

Microsoft® Virtual Labs

Rapid Troubleshooting with IIS 7 Failed Request Tracing

Microsoft®

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Rapid Troubleshooting with IIS 7 Failed Request Tracing

Objectives

The objective of this lab is to guide you through the basics of tracing and diagnostics in IIS 7. One of the new IIS 7 features is the ability to list currently executing requests from the command line as well as in the IIS Manager. This can be very useful for identifying bottlenecks, which is a common troubleshooting scenario for hosters. In Exercise 1, you will observe normal request processing from a command line. Then in Exercise 2, you will view currently executing requests and then observe the same requests executing more slowly in the IIS Manager.

You will find that IIS 7 tracing has many practical uses including identifying which modules and handlers are in use, the time taken in each event, cache tuning, and more. In Exercise 3, you will use the tracing logs to diagnose a Web site problem resulting from incorrect file permissions. We suggest taking time during this lab to explore the detail in the trace logs as a way to introduce you to the kinds of events this feature can help you with day-to-day administration.

Estimated Time to Complete This Lab

40 Minutes

Computers used in this Lab



ContosoWeb3

The password for the Administrator account on all computers in this lab is:
P@ssword

Exercise 1

Viewing Currently Executing Requests with APPCMD

Scenario

In this exercise you will launch a simple batch file that will send 100 requests to the Default Web Site, and then view the currently executing requests using APPCMD.

Tasks	Detailed Steps
1. Create the Contoso Web site	<p>a. Click Start, then click Internet Information Services (IIS) Manager.</p> <p>b. In IIS Manager, right-click on Sites in the left pane and click Add Web Site...</p> <p>c. In the Add Web Site window enter the following:</p> <ul style="list-style-type: none"> • Site name : Contoso • Physical path : c:\inetpub\wwwroot\contoso • Port : 80 • Host name : www.contoso.msft <p>d. Click OK to save the configuration.</p>
2. Prepare to list executing requests to the Default Web Site	<p>a. Click Start Command Prompt.</p> <p>b. In the command prompt window, type: APPCMD LIST REQUESTS (but <i>do not</i> press the Enter key)</p> <p><i>Note: Click and drag the command-prompt window to the lower-right corner of the display in order to see the next window open in Task 3, Step 1.</i></p> <p>c. Be prepared to quickly execute Task 2, Step 2 immediately after executing Step 1 in Task 3.</p>
3. Send requests to the Web server	<p><i>Note: The sendrequests.bat file will open a command window and launch Tinyget, an IIS 6 resource kit utility that can send HTTP requests to a designated target. The Tinyget command (tinyget -l:500 -x:5 www.consoto.msft /) sends 500 requests using 5 threads to the default document on http://localhost.</i></p> <p>a. Browse to E:\Lab Files\Lab 6\Collateral folder using Windows Explorer.</p> <p>b. Double-click the sendrequests.bat file to send requests to the web server.</p> <p>c. Quickly switch to the other command window from Task 2 and press ENTER to list the requests. You should see one or more entries similar to: REQUEST "f200000080002f88" (url:GET /, time:10 msec, client:localhost, stage:ExecuteRequestHandler, module:DefaultDocumentModule)</p> <p><i>Note: Press the UP ARROW key to repeat the command a few times until the opened Command Prompt windows closes, if no requests are listed. You will see from zero to a few requests. Requests are moving through the pipeline very quickly so you may see no currently executing requests, even though the server is delivering content. Note that in each listing, the request may be in different stages of the request processing pipeline.</i></p> <p>d. Close the Command Prompt windows.</p>

Exercise 2

Using IIS 7 Tracing to Diagnose a Bottleneck Scenario

In this exercise, you will make some additions to the server that will result in poor Web site performance. Using IIS 7's built-in diagnostics, you can quickly identify the source of the problem. The problem will be shown to be one that would have been difficult to identify in IIS 6.

