

Attix5 Pro **Enterprise Reports**

V7.x User Manual

*Your guide to modifying and
creating Enterprise Reports.*



Copyright notice and proprietary information

All rights reserved.

© Attix5, 2013

Trademarks

® - Microsoft Explorer and Microsoft SQL Management Studio are registered trademarks of Microsoft Corporation.

Contents

1. Introduction	4
2. Enterprise Report overview	4
2.1. Enterprise Report generation process.....	5
3. Modifying Attix5 Pro Enterprise Report templates.....	6
3.1. Template properties	7
3.2. Layout	9
3.2.1. Static content	9
3.2.2. Dynamic content.....	10
3.2.2.1. Header and footer	11
3.3. Database queries	13
3.3.1. DL- and SE-specific reports	14
3.4 Example: Modifying BackupsNotIn24	15
4. Creating a new Enterprise Report template	21
Step 1: Create a report category	22
Step 2: Define the report details and parameters.....	22
Step 3: Create a Report Template	24
Step 4: Define SQL query/ies.....	25
Step 5: Create a report sub-template.....	25
Full example: Creating an AccountsAll Report Template.....	28
Full example: Creating an HSM report for SE Accounts	31
Appendix A – Identifier format types	35
Appendix B – System functions	35
Appendix C – Storage Platform report relations.....	36

1. Introduction

Using the Attix5 Pro Storage Platform Console, backup administrators can access two types of Storage Platform reports: Standard and Enterprise.

Standard Reports are available with every Storage Platform Console installation. For instructions on how to run and schedule these reports, please refer to the Storage Platform Console User Manual.

Enterprise Reports are more detailed than Standard Reports and can be modified. This User Manual describes how to adapt Enterprise Reports to suit your Storage Platform requirements as well as how to create new reports.



Note: The SP Console Enterprise Reports feature will only be available once it has been licenced. To acquire a licence, please contact your software provider.


2. Enterprise Report overview

An Enterprise Report is built using several files on the AccountServer:

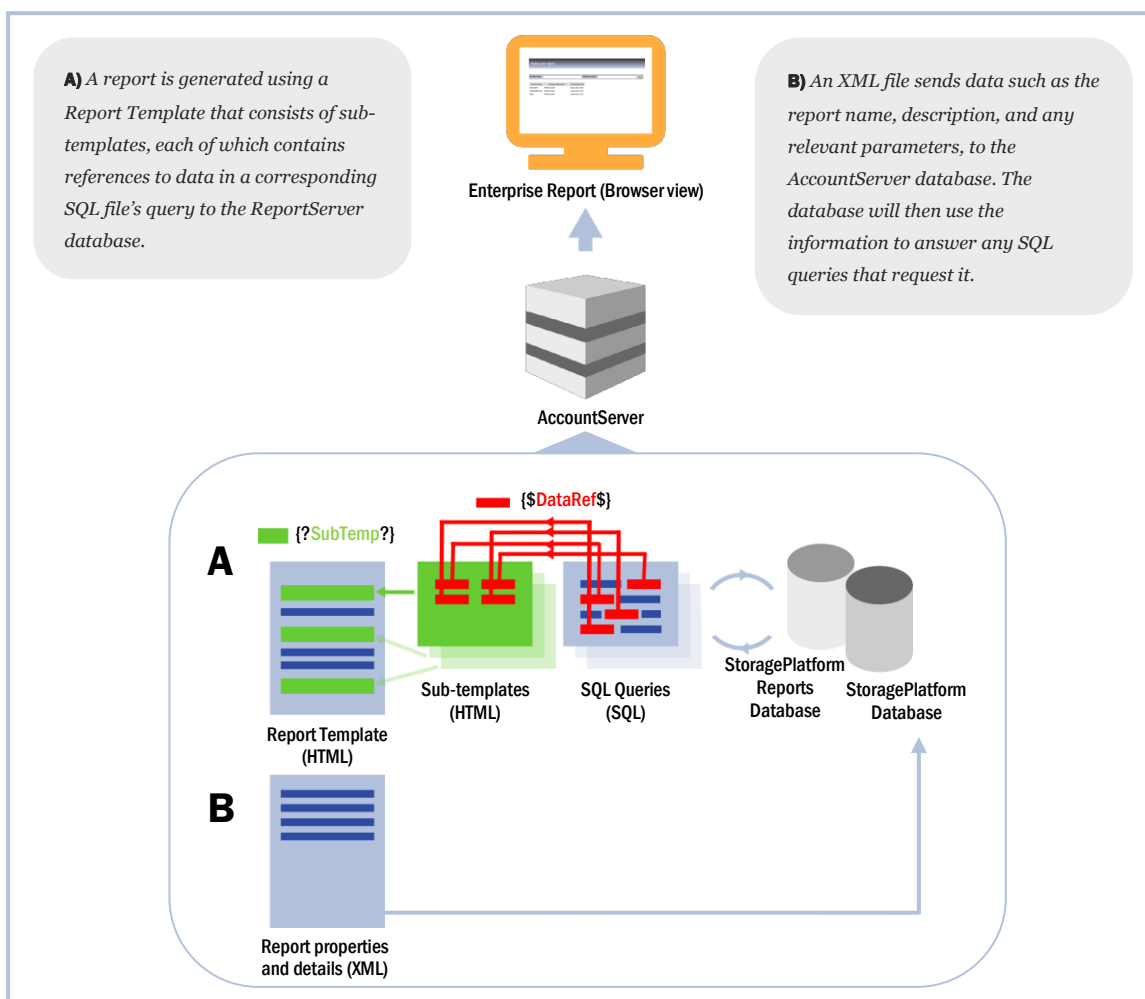
- An XML file
- A Report Template
- One or more sub-templates
- An SQL file

