed via DEBs:

```
# /usr/local/Calpont/bin/pre-uninstall  
# dpkg -r calpont calpont-mysql calpont-mysqld  
# dpkg -P calpont calpont-mysql calpont-mysqld
```

If install via Binary's or Source

```
# /usr/local/Calpont/bin/pre-uninstall
```

3. Backup CE database (dependent on the size of your database and space available). Please see the Performing Backup and Recovery chapter in the InfiniDB Administrator's Guide.
4. If using external storage for data (i.e. /usr/local/Calpont/data1), unmount it.

```
# umount /usr/local/Calpont/data1
```

9.2 Installing InfiniDB 4

The install of InfiniDB 4 follows the associated software installation procedure in the "Installing and Configuring InfiniDB".

Important: While in the postConfigure process, you MUST stop during the middle of postConfigure at the following:

```
===== System Server Installation =====
```

```
System Configuration is complete, System Server Installation is the next step.  
The InfiniDB Package will be distributed and installed on all of the other system  
modules.
```

```
Would you like to continue with the System Server Installations? [y,n] (y) >
```

If you plan on using your existing Community 2.2.x database, follow the steps below in another server session before continuing.

9.3 *InfiniDB Community 2.2.x Database Usage*

You must choose one of the options below to either use or remove the InfiniDB Community database.

9.3.1 Using the existing 2.2.x Database

Since the 2.2.x and InfiniDB 4 configurations use the same directory structure for the Extent Map (DBRM) files, no additional steps are needed to continue to use the 2.2.x database.

9.3.2 Removing the existing 2.2.x Database

If you don't want to use your existing Community 2.2.x database, you will need to remove the associated database files.

- Remove the back-end database files
- Remove the database files (needed regardless of location of storage):

```
# rm -rf /usr/local/Calpont/data1/000.dir
```
- Remove the extent map files (needed regardless of location of storage):

```
# rm -rf /usr/local/Calpont/data1/systemFiles/dbrm/*
```
- Remove the Front-end Database Schema files
 - All database schemas except the calpontsys, mysql and test schemas should be removed from the `/usr/local/Calpont/mysql/db` directory:

Example:

```
# rm -rf /usr/local/Calpont/mysql/db/myschema1
```

9.4 *Complete Installation*

Complete the installation by selecting 'y' or simply hitting Enter:

```
===== System Server Installation =====
```

System Configuration is complete, System Server Installation is the next step. The InfiniDB Package will be distributed and installed on all of the other system modules.

```
Would you like to continue with the System Server Installations? [y,n] (y) >
```

<Enter>

9.5 *Compression in InfiniDB*

With InfiniDB 4, you now have the ability to compress data. There is a new compression variable that will need to be added to the `my.cnf` in order to default compression to "on" at the instance level. After upgrade, make sure your copy of `my.cnf` has the desired setting for this variable.

To set the compression mode at the instance level, specify `infinidb_compression_type` on the command line or in `my.cnf`. **This variable must exist in the `my.cnf` file in order for compression to be defaulted at the instance level. If this variable does not exist, the default is 0 (compression is turned off).**

On command line:

```
~/mysql/libexec/mysqld --xxxxxx --infinidb_compression_type=1
```

In `my.cnf` file (`/usr/local/Calpont/mysql`):

```
[mysqld]
xxxxx
infinidb_compression_type=1
```

Any change to the `my.cnf` should be made to all User Module's. Once changes have been made, you must restart InfiniDB for the changes to be active:

```
# cc restartsystem y
```

For more information on setting the Compression Mode at the instance level, please see the Compression Mode chapter in the InfiniDB Administrator's Guide.