



CONFIGURATION AND INSTALLATION OF ORACLE FAIL SAFE ON WINDOWS 2000

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INTRODUCTION

This paper is designed as a beginner's course for those interested in setting up Oracle Fail Safe in a Windows 2000 environment. This course will present an overview of Oracle Fail Safe, how to cluster a system using Microsoft Cluster Services and how to install and configure Oracle Fail Safe. Also included is a list of traps to be avoided during setup.

This course is designed to be introductory and to give those who are interested in Fail Safe the opportunity to find out more about it. Those that have already decided to use Fail Safe will find some tips on how to configure it optimally.

Oracle Fail Safe is built upon Microsoft Cluster Services and only works with Microsoft Windows NT. Microsoft Cluster Services is a failover solution that requires two or more Microsoft Windows 2000 systems and a hardware platform that supports a shared disk subsystem. This paper will begin with hardware requirements and then cover the steps necessary to configure Oracle Fail Safe on Windows 2000.

HARDWARE REQUIREMENTS

Oracle Fail Safe has the same hardware requirements as Microsoft Cluster Services. You must have two systems that are roughly the same in configuration. It is not necessary that the two systems in the cluster are identical, but if they are not similar in size and capacity you may experience a significant performance loss if a failover occurs and the secondary system takes over. A list of necessary components is listed here:

- 2 Server systems. These systems must be running Microsoft Windows 2000 and be of sufficient power and capacity to support the Oracle9i RDBMS.
- Network connectivity. You must have at least one, and it is recommended that you have two network connections to each server. One is used for public network traffic and the other is used for server interconnect traffic.
- Shared disk subsystem. It is essential for the Microsoft Cluster to contain a shared disk subsystem. This shared disk subsystem must be equally accessible from both of the server systems. This is typically a SCSI or a Fibre Channel disk subsystem.

INSTALLATION STEPS

The installation steps can be broken down into hardware, OS and Oracle steps. Each of these steps are important and must be followed carefully. The failure to configure these components properly can result in a Fail Safe system that does not function properly.

HARDWARE CONFIGURATION

The hardware should be configured for both the network interconnect and the shared disk subsystem so that there is network connectivity to the local LAN, connectivity between the two systems and a functioning I/O subsystem that is accessible from both systems in the cluster.

SOFTWARE INSTALLATION

1. Install Windows 2000 Advanced Server on each of the cluster nodes. This will be done with whichever components that you feel that you need to install. Cluster services must be chosen as part of the installation.
2. Create the Windows 2000 disk partitions using Computer Management/Disk Management tool on the primary node first then on the secondary node. When configuring the partitions you should label them so that they can be recognized on the second node. The disk label is visible, but the drive letter may not be the same on the second node and you may need to change it.
3. Run the Cluster Service Configuration Wizard to configure MSCS. Do this on the primary node first, and then on the secondary node. This is done following the typical MSCS instructions.
4. Verify cluster failover functionality of the disks. Before proceeding on to configuring Oracle and Oracle Fail Safe on the cluster you should verify that the cluster itself is functional. If it is not working you should stop and address this before proceeding on to the next step.

5. Install Oracle software on each node in the cluster. Oracle is installed in the normal fashion.
6. Install Oracle Fail Safe on each node in the cluster. Oracle Fail Safe installation is very simple and seamless.
7. Configure Oracle Fail Safe. Configuring the Oracle Fail Safe cluster is described below.
8. Test Oracle Fail Safe. Before loading your production database on to the cluster, it is a good idea to test Oracle Fail Safe by failing over the cluster a couple of times. In addition to testing the functionality, this will give you a little more experience with it.
9. Create the database on the clustered disks. The database, the redo log files and the control files must all be contained on the shared disk subsystem. If any of these components are not on the shared disk subsystem the failover will not function.
10. Configure clustered database: Using the Oracle Fail Safe Manager add Oracle database resources to the database cluster group. This is described below.
11. Test database failover. Once you have completed installing the system and loaded your database you should test the functionality again in order to make sure that it is working properly.

CONFIGURATION ISSUES

Before configuring the Oracle Fail Safe you must perform some pre-configuration steps. These steps are necessary for a successful cluster configuration.

1. Create cluster IP addresses in the hosts file. This can be accomplished by adding the name and address to the `C:\Windows\System32\Drivers\etc\hosts` file or by adding the address to the DNS server. This address will be picked up by the Oracle Fail Safe configuration utility in order to be used as the Oracle cluster address.
2. Create the Oracle database on the shared disk volumes. This can be done by hand or by using the Oracle Database Configuration Assistant. A few tips on configuring the Oracle database are given here:
 - Place the Oracle initialization file on one of the shared disk volumes. It is OK to put this file on the same volume as the redo log files.
 - Place the Control files on a shared disk volume but place at least one on a different volume from the others. It is OK to place some of the control files on the same volume as the redo log files. It is also OK to place one of the control files on a non-shared volume.
 - Place the database data files on a shared volume that is different from the shared disk volume that holds the redo log files.
 - Place the redo log files on a shared volume that is different from the shared disk volume that holds the data files.
 - Place the user and background trace dump directories on a shared disk volume. It is OK to put these directories on the same volume with either data files or redo log files.

CONFIGURING ORACLE FAIL SAFE

Configuring Oracle Fail Safe is done via the Oracle Failsafe Administration tool. Here you will assign resources such as IP addresses to the Oracle Fail Safe group and add and verify the database. These steps are demonstrated in the presentation.