

Module 14: Monitoring and maintaining a SharePoint 2016 environment

Lab A: Monitoring a SharePoint 2016 deployment

Exercise 1: Configuring usage and health data collection

► Task 1: Configure usage and health data collection

1. Sign in to the **20339-1A-NYC-SP1-E** virtual machine as **Contoso\Administrator** with the password **Pa\$\$w0rd**.
2. On the **Start** screen, type **SharePoint 2016 Central Administration**, and then press Enter.
3. In Central Administration, click **Monitoring**, and then under **Reporting**, click **Configure usage and health data collection**.
4. On the **Configure usage and health data collection** page, in the **Usage Data Collection** section, select the **Enable usage data collection** check box.
5. In the **Health Data Collection** section, select the **Enable health data collection** check box, and then click **OK**.

Results: After completing this exercise, you should have configured SharePoint to collect usage and health data.

Exercise 2: Configuring SharePoint diagnostic logging

► Task 1: Configure diagnostic logging

1. In Central Administration, on the **Monitoring** page, under **Reporting**, click **Configure diagnostic logging**.
2. In the **Event Throttling** section, select the **All Categories** check box.
3. In the **Least critical event to report to the trace log** list, click **Verbose**.



Note: We do not recommend configuring verbose-level trace logging in a production environment because of the negative affect on performance and disk space.

4. In the **Event Log Flood Protection** section, ensure **Enable Event Log Flood Protection** is selected.
5. In the **Trace Log** section, select the **Restrict Trace Log disk space usage** check box.
6. In the **Maximum storage space for Trace Logs (GB)** box, type **10**, and then click **OK**.

► Task 2: Review a log file

1. On the desktop, on the taskbar, click the **File Explorer** icon.
2. In File Explorer, click drive **C**, expand **Program Files**, expand **Common Files**, expand **microsoft shared\Web Server Extensions**, and then expand **\16\LOGS**.
3. In the **LOGS** folder, locate the most recently updated log file.



Note: ULS trace logs are saved with filenames in the format *<machine name>-<date>-<time>.log*.

4. Open the log file, and observe the number of events that are logged in just a few seconds.
5. Close the log, and then close File Explorer.

Results: After completing this exercise, you should have configured the diagnostic logging settings for a SharePoint deployment and verified that you can view a log file.

Exercise 3: Configuring Health Analyzer rules

► Task 1: Configure Health Analyzer rule definitions

1. In Central Administration, click **Monitoring**, and then under **Health Analyzer**, click **Review rule definitions**.
2. On the **Health Analyzer Rule Definitions** page, review the four categories of rules:
 - Security
 - Performance
 - Configuration
 - Availability



Note: The list of rules extends across several pages. Click the **Next Page** button, displayed as a right-pointing arrow below the list, to see additional rules. The number of rules in each category will vary according to which services are configured.

3. In the **Availability** category, click **Some content databases are growing too large**.
4. On the ribbon, on the **View** tab, click **Edit Item**.
5. Note that you can change the following properties of the rule:
 - **Title**
 - **Scope**
 - **Schedule**
 - **Enabled**
 - **Repair Automatically**
 - **Version**



Note: You cannot change the actions that the rule uses to perform its health analysis task. The actions of the rule are determined by the code used to develop the rule.

6. In the **Schedule** list, click **Daily**, and then click **Save**.

► **Task 2: Run a Health Analyzer rule and review the results**

1. In Central Administration, click **Monitoring**, and then under **Reporting**, click **Review rule definitions**.
2. In the **Configuration** category, click **One or more categories are configured with Verbose trace logging**.
3. On the ribbon, on the **View** tab, click **Run Now**.
4. Click **Monitoring**, and then under **Reporting**, click **Review problems and solutions**.
5. On the **Review problems and solutions** page, notice that an item named **One or more categories are configured with Verbose trace logging** has been added.
6. On the **Review problems and solutions** page, click **One or more categories are configured with Verbose trace logging**.
7. Note the details of the problem, paying particular attention to the **Explanation** and the **Remedy** fields.

► **Task 3: Repair a detected issue**

1. In Central Administration, on the ribbon, on the **View** tab, click **Repair Automatically**.
2. Click **Reanalyze Now**, and then click **Close**.
3. On the **Review problems and solutions** page, verify that the issue no longer appears.
4. In Central Administration, click **Monitoring**, and then under **Reporting**, click **Configure diagnostic logging**.
5. In the **Event Throttling** section, expand several categories and subcategories, and verify that in each case the **Trace Level** is set to **Medium**.

Results: After completing this exercise, you should have configured SharePoint Health Analyzer rules and repaired any detected issues.

Exercise 4: Reviewing usage and health data

► **Task 1: Explore the logging database**

1. Sign in to the **20339-1A-NYC-DB1-E** virtual machine as **Contoso\Administrator** with the password **Pa\$\$w0rd**.
2. On the **Start** screen, type **SQL Server 2014 Management Studio**, and then press Enter.
3. In Microsoft SQL Server Management Studio, in the **Connect to Server** dialog box, click **Connect**.
4. In the Object Explorer window, expand the **Databases** node.
5. Expand the **WSS_Logging** node, and then expand **Views**.
6. Note the many different database views that collate usage data.

7. Right-click **dbo.TimerJobUsage**, and then click **Select Top 1000 Rows**.
8. Notice that the view contains data, but that the data is not in a particularly user-friendly format.