AccountServer files	
File	Description
Report Template (HTML)	The Report Template contains the skeleton layout of the report and often refers to one or more sub-templates.
Sub-template (HTML)	<p>A sub-template contains data references (placeholders for data pulled from the StoragePlatform database by a corresponding SQL file) and HTML formatting that controls how the data is displayed in the report.</p> <div> <p>Notes:</p> <ul style="list-style-type: none"> ▪ Some sub-templates are report-specific, while others can be re-used in many different reports (e.g. header and footer sub-templates). ▪ A complete report can be built using an HTML Report Template that merely contains a collection of sub-templates. ▪ Changing a sub-template that is used in multiple reports will change all those reports accordingly. </div>

AccountServer files continued...

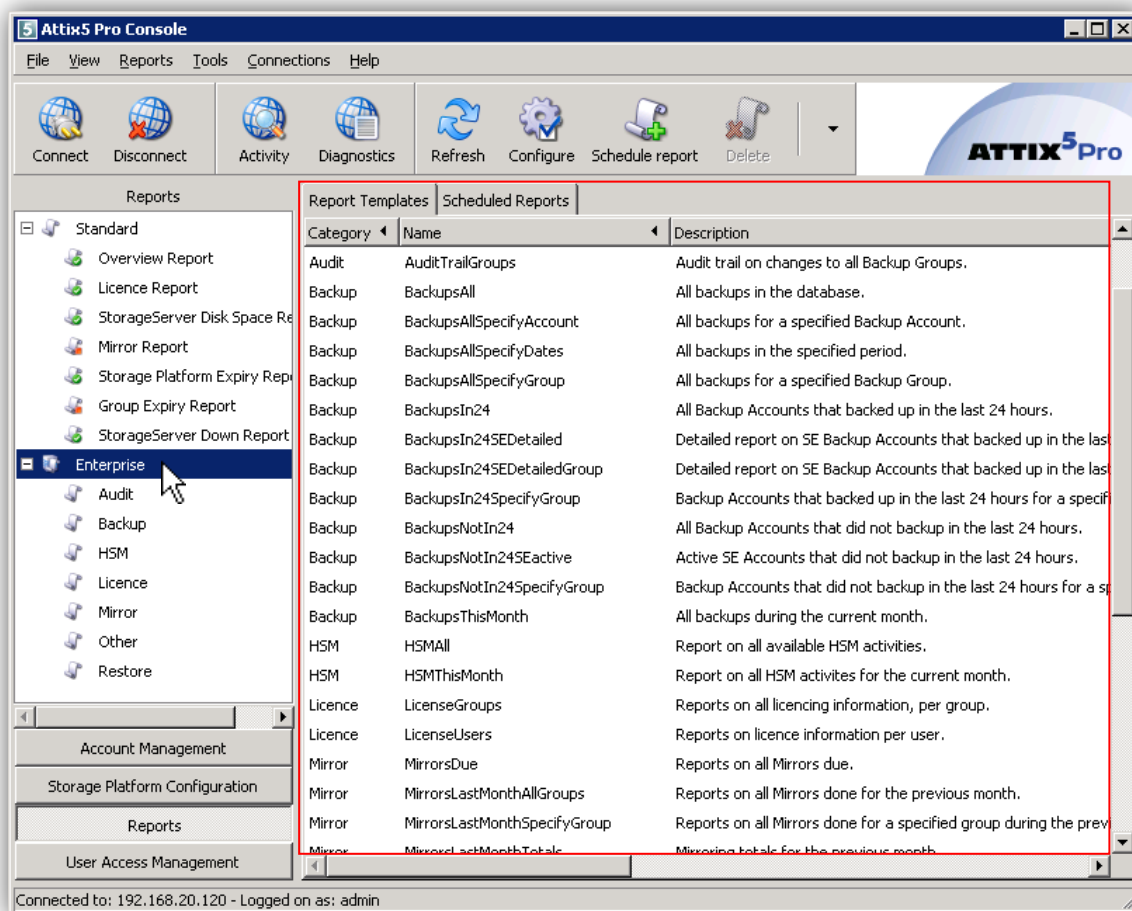
File	Description
SQL file	Each SQL file on the AccountServer is linked to an HTML sub-template and contains one or more SQL queries that are sent to the StoragePlatform database. The information retrieved from the database is displayed in the report according to the display settings specified in the sub-template.
XML file	Each report has an accompanying XML file that specifies the report's details, such as its filename, description and, if applicable, parameters. This information is sent to the StoragePlatform database and can then be retrieved when reports are generated. <div>  Note: XML markup does not have to be standards-compliant. </div>