Tasks	Detailed Steps																																										
<p>1. Run a batch file to install code that will cause a performance issue</p>	<p>a. Browse to E:\Lab Files\Lab 6\Collateral and double-click on Exercise2.bat.</p> <p>b. Double-click sendrequests.bat to start sending requests to the default Web site.</p>																																										
<p>2. View the time response for View Current Requests, using the IIS Manager</p>	<p>a. If the IIS Manager is not already open, click Start Internet Information Services (IIS) Manager.</p> <p>b. Click CONTOSOWEB3 in the left pane.</p> <p>c. Double-click the Worker Processes icon in the Features View pane.</p> <p>d. Right-click Contoso and select View Current Requests.</p> <div data-bbox="509 842 1320 1243" data-label="Image"> <table border="1"> <thead> <tr> <th>Web Site</th> <th>Url</th> <th>Verb</th> <th>Client IP</th> <th>State</th> <th>Module Name</th> <th>Time Elapsed</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>/</td> <td>GET</td> <td>10.0.0.3</td> <td>Unknown</td> <td>IIS Web Core</td> <td>4136</td> </tr> <tr> <td>5</td> <td>/</td> <td>GET</td> <td>10.0.0.3</td> <td>Unknown</td> <td>IIS Web Core</td> <td>4116</td> </tr> <tr> <td>5</td> <td>/</td> <td>GET</td> <td>10.0.0.3</td> <td>Unknown</td> <td>IIS Web Core</td> <td>4116</td> </tr> <tr> <td>5</td> <td>/</td> <td>GET</td> <td>10.0.0.3</td> <td>Unknown</td> <td>IIS Web Core</td> <td>440</td> </tr> <tr> <td>5</td> <td>/</td> <td>GET</td> <td>10.0.0.3</td> <td>Unknown</td> <td>IIS Web Core</td> <td>440</td> </tr> </tbody> </table> </div> <p>Figure 1 - Current Requests for the Worker Process</p> <p><i>Note: You may need to adjust the column width or scroll to see the Time Elapsed column.</i></p> <p><i>Notice the time elapsed is for each request that is too long for the Web site. Configuring a trace for long running requests will provide useful information to diagnose the bottleneck.</i></p> <p>e. Close the Command Prompt window running the sendrequests.bat file.</p>	Web Site	Url	Verb	Client IP	State	Module Name	Time Elapsed	5	/	GET	10.0.0.3	Unknown	IIS Web Core	4136	5	/	GET	10.0.0.3	Unknown	IIS Web Core	4116	5	/	GET	10.0.0.3	Unknown	IIS Web Core	4116	5	/	GET	10.0.0.3	Unknown	IIS Web Core	440	5	/	GET	10.0.0.3	Unknown	IIS Web Core	440
Web Site	Url	Verb	Client IP	State	Module Name	Time Elapsed																																					
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<p>3. Configure initial tracing settings by specifying content to trace</p>	<p>a. In IIS Manager, in the left pane, expand CONTOSOWEB3, expand Sites and then click Contoso.</p> <p>b. In the Actions pane, click Failed Request Tracing... in the Configure section.</p> <p>c. Check the Enable box in the Edit Web Site Failed Request Tracing Settings dialog window.</p>																																										

Tasks	Detailed Steps
	<div data-bbox="509 191 1321 646"> </div> <p data-bbox="509 667 1130 699">Figure 2 - Enabling Web Site Request Tracing Settings</p> <p data-bbox="509 724 1438 756"><i>Note: Make a note of the directory path to the FailedReqLogFiles folder.</i></p> <p data-bbox="509 772 1438 850"> d. Click OK to close the dialog window. e. In the Features View pane, double-click the Failed Request Tracing Rules icon. </p> <div data-bbox="558 865 727 1033"> </div> <p data-bbox="509 1052 1349 1083">Figure 3 - The Failed Request Tracing Rules Application in Features View</p> <p data-bbox="509 1108 1000 1140">f. In the Actions pane click the Add... link.</p> <div data-bbox="509 1157 1321 1776"> </div> <p data-bbox="509 1795 911 1827">Figure 4 - Specify Content to Trace</p> <p data-bbox="509 1852 1438 1904"><i>Note: In the Add Failed Request Tracing Rule dialog window, you can specify the content you want to trace. You can set up a rule such as Home.asp or My*.htm to</i></p>

