Windows Server Setup Script

A comprehensive PowerShell script for automating the setup and configuration of Windows servers, particularly focused on SQL Server and RayStation installation.

Overview

This script provides automated installation and configuration of various components including:

- SQL Server installation and configuration
- RayStation application setup
- GPU driver installation
- Citrix VDA installation
- Windows system configurations
- Local group management
- Drive formatting and configuration
- Various service installations (DICOM, License Agent, etc.)

Prerequisites

- Windows Server operating system
- PowerShell 5.1 or higher
- Administrator privileges
- Internet connection (for some components)
- Setup.json configuration file in the same directory as the script

Configuration

The script uses a Setup.json file for all configuration settings. Key configuration sections include:

General Settings

```
{
    "GENERAL": {
        "MACHINENAME": "",
        "INSTALLJAVA": "Y/N",
        "INSTALLADOBE": "Y/N",
        "INSTALLDOTNET": "Y/N",
        "INSTALLSQL": "Y/N",
        "INSTALLGPUDRIVER": "Y/N",
        "INSTALLRAYSTATION": "Y/N",
        "INSTALLCITRIX": "Y/N",
        "INSTALLLMX": "Y/N",
        "FORMATDRIVES": "Y/N",
        "UPDATEWINDOWS": "Y/N",
        "AUTOREBOOT": "Y/N",
        "CLEANUP": "Y/N",
        "LOCALGROUPS": "Y/N",
        "ENABLEAUTOLOGON": "Y/N",
        "REMOTELOGGINGLOCATION": ""
```

```
    }
}
```

SQL Server Settings

```
{
    "SQL": {
        "ISOPATH": "",
        "FEATURES": "",
        "DATADIR": "",
        "BACKUPDIR": "",
        "TEMPDBDIR": "",
        "TEMPLOGDIR": "",
        "FILESTREAMDRIVE": "",
        "FILESTREAMSHARENAME": "",
        "PORT": "",
        "INSTANCENAME": "",
        "SAPASSWORD": "",
        "SERVICEACCOUNTNAME": "",
        "SERVICEACCOUNTPASSWORD": "",
        "PRODUCTKEY": "",
        "USETRANSFERBITS": "Y/N",
        "ENABLEPROTOCOLS": "Y/N"
    }
}
```

Features

1. **Base System Configuration**

   - Machine naming
   - Auto-logon configuration
   - Default Windows settings
   - Local group creation

2. **Software Installation**

   - Java Runtime Environment
   - Adobe Reader
   - .NET Framework 4.8
   - Dell Open Manage (for Dell servers)

3. **SQL Server Setup**

   - Drive configuration
   - SQL Server installation
   - FileStream configuration
   - SQL Server Management Studio (SSMS) installation

4. **GPU Configuration**

   - NVIDIA driver removal (optional)
   - New GPU driver installation
   - GPU configuration for RayStation

5. **Application Installation**

    - Citrix VDA
    - RayStation
    - DICOM Service
    - License Agent

6. **System Maintenance**

    - Windows Updates
    - System cleanup
    - Automatic rebooting (optional)

Security Features

- Secure password handling using AES encryption
- Service account validation
- Path existence verification
- Input validation for critical parameters

Logging

The script includes comprehensive logging functionality:

- Local logging to `[ScriptDirectory]\Logs\MachineSetup.json`
- Remote logging capability (when configured)
- Severity levels: Info, Warn, Error, Start, End
- Includes timestamp, hostname, severity, and message

Usage

1. Configure the Setup.json file with your desired settings

2. Run the script as administrator:

```
.\Setup.ps1
```

Requirements

- Windows Server (tested on 2019)
- PowerShell execution policy allowing script execution
- Administrator privileges
- Network access (for downloading components)
- Sufficient disk space for installations

Error Handling

The script includes comprehensive error checking:

- Path validation
- Service account format verification
- Drive availability checking
- Installation prerequisite verification

Notes

- The script must be run with administrator privileges
- Some features require internet connectivity
- Certain installations may require system reboots
- All passwords are encrypted using AES encryption
- The script creates detailed logs of all operations

Setup.json Configuration Documentation

This document explains the configuration options available in the Setup.json file and their corresponding functionality in the Setup.ps1 script.

GENERAL Section

General installation and configuration options.