2.1. Enterprise Report generation process



3. Modifying Attix5 Pro Enterprise Report templates

If the Enterprise Reports feature has been licenced, the Storage Platform Console will include a set of predefined Attix5 Pro Enterprise Report templates. To access these templates, click the **Enterprise** node in the Reports tree. A list of the templates will display on the **Report Templates** tab, sorted by category:



You can modify these templates to suit your particular backup report needs by editing the relevant files on the AccountServer.

You can modify Report Templates in different ways:

- Modify the template properties
- Modify the style/layout
- Modify the database queries

3.1. Template properties

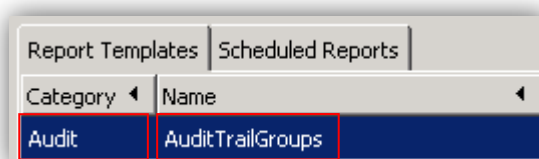
You can modify a Report Template's properties by editing the XML file that accompanies the Report Template HTML file in the AccountServer's report category folder. For instructions, see below.

To modify a Report Template's properties:

1. In the SP Console, locate the template you wish to modify, and then make a note of its *name* and the *category* to which it belongs (as displayed on the **Report Templates** tab).



Example:



2. On the AccountServer, open Windows Explorer, and then navigate to the category's folder under **Reports**. E.g. **C:\Program Files\Attix5 Pro\Storage Platform\Reports\Audit**.
3. Open the template's XML file in an XML or text editor.



Tip: The XML file names correspond with the Report Template names on the SP Console's **Report Templates** tab. E.g. The AuditTrailGroups template's XML file is called "AutitTrailGroups_.xml".


Attix5 Pro Enterprise Reports typically have the following properties defined in XML:

- Report name
- Admin only access (true/false)
- Report template filename
- Report description
- Parameters



Example:

```
<report name="AuditTrailGroups" admin="true">
  <desc>Audit trail on changes to all Backup Groups.</desc>
  <reportFilename>AuditTrailGroups.html</reportFilename>
</report>
```