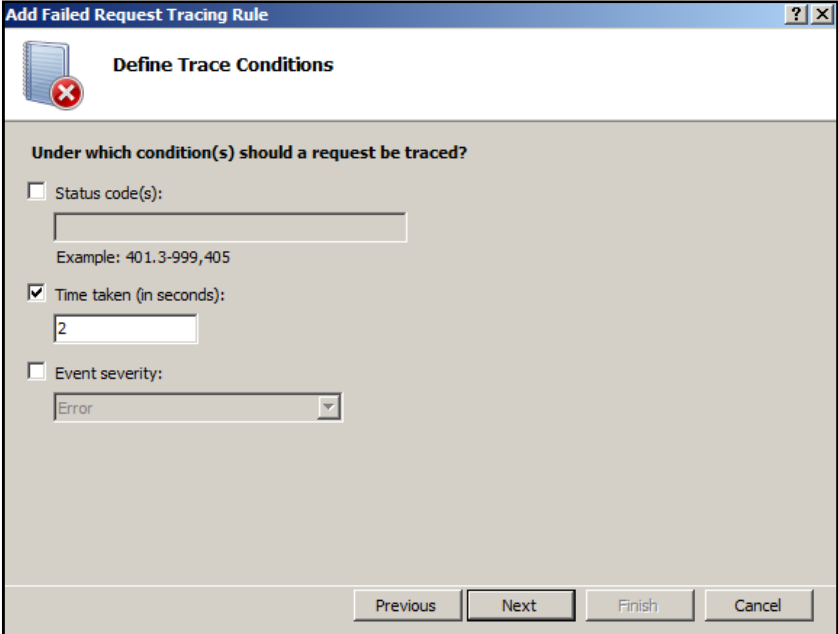
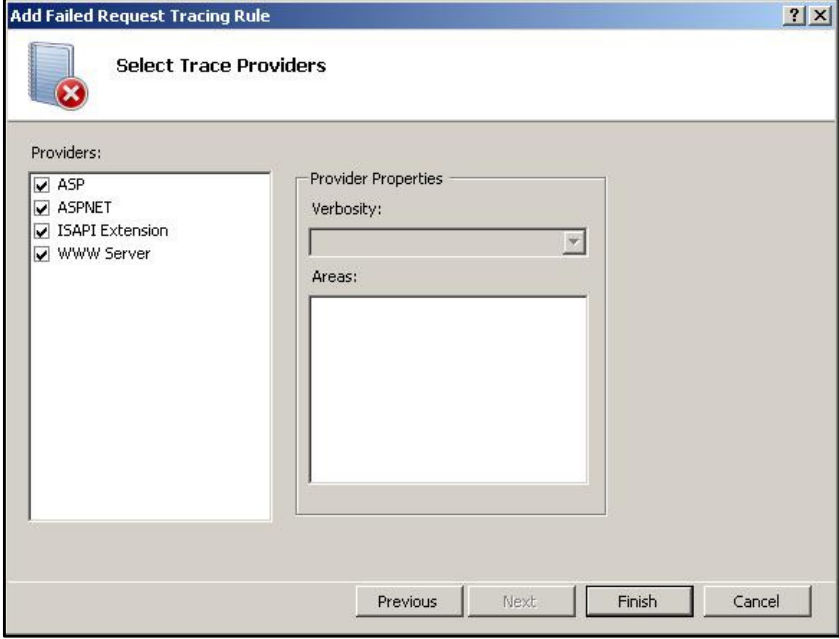
Tasks	Detailed Steps
	<p><i>trace any page or type of content you wish.</i></p> <p>g. Click Next to trace all content.</p>
<p>4. Define the trace conditions</p>	<p>a. Click to unselect Status code(s).</p> <p>b. Click to select the Time taken (in seconds) check box and enter the following information in the Define Trace Conditions dialog window as shown in Figure 5 below:</p> <ul style="list-style-type: none"> Time taken (in seconds): 2  <p>c. After completing the form, click Next.</p>
<p>5. Select the trace provider modules to use for the tracing rule.</p>	<p>a. Accept the default providers on the Select Trace Providers dialog window by clicking the Finish button.</p>

