Module 12

Upgrading and migrating to SharePoint 2016

Overview of the upgrade process

- The upgrade process:
  1. Create a new SharePoint 2016 farm
  2. Copy SharePoint Server 2013 databases to the new farm environment
  3. Upgrade service applications
  4. Create web applications
  5. Install server-side customizations
  6. Upgrade content databases with site collections

Planning an upgrade

- Plan business communications
- Gather business requirements
- Undertake farm surveys
- Perform environment cleanup
- Build hardware
- Perform pre-upgrade backups
- Establish a project schedule
- Test the upgrade
- Test rollback and restore options
- Perform post-upgrade activities
- Establish launch and ongoing support management

Supported upgrade paths

Start version	Supported target version
SharePoint Server 2013, Standard edition	SharePoint 2016, Standard edition
SharePoint Server 2013, Enterprise Edition	SharePoint 2016, Enterprise edition
SharePoint Server 2013, Trial edition	SharePoint 2016, Trial edition
SharePoint Foundation 2013	SharePoint 2016
Project Server 2013 with SharePoint Server 2013, Enterprise Edition	SharePoint 2016, Enterprise Edition

Completing pre-upgrade steps

- Key steps to prepare for an upgrade:
  1. Create a farm inventory:
     - IT professional components:
       - Hardware
       - Platform software
       - Software dependencies
     - Developer components:
       - Customizations
       - Solutions
  2. Clean up the farm based on the inventory

Testing your upgrade in a trial environment

Test the upgrade plan:

- Test and improve your upgrade plan
- Test your customizations
- Test your hardware
- Establish a realistic timeline for the final upgrade
- Test procedures for site collection administrators
- Become familiar with the tools and scripts that you need to use
- Review logs and retest as necessary

Backing up your SharePoint Server 2013 databases

- Content databases:
  - Set to read-only
  - Back up by using SQL Server Management Studio
- Service application databases that you need to back up include:
  - Business Data Connectivity
  - Managed Metadata
  - PerformancePoint
  - Search Administration
  - Secure Store
  - User Profile

Preparing for the SharePoint 2016 environment

- Tasks to execute on the SharePoint Server 2013 farm:
  - Document the configuration settings
  - Extract security keys
    - Secure Store Service pass phrase
    - User Profile encryption key
  - Back up databases
    - Content
    - Service application
- Tasks to execute on the new SharePoint 2016 farm:
  - Install SharePoint
  - Configure settings

Upgrading content databases

- Create web applications with matching SharePoint Server 2013 settings:
  - Paths
  - Quotas
  - Email settings
  - Self-service site creation
  - Managed path for My Sites on the My Sites web application
  - Policies
- Windows PowerShell cmdlets for database upgrades:
  - **<Test-SPContentDatabase>** verifies customizations
  - **<Mount-SPContentDatabase>** attaches databases

Upgrading service applications

- You can upgrade only some service applications, including the:
  - Business Data Connectivity Service
  - Managed Metadata Service
  - PerformancePoint Services
  - Secure Store Service
  - User Profile Service
  - Search service
- You can use Windows PowerShell cmdlets to upgrade each service
- The Search service requires additional upgrade steps

Migrating from classic-mode to claims-mode authentication

- Advantages of claims-mode versus classic-mode authentication include:
  - Use of SharePoint apps
  - Integration with other claims-based systems
  - Resolution of the NTLM double-hop issue
  - Support for multiple authentication providers
  - It has an open standard
- Convert to claims-mode in SharePoint Server 2013
- Create classic-mode web application, and then convert to claims-mode in SharePoint 2016

Verifying database upgrades

- Verify database upgrades:
  - In Central Administration by:
    - Checking upgrade status
  - By using the following Windows PowerShell cmdlet:
    - **Get-SPContentDatabase**
- Restart the database upgrade:
  - By using the Windows PowerShell cmdlet:
    - **Upgrade-SPContentDatabase**

Troubleshooting upgrade issues

- Check the upgrade logs:
  - The Upgrade error log and Upgrade log files:
    - %COMMONPROGRAMFILES%\Microsoft Shared\Web server extensions\16\LOGS
    - Unified Logging System (ULS) format
- Beyond log checks:
  - Upgrade the status
  - Check against the inventory
  - Check all supported modes
  - Check services
  - Check configurations:
    - Farm
    - Web applications
    - Service applications

Overview of the site-collection upgrade process

- In SharePoint 2016, site collections are upgraded during the content-database upgrade process, by default
- You can skip site collection upgrade by using:
  - The **-SkipSiteUpgrade** switch on the **Mount-SPContentDatabase**
- You cannot migrate site collections that are using the SharePoint 2010 experience directly to SharePoint 2016

Manage site-collection health checks

- Site-settings health checks include:
  - Conflicting Content Types
  - Customized Files
  - Missing Galleries
  - Missing Parent Content Types
  - Missing Site Templates
  - Unsupported Language Pack References
  - Unsupported MUI References
- Run health checks by using the following Windows PowerShell cmdlets:
  - **Test-SPSite**
  - **Repair-SPSite**
- You can use Rule IDs for granular test and repair

Managing site-collection upgrades

- Queue management for site-collections upgrades includes:
  - Review current updates
  - Check for a specific site collection
  - Add a site collection to the upgrade queue
  - Remove a site collection from the upgrade queue
- All site-collection upgrades are queued and serviced by the site-collection upgrade timer job
- Upgrade throttling settings for a web application

Perform a site-collection upgrade

- Upgrade a single site collection by using the following Windows PowerShell cmdlet:
  - **Upgrade-SPSite <*http://site*> -VersionUpgrade [-Unthrottled]**
- Upgrade all site collections in a database by using the following Windows PowerShell cmdlet:
  - **Get-SPSite -ContentDatabase <*DBName*> -Limit All | Upgrade-SPSite -VersionUpgrade -QueueOnly**
- My Sites:
  - Farm administrator should complete My Site host upgrade
  - My Sites upgrade on first use if necessary

Troubleshooting site-collection upgrades

- Verify the site-collection upgrade by:
  - Reviewing the site-collection upgrade status
  - Using **Get-SPSiteUpgradeSessionInfo -Site *http://site***
- Perform the following functionality checks:
  - Does the site function as expected?
  - Do large lists get rendered as expected?
  - Do cascading style sheets render the screen as expected?
  - Are all menus functioning?
  - Do all user browsers render correctly? Are all customizations in place?
- Review the SiteUpgrade log files in the ULS format