XML tags and attributes	
Attribute	Value
name	The value of the name attribute determines the name displayed by the SP Console on the Report Templates tab and Internet Browser when the report is viewed.
admin	A value of “true” for this attribute renders the report available to admin users only. All users with fewer permissions will not be able to run the report.
<desc></desc>	The description between these tags displays on the SP Console’s Report Templates tab.
<reportFilename></reportFilename>	<p>The name specified between these tags is the filename of the Report Template that controls the layout of the generated report.</p> <div>  Warning: If you change this value, please ensure that you change the name of the Report Template in the Reports/<Category> folder accordingly. E.g. If <code><reportFilename>AuditTrailGrABC</reportFilename></code> is defined, the Report Template HTML file, under Reports/Audit, must be named: <code>AuditTrailGrABC.html.</code> </div>

4. Modify the properties as desired.



Notes:

- XML markup does not have to be standards-compliant.
- If you specify parameters, you need to define those parameters in the SQL file. The XML file only instructs the SP Console to prompt the user for the information. The SQL file sends those parameters to the database, along with the query.

5. Save the changes.

The Report Template properties will now be updated.

3.2. Layout

An Enterprise Report's layout is controlled in two parts:

- Static content – controlled by the Report Template
- Dynamic content – Controlled by sub-templates

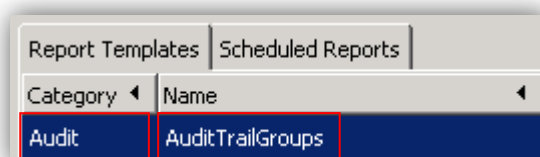
3.2.1. Static content

To modify the layout of static content:

1. In the SP Console, locate the template you wish to modify, and then make a note of its *name* and the *category* to which it belongs (as displayed on the **Report Templates** tab).



Example:



2. On the AccountServer, open Windows Explorer, and then navigate to the category's folder under **Reports**. E.g. **C:\Program Files\Attix5 Pro\Storage Platform\Reports\Audit**.
3. Open the Report Template HTML file in an HTML or text editor.



Tip: The HTML file names correspond with the Report Template names on the SP Console's **Report Templates** tab. E.g. The *AuditTrailGroups* template's HTML file is called "AutitTrailGroups.html".

Attix5 Pro Enterprise Reports are typically structured as follows:

- The report title is defined within the head element.
- The header and footer are positioned within a div element and sub-templates (which reference a CSS stylesheet) define their style.
- Static content is arranged within a table and styled using CSS style classes.
- Dynamic content is referenced using sub-template placeholders.



Note: The style and layout of dynamic content is defined in the sub-template. Only the reference is included in the Report Template file.

4. You can now modify the style of the static content by changing the HTML to suit your needs.
5. Save the file. Once the SP Console AccountServer Diagnostics window logs the message: "*<timestamp>* Info: Updating report: *<report name>*," the changes will be reflected in the next report run manually or automatically.

3.2.2. Dynamic content

To modify the layout of dynamic content:

1. On the AccountServer, open the Report Template in **C:\Program Files\Attix5 Pro\Storage Platform\Reports\<Category>**, as described in 3.2.1 above.
2. Locate the sub-template placeholder for the dynamic content you wish to reposition/style and make a note of the sub-template name (cited between two question mark [?] symbols). E.g. `<?AuditTrailGroups?>`.



Tip: Attix5 Pro Enterprise Report sub-templates are named descriptively to enable you to determine which sub-templates control the different parts of a report.