Figure 5 - Defining Trace Conditions

***Note:** You can enter an HTTP error code(s) or a range of codes that trigger the trace. In addition, you can enter a Time Taken factor as well as the message severity to record.*

Tasks	Detailed Steps
	 <p data-bbox="548 848 941 877">Figure 6 - Selecting Trace Providers</p>

<p>6. Launch IE and access the Web site, triggering the rule</p>	<p>a. Right-click Contoso under Sites. Select Manage Web Site, then click Browse.</p>
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<p>7. Examine the Default Web Site trace log to identify the cause of the performance issue</p>	<p>a. Browse to c:\inetpub\logs\FailedReqLogFiles\W3SVC5 and then double-click the first file listed.</p>
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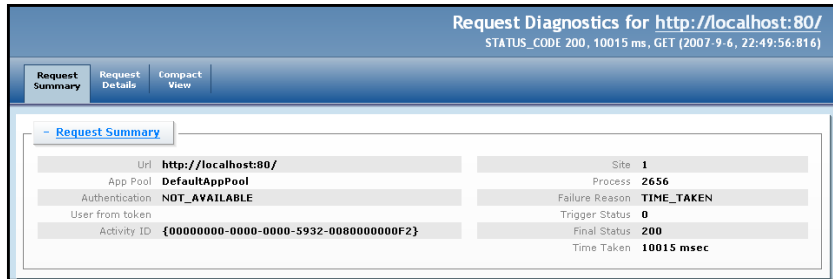
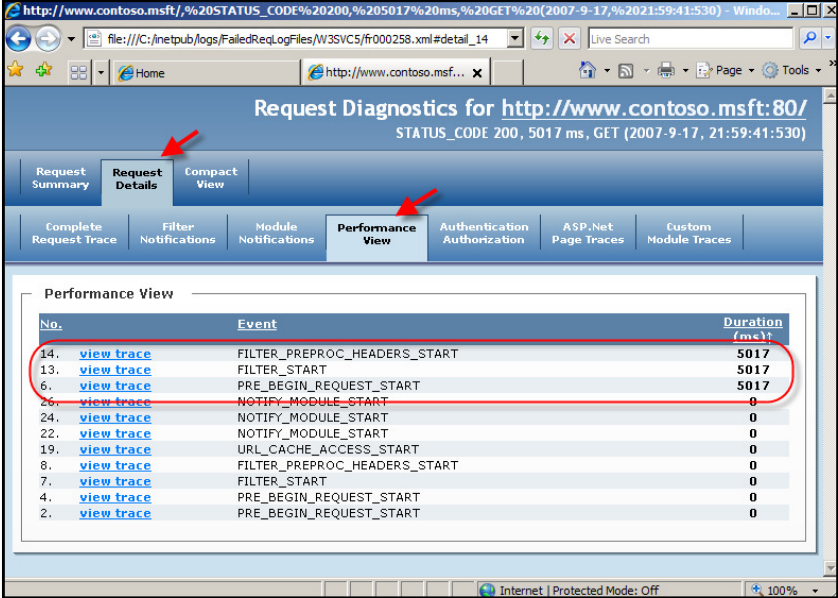



Figure 7 - Request Diagnostics Summary Page

***Note:** Note the details on the Summary page which should be similar to the following: You can tell from this summary page which Web site and pool triggered the rule, and why it was triggered (TIME_TAKEN), the status code and time taken. However, you don't have enough information to know where to look further.*

