

使用 VBox 安装 Oracle Database 12c Flex Cluster for OEL 5.8

# 第 1 部分 环境介绍

本系列为 [Lunar\(www.lunar2013.com\)](http://www.lunar2013.com) 原创，一共 5 篇，分别为：

[第 1 部分 环境介绍](#)

[第 2 部分 前期准备工作](#)

[第 3 部分 准备网络环境](#)

[第 4 部分 开始安装](#)

[第 5 部分 总结](#)

我这里宿主主机的环境是 X220, 8G 内存, 2Cpu, 准备实施两个 VM, 每个分配 1.5G 内存。

由于 Oracle Database 12c 的 Flex Cluster 需要使用 DNS 来解析 GNS, 因此必须配置 DNS server。然后需要使用 GNS 动态分配 SCAN 和 VIP, 因此需要配置 DHCP server。

Flex Cluster 内置 Flex ASM, 因此, 需要配置共享存储。

好了, 我们需要的大致工作如下:

- 1, 安装 (或者复制) 2 个 VBox 虚拟机, 建议使用 OEL 6.3 以上版本, 具体参见文档 (参考支持版本的说明, OEL 5, OEL6 都可以)
- 2, 配置共享盘, 配置 yum 安装需要的 package
- 3, 配置 DHCP SERVER, DNS SERVER, GNS

4, 规划网络, 确定具体 IP. 12c 只需要在 host 中指定 Public 和 Private IP 即可, 至于 VIP 和 SCAN 都是由 GNS 来分配的, 而 GNS 需要在 DNS 中解析。

5, 安装 GI

6, 调整 asm 的 sga, 建议每个 asm 的 sga 256M 足以, 然后重启 crs

7, 安装 DB (推荐 DBCA 建库, 注意建库时指定 sga 的分配采用全手工方式, 既非 AMM 亦非 ASMM, 这样经过测试一个 db 只需要 230M 到 300M 就可以跑的很好了, 没办法, 穷人, 你懂的。。。)

先看下官方文档, 了解下关于 12c RAC 的 New Feature:

- **Cluster Health Monitor Enhancements for Oracle Flex Cluster:** The Oracle Cluster Registry (OCR) backup mechanism enables storing the OCR backup in an Oracle ASM disk group. Storing the OCR backup in an Oracle ASM disk group simplifies OCR management by permitting access to the OCR backup from any node in the cluster should an OCR recovery become necessary.
- **Oracle Flex Cluster:** Oracle Flex Cluster is a new concept, which joins together a traditional closely coupled cluster with a modest node count with a large number of loosely coupled nodes. In order to support various configurations that can be established using this new concept, SRVCTL provides new commands and command options to ease the installation and configuration. (这次就是测试下这个庞大东西到底多复杂。。。)
- **Oracle Cluster Registry Backup in ASM Disk Group Support:** The Oracle Cluster Registry (OCR) backup mechanism enables storing the OCR backup in an Oracle ASM disk group. Storing the OCR backup in an Oracle ASM disk group simplifies OCR management by permitting access to the OCR backup from any node in the cluster should an OCR recovery become necessary.

- **IPv6 Support for Public Networks:** IPv6-based IP addresses have become the latest standard for the information technology infrastructure in today's data centers. With this release, Oracle RAC and Oracle Grid Infrastructure support this standard. **You can configure cluster nodes during installation with either IPv4 or IPv6 addresses on the same network.** Database clients can connect to either IPv4 or IPv6 addresses. The Single Client Access Name (SCAN) listener automatically redirects client connection requests to the appropriate database listener for the IP protocol of the client request. (本次我依然使用了 IPv4)
- **Grid Infrastructure Script Automation for Installation and Upgrade:** This feature enables running any script requiring `root` privileges through the installer and other configuration assistants, so that you are no longer required to run root-based scripts manually during deployment. Using script automation for installation and upgrade eliminates the need to run scripts manually on each node during the final steps of an Oracle Grid Infrastructure installation or upgrade. (不过这个功能缺省是 `disable` 的, 这个后面的安装界面可以看到, 为啥, 你懂的。。。)
- **Oracle Grid Infrastructure Rolling Migration for One-Off Patches:** Oracle Grid Infrastructure one-off patch rolling migration and upgrade for Oracle ASM and Oracle Clusterware enables you to independently upgrade or patch clustered Oracle Grid Infrastructure nodes with one-off patches, without affecting database availability. This feature provides greater uptime and patching flexibility. This release also introduces a new Cluster state, "Rolling Patch." Operations allowed in a patch quiesce state are similar to the existing "Rolling Upgrade" cluster state.
- **Oracle Flex ASM Server and Oracle CloudFS:** Oracle Flex ASM decouples the Oracle ASM instance from database servers and enables the Oracle ASM instance to run on a separate physical server from the database servers. Any number of Oracle ASM instances can be clustered to support numerous database clients. This is a component feature of Oracle CloudFS. (下一个打算玩这个, 这个只需要一个普通的 `12c Cluster` 环境即可, 不需要 `Flex Cluster`)

This feature enables you to consolidate all storage requirements into a single set of disk groups. All these disk groups are managed by a small set of Oracle ASM instances running in a single Cluster Synchronization Services (CSS) cluster. Depending on the performance requirements, you can make policy decisions on how various Oracle ASM clients access its files in a disk group.

Oracle Flex ASM supports Oracle Database `12c` Release 1 (12.1) and later. Oracle Database `10g` Release 2 (10.2) or later through Oracle Database `11g` Release 2 (11.2) can continue to use ASM disk groups with no requirement to install patches.

- **Policy-Based Cluster Management and Administration:** Oracle Grid Infrastructure allows running multiple applications in one cluster. Using a policy-based approach, the workload introduced by these applications can be allocated across the cluster using a policy. In addition, a policy set enables different policies to be applied to the cluster over time as required. Policy sets can be defined using a web-based interface or a command-line interface.
- **Shared Grid Naming Service (GNS) Across Multiple Clusters:** In previous releases, the Grid Naming Service (GNS) was dedicated to one Oracle Grid Infrastructure-based cluster, providing name resolution only for its own cluster member nodes. With this release, one Oracle GNS can now manage just the cluster member nodes in its own cluster, or GNS can provide naming resolution for all nodes across all clusters in the data center that are delegated to Oracle GNS for resolution.

Using only one Oracle GNS for all nodes that are part of an Oracle Grid Infrastructure cluster in the data center not only streamlines the naming convention, but also enables a data center cloud, minimizing day-to-day administration efforts. (Oracle 11.2 GI 开始就支持 GNS 的方式配置 SCAN listener, 不过我比较传统, 一般还是使用 DNS 来配置 SCAN Listener。。。现在玩 12c Flex Cluster, 貌似只能学习配置这个东西了, o(∩\_∩)o 哈哈)

- **Support for Separation of Database Administration Duties:** Oracle Database 12c Release 1 (12.1) provides support for separation of administrative duties for Oracle Database by introducing task-specific and least-privileged administrative privileges that do not require the SYSDBA administrative privilege. These new privileges are: SYSBACKUP for backup and recovery, SYSDG for Oracle Data Guard, and SYSKM for encryption key management. (看了文档, 你会发现, 按照 Oracle 官方推荐的方式安装的话, 会建立十多个用户名, 汗。。。本次我还是使用了 11.2 GI 的安装方式, 依然是 grid, oracle, 组也还是原来的几个, oninstall, dba, asmadmin, asmoper, asmdba。。。)