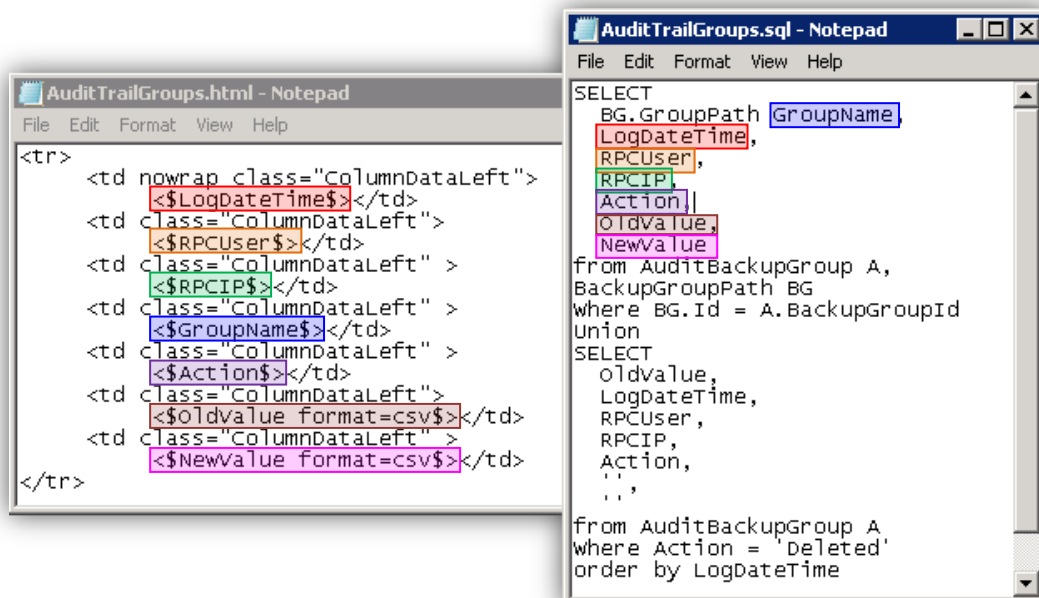
3. Navigate to **C:\Program Files\Attix5 Pro\Storage Platform\Templates** and open the relevant sub-template HTML file. E.g. **AuditTrailGroups.html**.

Attix5 Pro Enterprise Report sub-templates are typically structured as follows:

SQL identifiers, surrounded by dollar signs (\$), are placed within an HTML layout.



Tip: The identifiers are those used in a corresponding SQL file that contains full query/ies to the StoragePlatform database. The sub-template, therefore, merely places the data pulled by the SQL query/ies into a particular layout.



4. You can now change the display properties of the data by changing the HTML or by reordering the identifiers. You can also change the SQL query/ies altogether (See “3.3 Database queries” later in this chapter).

3.2.2.1. Header and footer

You can change the Attix5 Pro header by replacing the header images and modify the footer by altering the footer sub-template.

Date	Admin User	Admin IP	Group	Action	Old Value	New Value
27 Jun 2012 14:07	admin	[fe80::a82f:1d7e:a15e:a841%11]	Main	Created		
27 Jun 2012 14:07	admin	[fe80::a82f:1d7e:a15e:a841%11]	Main	Group Limit	0	25
27 Jun 2012 14:08	admin	[fe80::a82f:1d7e:a15e:a841%11]	Main\Test	Created		
27 Jun 2012 14:08	admin	[fe80::a82f:1d7e:a15e:a841%11]	Main\Test	Group Limit	0	10
27 Jun 2012 14:08	admin	[fe80::a82f:1d7e:a15e:a841%11]	Main\Test	Default Account Limit	0	5120
27 Jun 2012 15:51	admin	[fe80::114f:dc40:78c3:c600%11]	Main\Test	Group Limit	10	20
27 Jun 2012 16:57	admin	192.168.20.23	Main\Test	Rollup Retention	1	0
27 Jun 2012 16:57	admin	192.168.20.23	Main\Test	Rollup Monthly	True	False
27 Jun 2012 16:57	admin	192.168.20.23	Main\Test	Rollup Window: Always keep	10	1
27 Jun 2012 16:57	admin	192.168.20.23	Main\Test	Rollup Window: Roll-up when	20	2
28 Jun 2012 10:44	admin	[fe80::114f:dc40:78c3:c600%11]	Main\Test	Group Limit	20	25
28 Jun 2012 14:10	admin	[fe80::114f:dc40:78c3:c600%11]	Main\Test	a5backup.properties\backup.minimize.diskusage	<Added>	True
28 Jun 2012 14:10	admin	[fe80::114f:dc40:78c3:c600%11]	Main\Test	system2.properties\inclusions	<Added>	
28 Jun 2012 14:10	admin	[fe80::114f:dc40:78c3:c600%11]	Main\Test	system2.properties\inclusions.filters	<Added>	
29 Jun 2012 12:19	admin	[fe80::114f:dc40:78c3:c600%11]	Main	Group Limit	25	50

Report generated: Friday, 21 September 2012 17:11

Note: Changing the header/footer sub-templates on the AccountServer will change the appearance of all Attix5 Pro Enterprise Reports, as they all use the same sub-templates.

Modifying the header

To change the top-left report logo:

1. Navigate to: C:\Program Files\Attix5 Pro\Storage Platform\wwwroot.
2. Replace the **Logo.png** file with your new image.