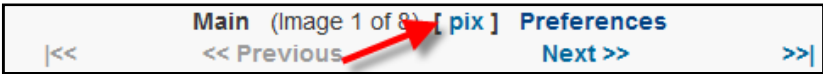
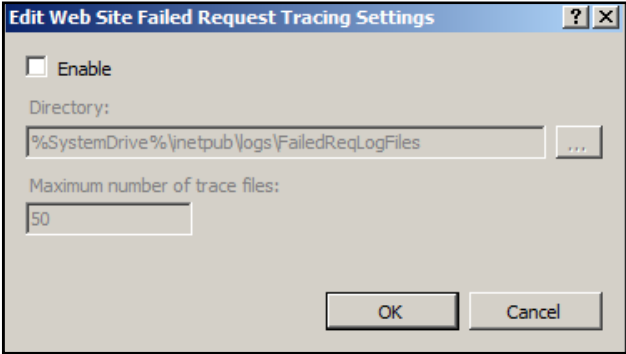
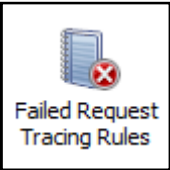
b. Click on the **Request Details** tab, then the **Performance View** tab.

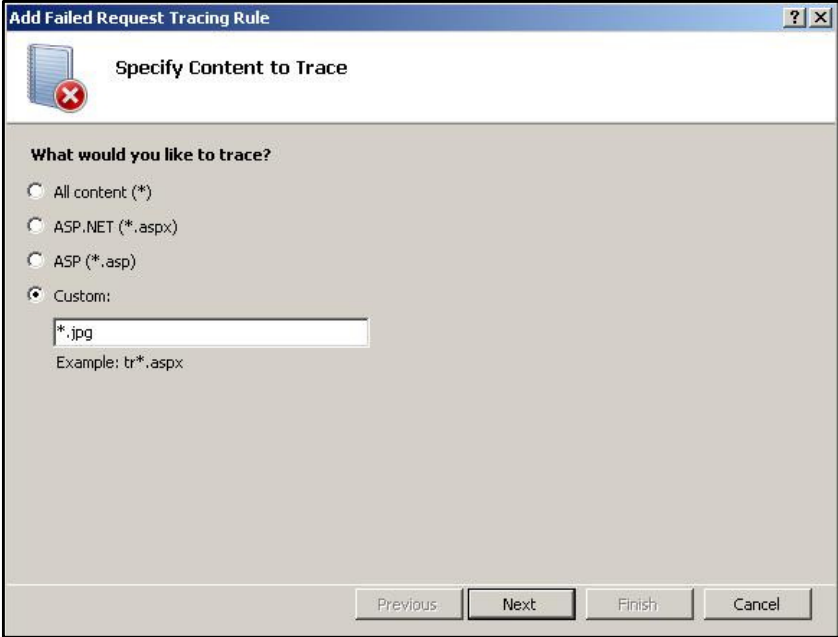
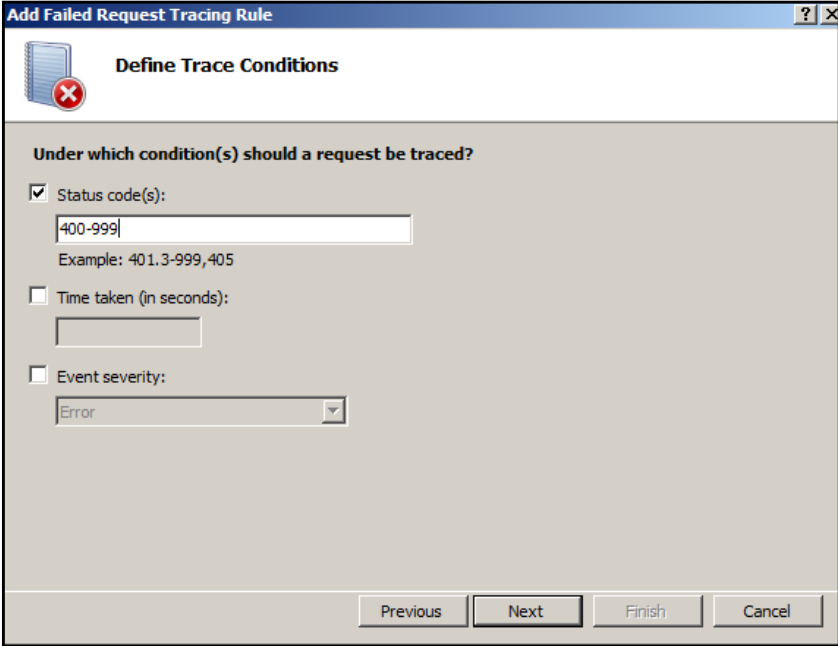
Tasks	Detailed Steps
	 <p>Figure 8 - Request Diagnostics Detail Page</p> <p><i>Note: You can quickly see that there is a slowdown in filter processing.</i></p> <ol style="list-style-type: none"> Click the Filter Start event. Expand Filter Start to show the location of the filter. <div data-bbox="516 1024 1279 1083" style="border: 1px solid gray; padding: 5px;"> <p>13. - FILTER START 5017 ms</p> <p style="text-align: center;">FilterName: e:\Lab Files\Lab 6\Collateral\app\myfilter.dll</p> </div> <ol style="list-style-type: none"> Take a moment to explore additional contents of the tracing reports. <p><i>Note: Click Compact View tab to see a very useful, detailed view of events in the log. You will see actions organized by modules, authentication, caching, and other subsystems which can be quite useful when troubleshooting.</i></p> <ol style="list-style-type: none"> Close Internet Explorer.
<p>8. Restore system performance by clearing the appropriate filter</p>	<ol style="list-style-type: none"> Click CONTOSOWEB3 in the left pane of IIS Manager and then double-click ISAPI Filters in the Features View pane. <div data-bbox="565 1402 685 1503" style="text-align: center;">  <p>ISAPI Filters</p> </div> <p>Figure 9 - The ISAPI Filters Application in the Features View</p> <ol style="list-style-type: none"> Click the filter MyFilter and then click Remove in the Actions pane. Click Yes for the Confirm Remove prompt. Launch Internet Explorer and browse to http://www.contoso.msft. The Web site is displayed. After an initial delay while the application is loaded (removing a global ISAPI filter requires the pool to restart), pages should appear quickly. This time, the Contoso website should appear faster. You can launch sendrequests.bat again and view the requests to validate that throughput has significantly improved.