Option	Description	Script Reference
INSTALLCITRIX	Install Citrix VDA	Controls Citrix installation
ENABLEAUTOLOGON	Enable auto-logon	Configures Windows auto-logon
BUILDRAYSTATIONGPUCONFIGS	Configure GPU settings	Controls GPU configuration for RayStation
AUTOUPDATEGPUUUID	Auto-update GPU UUID	Controls GPU UUID updates
INSTALLSQL	Install SQL Server	Controls SQL Server installation
FORMATDRIVES	Format drives	Controls drive initialization
INSTALLLMX	Install licensing	Controls license installation
AUTOREBOOT	Auto-reboot after install	Controls system reboot behavior
CLEANUP	Perform cleanup	Controls post-installation cleanup
UPDATEWINDOWS	Update Windows	Controls Windows Update execution
INSTALLRAYSTATION	Install RayStation	Controls RayStation installation
INSTALLDICOM	Install DICOM service	Controls DICOM service installation
TIMEZONE	System timezone	Used to set system timezone

DRIVES Section

Drive configuration for SQL and application data.

Option	Description	Script Reference
DriveLetter	Drive letter to use	Used for drive formatting and configuration
DriveNumber	Physical drive number	Used to identify correct drive
DriveLabel	Drive label	Applied during drive formatting

SQL Section

Configuration options for SQL Server installation and setup.

Option	Description	Script Reference
INSTANCENAME	SQL Server instance name	Used during SQL installation to set the instance name
ISOPATH	Path to SQL Server installation ISO	Validated at script start, used for SQL installation
SERVICEACCOUNTPASSWORD	Password for SQL service account	Encrypted using AES key before SQL installation
TEMPLOGDIR	Directory for temporary log files	Validated and created if needed before SQL installation
FILESTREAMDRIVE	Drive letter for FileStream storage	Used to configure FileStream after SQL installation
FILESTREAMSHARENAME	Share name for FileStream	Configured during SQL installation
PRODUCTKEY	SQL Server product key	Passed to SQL installer
PORT	SQL Server port number	Validated to be numeric, defaults to 1433
TEMPDBDIR	Directory for TempDB files	Created and validated before SQL installation
DATADIR	Directory for SQL data files	Validated and created before SQL installation
SAPASSWORD	SQL SA account password	Encrypted using AES key before SQL installation
USETRANSFERBITS	Use BITS for file transfer	Controls file transfer method during installation
FEATURES	SQL Server features to install	Passed to SQL installer, defaults to SQLEngine
ENABLEPROTOCOLS	Enable SQL protocols	Configures SQL protocols post-installation
BACKUPDIR	Directory for backups	Validated and created before SQL installation

RAYSTATION Section

RayStation application installation and configuration settings.

Option	Description	Script Reference
IndexServicePort	Port for Index Service	Used during RayStation service configuration
FEATURES	RayStation features to install	Controls which components are installed
TransferServicePwd	Transfer Service password	Encrypted using AES key
GenerateSelfSignedCert	Generate SSL certificate	Controls certificate generation during installation
WAITFORSQLCONNECTION	Wait for SQL connection	Controls installation sequence
INDEXSERVICESERVER	Index Service server names	Used for service configuration
DATABASESUFFIX	Database name suffix	Used for database configuration
TRANSFERSERVICESERVER	Transfer Service server names	Used for service configuration
DATABASEADDRESS	Database server address	Used for database connection configuration
DATABASEINSTANCE	Database instance name	Used for database connection configuration
RAYSTATIONLOCATION	Installation file location	Validated at script start

CITRIX Section

Citrix Virtual Apps and Desktops installation settings.

Option	Description	Script Reference
DELIVERYCONTROLLERS	Citrix controller addresses	Used during VDA installation
OMITTEDSERVERS	Servers to skip	Controls where Citrix is not installed
CITRIXISOLOCATION	Citrix installation ISO path	Validated at script start

LICENSING Section

RayStation licensing configuration.

Option	Description	Script Reference
LOCALLICENSE	Use local license	Controls license configuration
DESIGNATEDSERVER	License server names	Used for license service configuration
LICENSELOCATION	License file location	Validated at script start
CONFIGUREHAL	Configure HAL	Controls hardware abstraction layer setup

SERVICES Section

Configuration for various RayStation services.

Option	Description	Script Reference
SCPPORT	DICOM SCP port	Used for DICOM service configuration
SECUREHOSTING	Enable secure hosting	Controls security settings
SERVICEPWD	Service account password	Encrypted using AES key
LICENSEAGENTSERVER	License agent servers	Used for license service configuration
DICOMSERVICELOCATION	DICOM service installer path	Validated at script start
GenerateSelfSignedCert	Generate SSL certificate	Controls certificate generation
SERVICEUSER	Service account username	Validated for correct format

GPU Section

NVIDIA GPU driver installation settings.

Option	Description	Script Reference
DRIVERLOCATION	GPU driver installer path	Validated at script start
CLEANINSTALL	Perform clean installation	Controls driver installation method
NVIDIALICENSETOKENLOCATION	License token file path	Validated at script start
REMOVECURRENTDRIVER	Remove existing	Controls driver removal before

	driver	installation

Author

- John Burriss
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