Warning: Ensure that your new image is the same resolution as the original. Any variation will result in distortion.

To change the header banner background:

1. Navigate to: **C:\Program Files\Attix5 Pro\Storage Platform\wwwroot.**
2. Replace the **LogoBG.png** image with another 1px image. This image will be repeated to form the header banner background.

Modifying the footer**To modify the footer:**

1. Navigate to: **C:\Program Files\Attix5 Pro\Storage Platform\Templates.**
2. Open the **ReportFooter.html** file and edit the HTML as desired.

3.3. Database queries

Attix5 Pro Enterprise Reports typically query the StoragePlatform database for information and display that information in an easy-to-read format on an HTML page. You can modify these queries and how they display in the Internet browser by editing the report's SQL file and its corresponding HTML sub-template.

To modify a report's SQL query/ies:

1. On the AccountServer, open the Report Template (as described in 3.2.1 earlier in this chapter) and make a note of the sub-template that controls the formatting of the SQL data you wish to change.



Tip: Sub-template placeholders are surrounded by question mark symbols. E.g. The `<?AuditTrailGroups?>` placeholder refers to the `AuditTrailGroups.html` file in the **Templates** folder.

2. Navigate to: **C:\Program Files\Attix5 Pro\Storage Platform\Templates**.
3. Open the sub-template's corresponding SQL file in an SQL or text editor.



Tip: Each sub-template that contains dynamic data has a corresponding SQL file. The SQL file has the same filename as the sub-template that controls it. E.g. **AuditTrailGroups.html** has an SQL file called "**AuditTrailGroups.sql**" that controls the layout and style of the data pulled from the ReportServer by the SQL query/ies.

4. Modify the SQL query/ies as desired.



Tips:

- Use a SQL management tool such as Microsoft SQL Management Studio to execute test queries.
- Refer to the database views (under "**StoragePlatform > Views**" in default installations) instead of tables when creating queries for reports.
- The **TypeId** column in the **BackupAccountInfo** view controls whether the report will apply to SE or DL Backup Accounts. Specify **TypeId=1** for SE reports and **TypeId=0** for DL reports.

5. If reformatting of the data is required, make a note of the identifiers in your new/modified query, open the sub-template in an HTML or text editor, and then ensure that the identifiers in the sub-template match those in your new query and that the HTML defines the desired formatting.

3.3.1. DL- and SE-specific reports

Whether information in a report is DL- or SE-specific is controlled by the `TypeId` field in the `BackupAccount` database table. `TypeId=0` will request DL-specific information and `TypeId=1` will request SE-specific information.



Example: The `BackupsNotIn24SEactive` report generates a list of all SE Backup Accounts that have not backed up within in the last 24 hours. To enable it to do this, a `BackupsNotIn24SEactive.sql` file containing the following queries requests that the information retrieved from the `BackupAccountInfo` view in the `StoragePlatform` database has the `TypeId` value of 1.

```

BackupsNotIn24SEactive.sql - Notepad
File Edit Format View Help
Select
  BG.GroupPath BackupGroup,
  BA.Name AccountName,
  LastBackupDate LastBackup,
  Case when LastBackupDate is null then 'Never' else null end
  LastBackupStatus,
  DateDiff(second, LastBackupDate, getUTCdate()) HowLong
From
  BackupAccount BA
  Join BackupGroupPath BG on BG.Id = BA.BackupGroupId
Where
  BA.Deleted = 0
  and (LastBackupDate < getUTCdate() - 1 or LastBackupDate is null)
  and TypeId = 1
  and BA.Active = 1
  and BA.BackupGroupId in (select distinct Id from AccessUserBackupGroup
  where AccessUser = @UserName)
Order by
  BG.Name, BA.Name
  
```

To change report information to display DL- or SE-only information:

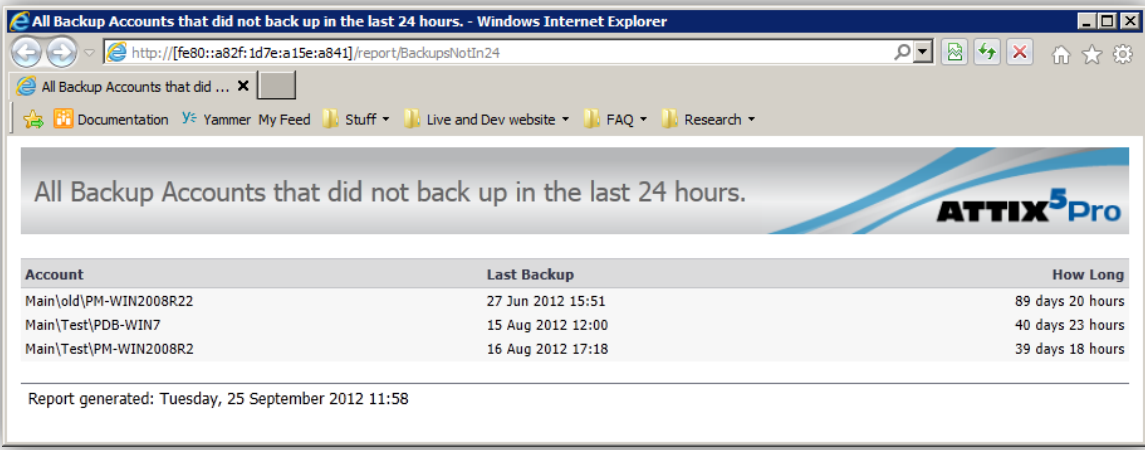
1. Open the report template in the **Templates** folder on the AccountServer (as described in 3.2.1 earlier in this chapter.)
2. Establish which sub-template controls the information you wish to change (as described in step 2 of 3.2.2.)
3. Open the sub-template's corresponding SQL file.
4. Change the `TypeId` value to suit your needs (DL = 0, SE = 1.)
5. Save the changes.
6. Run the report.

3.4 Example: Modifying BackupsNotIn24

In this example, we are going to modify the BackupsNotIn24 Report Template as follows:

1. **Modify the template properties:** Add a parameter that will prompt the user to enter which Group to run the report on.
2. **Modify the style:** Change the header banner.
3. **Modify the database queries and layout:** Include an extra column that displays the Account's creation date.

The original Attix5 Pro BackupsNotIn24 Report Template, when run, displays three columns of information. The information includes the Backup Account name, last backup date and the length of the backup process:



All Backup Accounts that did not back up in the last 24 hours.

Account	Last Backup	How Long
Main\old\PM-WIN2008R22	27 Jun 2012 15:51	89 days 20 hours
Main\Test\PDB-WIN7	15 Aug 2012 12:00	40 days 23 hours
Main\Test\PM-WIN2008R2	16 Aug 2012 17:18	39 days 18 hours

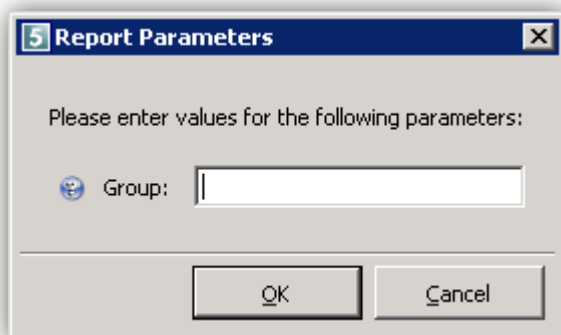
Report generated: Tuesday, 25 September 2012 11:58

To add a parameter to the template properties:

1. On the AccountServer, open Windows Explorer, and then navigate to: **C:\Program Files\Attix5 Pro\Storage Platform\Reports\Backup**.
2. In an XML or text editor, open **BackupsNotIn24.xml** and add the following markup:

```
<params>  
  <param type="String" name="Group" alias="GROUPNAME">  
    <desc>Group Name</desc>  
  </param>  
</params>
```
3. Save the amended file.
4. Navigate to: **C:\Program Files\Attix5 Pro\Storage Platform\Templates**, open the **BackupsNotIn24.sql** file, and add the following parameters to the query:
and BA.BackupGroupId = dbo.GetGroupId(@GROUPNAME)
5. In the SP Console, wait for the AccountServer Diagnostics window to log the message:
"[timestamp] Info: Updating report: BackupsNotIn24"
6. On the **Report Templates** tab, double-click the **BackupsNotIn24** Report Template name.