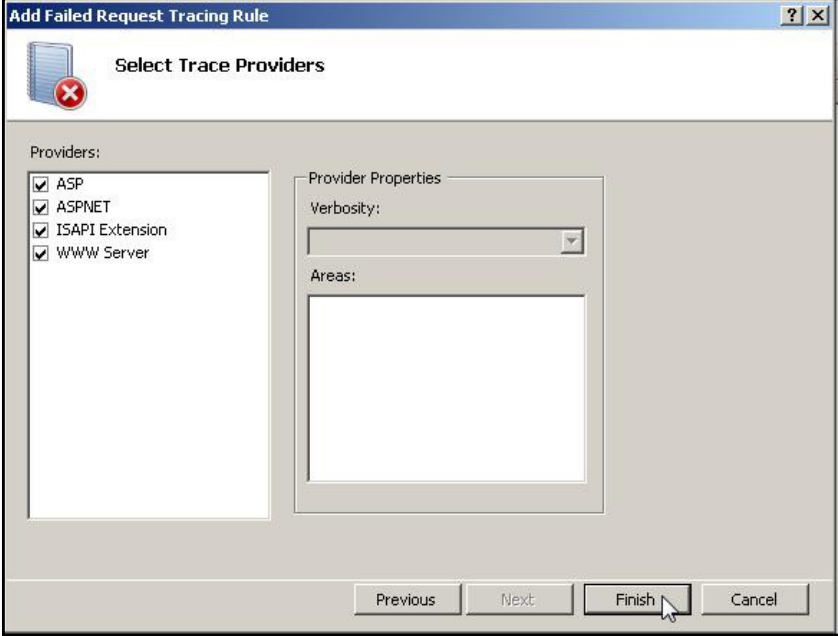

Exercise 3

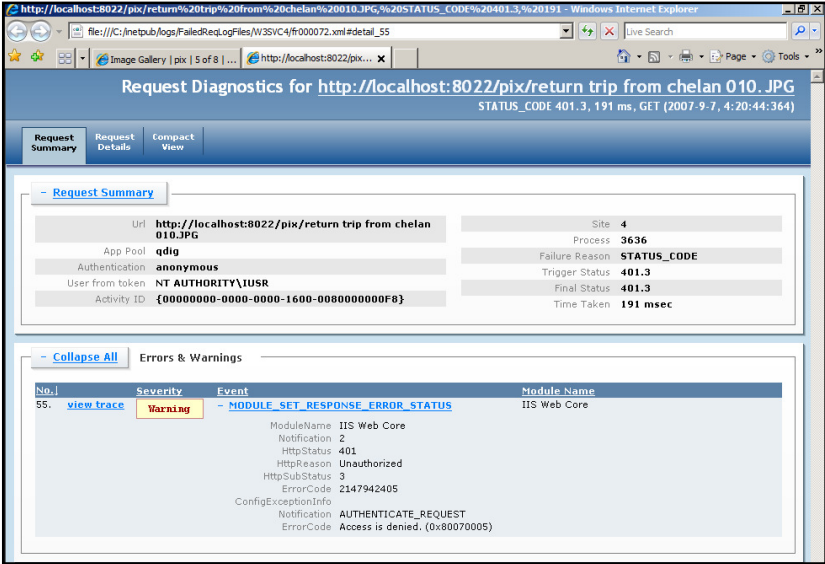
Troubleshooting Permissions with IIS 7 Tracing