► **Task 2: Create a logging report by using Microsoft Excel**

1. Switch to the **20339-1A-NYC-SP1-E** virtual machine.
2. On the **Start** screen, type **Excel 2013**, and then press Enter.
3. If a **Microsoft Office Activation Wizard** dialog box displays, in the **Microsoft Office Activation Wizard** dialog box, click **Close**.
4. On the Excel start screen, click **Blank workbook**.
5. On the **Data** tab, click **Get External Data**, click **From Other Sources**, and then click **From SQL Server**.
6. In the **Data Connection Wizard** dialog box, in the **Server name** text box, type **NYC-DB1**, and then click **Next**.
7. On the **Select Database and Table** page, in the **Select the database that contains the data you want** list, click **WSS_Logging**.
8. In the list of views and tables, click the **TimerJobUsage** view, and then click **Next**.



Note: TimerJobUsage is a view instead of a table. Be sure to select the view. If you scroll down the list too far, you will see several tables beginning with the text TimerJobUsage_Partition.

9. On the **Save Data Connection File and Finish** page, in the **Description** text box, type **Connection to the TimerJobUsage view in the WSS_Logging database**, and then click **Finish**.
10. In the **Import Data** dialog box, click **PivotTable Report**, and then click **OK**.
11. In the **PivotTable Fields** pane, click and drag the **JobTitle** field into the **Rows** box.
12. Click and drag the **MachineName** and **WebApplicationName** fields into the **Filters** box.
13. Click and drag the **Duration** field from the field list to the **Values** box.
14. Use the PivotChart to explore the timer job usage data, if any is available.
15. Close Excel and discard your changes.

► **Task 3: Prepare for the next lab**

- When you are finished with the lab, keep all of the virtual machines running. The virtual machines in their current state are required for the next lab/module.

Results: After completing this exercise, you should have used data from the SharePoint logging database to generate a PivotTable Report in Excel.

Lab B: Investigating page load times

Exercise 1: Analyzing network traffic

► Task 1: Configure network traffic capture

1. Switch to the **20339-1A-NYC-SP1-E** virtual machine.
2. On the **Start** screen, click the **Internet Explorer** tile.
3. In Microsoft Internet Explorer, on the **Tools** menu (displayed as a cog icon), click **F12 developer tools**.
4. In the **developer tools** pane, on the **Network** tab, click the **Enable network traffic capturing** icon.

► Task 2: Review the network traffic generated by a page request

1. In the Internet Explorer Address bar, type **sharepoint.contoso.com**, and then press Enter.
2. If the **Windows Security** dialog box appears, in the **User name** text box, type **Contoso\Administrator**, in the **Password** text box, type **Pa\$\$w0rd**, and then click **OK**.
3. After the page completes loading, in the **developer tools** pane, click the **Disable network traffic capturing** icon.
4. Review the list of HTTP requests generated by the page loading process.
5. Notice that images, CSS files, and JavaScript files are downloaded as individual resources, and that you can view the download time for each resource.
6. Select one of the requests, and then click **DETAILS**.
7. Explore the data on each of the tabs, and then click **SUMMARY**.
8. Close F12 Developer Tools, and then close Internet Explorer.

Results: After completing this exercise, you should have captured and analyzed the network traffic generated by a SharePoint page request.

Exercise 2: Analyzing SharePoint page performance

► Task 1: Enable the SharePoint developer dashboard

1. On the **Start** screen, type **SharePoint 2016 Management Shell**, and then press Enter.
2. To create a Content Service object, at the command prompt, type the following command, and then press Enter:

```
$content = ([Microsoft.SharePoint.Administration.SPWebService]::ContentService)
```

3. To create a developer dashboard Setting object, at the command prompt, type the following command, and then press Enter:

```
$appsetting = $content.DeveloperDashboardSettings
```

4. To set the developer dashboard setting to **OnDemand**, at the command prompt, type the following command, and then press Enter:

```
$appsetting.DisplayLevel =  
[Microsoft.SharePoint.Administration.SPDeveloperDashboardLevel]::OnDemand
```

5. To push the updated setting to the SharePoint environment, at the command prompt, type the following command, and then press Enter:

```
$appsetting.Update()
```

6. Close the SharePoint 2016 Management Shell.

► **Task 2: Review SharePoint page load data**

1. On the **Start** screen, click the **Internet Explorer** tile.
2. In the Internet Explorer Address bar, type **sharepoint.contoso.com**, and then press Enter.
3. If the **Windows Security** dialog box appears, in the **User name** text box, type **Contoso\Administrator**, in the **Password** text box, type **Pa\$\$w0rd**, and then click **OK**.
4. After the page finishes loading, click the **Launch the Developer Dashboard** icon in the upper-right corner of the page.
5. After the **Developer Dashboard** page finishes loading, switch back to the original Internet Explorer window.
6. In the Internet Explorer Address bar, type **sharepoint.contoso.com**, and then press Enter.



Note: Press the CTRL+F5 keys to refresh from the server instead of from the browser cache.

7. After the page completes loading, switch back to the Developer Dashboard window.
8. On the **Requests** tab, click **Request (GET:http://sharepoint.contoso.com/SitePages/Home.aspx)**.
9. On the **Server Info** tab, review the general information associated with the request.
10. On the **SQL** tab, review the database calls associated with the request.
11. Review the information on the remaining tabs, and then close the Developer Dashboard window.
12. Close Internet Explorer.

Results: After completing this exercise, you should have enabled the SharePoint developer dashboard and reviewed SharePoint page load data.

► **Task 3: Prepare for the end of the course**

When you are finished with the lab, revert all virtual machines to their initial state:

1. On the host computer, start **Hyper-V Manager**.
2. In the **Virtual Machines** list, right-click **20339-1A-NYC-DC1-E**, and then click **Revert**.
3. In the **Revert Virtual Machine** dialog box, click **Revert**.
4. Repeat step 2 and 3 for **20339-1A-NYC-DB1-E** and **20339-1A-NYC-SP1-E**.
5. Close Hyper-V Manager.