**Summary of step so far**

* Created 4 virtual machine on free VMware software
* One Domain Controller (DC)
* Three virtual Servers (Server1, Server2, Server3)
* Configured the virtual servers (changed sever name, IE off, disable firewall, IP address, etc.)
* Joined SQL domain
* Installed SQL Servers 2016 on each virtual server – except the DC
* Updated the free VMware workstation to 30 day trial version to manage easier with tabs
* Uploaded the four VMs from the path of VMs

**What is High Availability (HA?)**

The principal goal of a high availability solution is to minimize the impact of downtime and provide redundancy for databases throughout the enterprise

**What is SQL Server log shipping?**

SQL Server log shipping is one of the high availability solutions which involves two or more SQL Server instances; the source server is called the Primary Server and the destination is called Secondary server(s). Log shipping involves the transferring of the transaction log file from the primary server to the secondary server. Log Shipping is a basic level SQL Server high-availability technology that is part of SQL Server. This is automated by three SQL jobs

**Advantages are:**

* SQL Server log shipping is primarily used as a disaster recovery solution
* It’s reliable and tested in details
* It’s easy to set up and maintain
* Log shipping can be combined with other disaster recovery options such as Always On Availability Groups, database mirroring, and database replication
* Low cost in human and server resources

**Disadvantages are:**

* Need to manage all the databases separately
* There isn’t possibility for an automatic failover; must be manual
* And secondary database isn’t fully readable while the restore process is running

[**Terms and Definitions**](javascript:void(0))

**Primary server**

Source SQL Server production server

**Secondary server**

Destination SQL Server where you want to keep a warm standby copy of your primary database

**Monitor server (Optional)**

An SQL Server that tracks all of the details of log shipping such as:

* Transaction log last backed up
* Copied and restored the backup files on secondary server
* Information about backup failure alerts

**Prerequisite: the Primary Server should be in Full Recovery Mode**

--FIND THE RECOVERY MODE

SELECT name AS [Database Name],

recovery\_model\_desc AS [Recovery Model] FROM sys.databases

GO

--CHANGE THE RECOVERY MODE IF NECESSARY

USE [master]

GO

ALTER DATABASE LOGSHIP

SET RECOVERY FULL

WITH NO\_WAIT

GO

**Operating modes:**

There are two available modes and they are related to the state in which the secondary log shipped SQL Server database will be:

* Standby mode – the database is available for querying and users can access it, but in read-only mode
* Restore mode – the database is not accessible

**STEP BY STEPS:**

* CREATE A DOMAIN USER ACCOUNT FOR LOG SHIPPING
* CREATE A SQL LOGIN FOR LOG SHIPPING WITH SYSADMIN PERMISSION
* CREATE A DOMAIN SERVICE ACCOUNT FOR SQL SERVER AND SQL AGENT
* CREATE A NETWORK SHARE FOLDER FOR THE BACKUPS ON PRIMARY WITH PERMISSION TO SQL AGENT (READ)
* CREATE A NETWORK SHARE FOLDER FOR THE COPY/RESTORE ON SECONDARY WITH PERMISSION TO SQL AGENT (READ AND WRITE)
* FIND RECOVERY MODE OF LOG SHIPPING DATABASE
* TAKE FULL BACK UP OF THE PRIMARY DATABASE TO NETWORK SHARE
* RESTORE FULL AND LOG BACKUP ON SECONDARY SERVER WITH NO RECOVERY OPTION (RESTORING STATE)
* SET UP LOG SHIPPING VIA GUI ON PRIMARY DATABASE
* COPY LOG SHIPPING VIA GUI IN SECONDARY SERVER
* RESTORE LOG SHIPPING VIA GUI IN SECONDARY SERVER
* CHECK THE LOG SHIPPING PROCESS WITH DATA

**Permissions**

Must have sysadmin rights on the server

**Next video: What happens when the primary server goes down?**