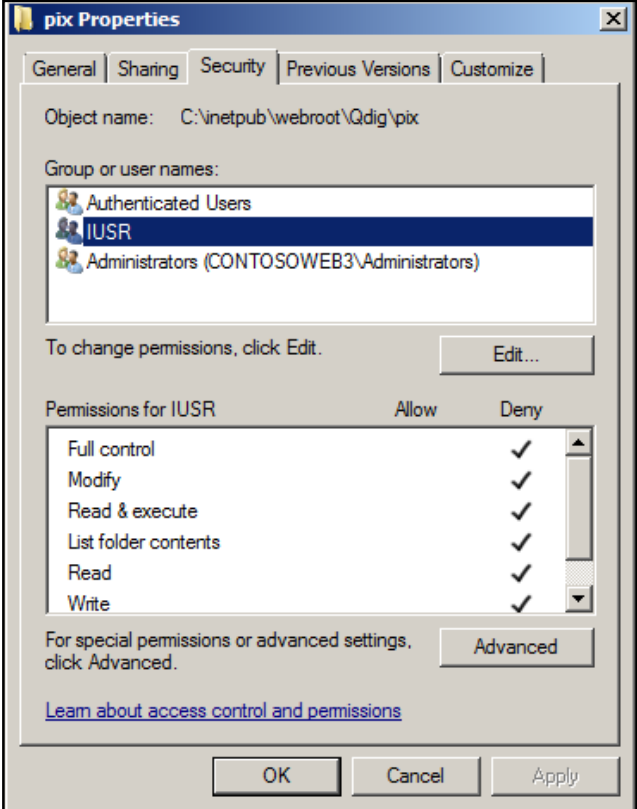
Scenario

Tasks	Detailed Steps
<p>1. Prepare the Qdig Web site for testing and then open the Web site</p>	<p>a. In Explorer, browse to the E:\Lab Files\Lab 6\collateral folder and then double-click the Exercise3.bat file.</p> <p>b. In IIS Manager, in the left pane, double-click the Qdig Web site.</p> <p>c. In the Actions pane, click Browse*:400 (http).</p> <p><i>Note: This will launch the Qdig PHP application. A simple slideshow of the images in the root folder is shown.</i></p> <p>d. Click on the [pix] link at the top of the Internet Explorer window as shown:</p>  <p>Figure 10 - Qdig Web Main Page Header</p> <p><i>Note: The images are not correctly displayed. Clicking Next>> shows that all images are failing to display.</i></p> <p>e. Minimize Internet Explorer.</p>
<p>2. Setup a custom tracing rule</p>	<p>a. In IIS Manager, ensure that the Qdig Web site is still selected in the left pane view. In the Actions pane, click Failed Request Tracing... to show:</p>  <p>Figure 11 - Enabling Web Site Failed Request Tracing Settings</p> <p>b. Select the Enable check box and note the path to the FailedReqLogFiles folder, then click OK.</p> <p>c. In the Feature pane, double-click Failed Request Tracing Rules.</p>  <p>Figure 12 - The Failed Request Tracing Rules Application in the Features View</p> <p>d. In the Actions pane click the Add... link.</p> <p>e. In the Add Failed Request Tracing Rule form click Custom and add *.jpg, then</p>

Tasks	Detailed Steps
	<p>click Next.</p>  <p>Figure 13 - Specifying the Content to Trace</p> <p>f. In the Define Trace Conditions form, in Status Codes, enter 400-999 to capture all HTTP errors. Click Next.</p>  <p>Figure 14 - Defining the Trace Conditions</p> <p>g. Click Finish on the Select Trace Providers form to accept all trace providers.</p>

Tasks	Detailed Steps
	 <p>Figure 15 - Selecting the Trace Providers</p>
<p>3. Trigger rule to create a failed request and review the event log generated</p>	<ol style="list-style-type: none"> a. Maximize the Internet Explorer window that has the Qdig application displayed and then click Next>>. <p><i>Note: This will trigger the rule creating a failed request event log.</i></p> <ol style="list-style-type: none"> b. Browse to C:\inetpub\logs\FailedReqLogFiles\W3SVC3 and then double-click the highest numbered log file listed. c. Review the log for details. d. Note that the request was the anonymous user on a specific JPG file, resulting in a 401.3. Also note that there is a warning message displayed. e. Click on the Expand All link.  <p>Figure 16 - Portion of the Request Diagnostics Summary Screen</p> <ol style="list-style-type: none"> f. Study the warning details. The trace log clearly shows that the .jpg listed in the URL was not shown because access was denied.

Tasks	Detailed Steps
	 <p data-bbox="509 772 1430 804">Figure 17 - Errors and Warnings from the Request Diagnostics Summary Report</p> <p data-bbox="509 831 1247 863">g. Close the diagnostic report tab and minimize Internet Explorer.</p>
<p data-bbox="185 888 451 1010">4. Configure security for the Qdig Web site to allow appropriate access</p>	<p data-bbox="509 894 1192 926">a. In IIS Manager, double-click the Qdig site in the left pane.</p> <p data-bbox="509 940 1430 972"><i>Note: This will expand the listing.</i></p> <p data-bbox="509 989 1192 1020">b. Right-click the pix folder and then select Edit Permissions.</p> <p data-bbox="509 1035 1247 1066">c. Click the Security tab to show the permissions on the pix folder.</p> <p data-bbox="509 1081 889 1113">d. Click the IUSR listing to show:</p>

Tasks	Detailed Steps
	 <p>Figure 18 - Setting Security on the Pix Folder</p> <ol style="list-style-type: none"> e. Click Edit to open the Permissions for pix dialog window. f. Click IUSR. g. Clear all the Deny permissions. h. Enable the Read permission, click OK and OK again. i. Maximize Internet Explorer and click Next>> in the Qdig application. j. The images now display properly.