A Report Parameters dialog box should appear, prompting you to enter a Backup Group name.



To change the header banner:

1. Navigate to: **C:\Program Files\Attix5 Pro\Storage Platform\wwwroot.**
2. Replace the **logo.png** file with a new version:

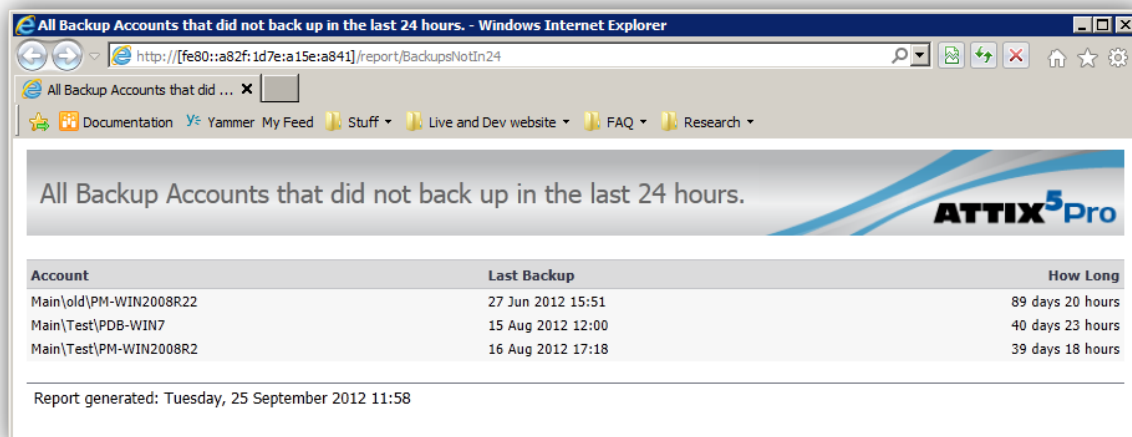


3. Replace the **logobg.png** file with a new version:



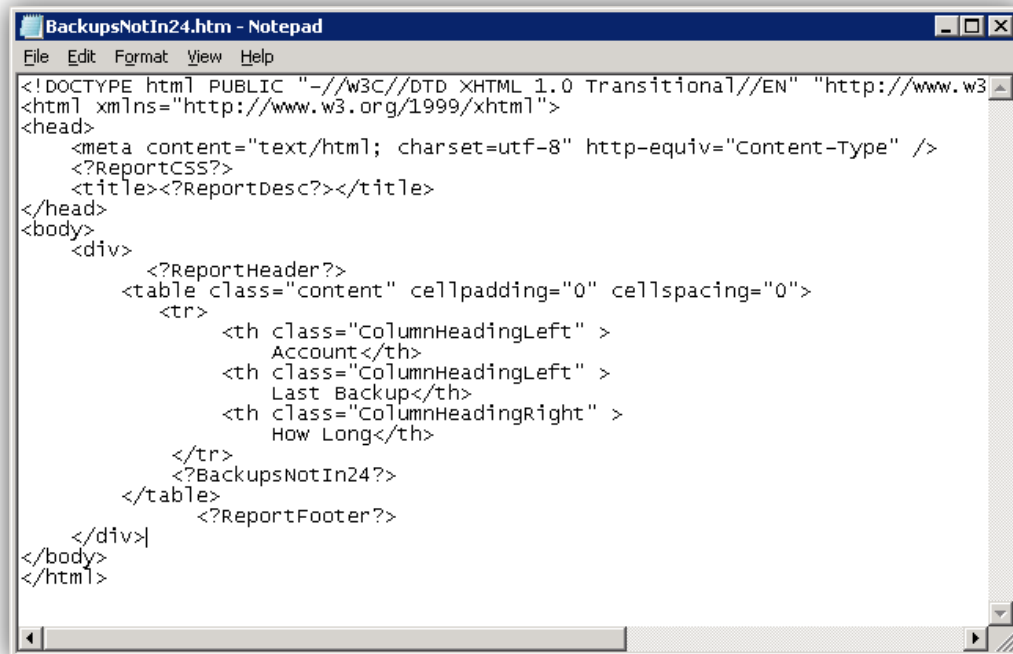
Note: The images must have the same dimensions. Any deviation in size will cause distortion in reports.

Result:



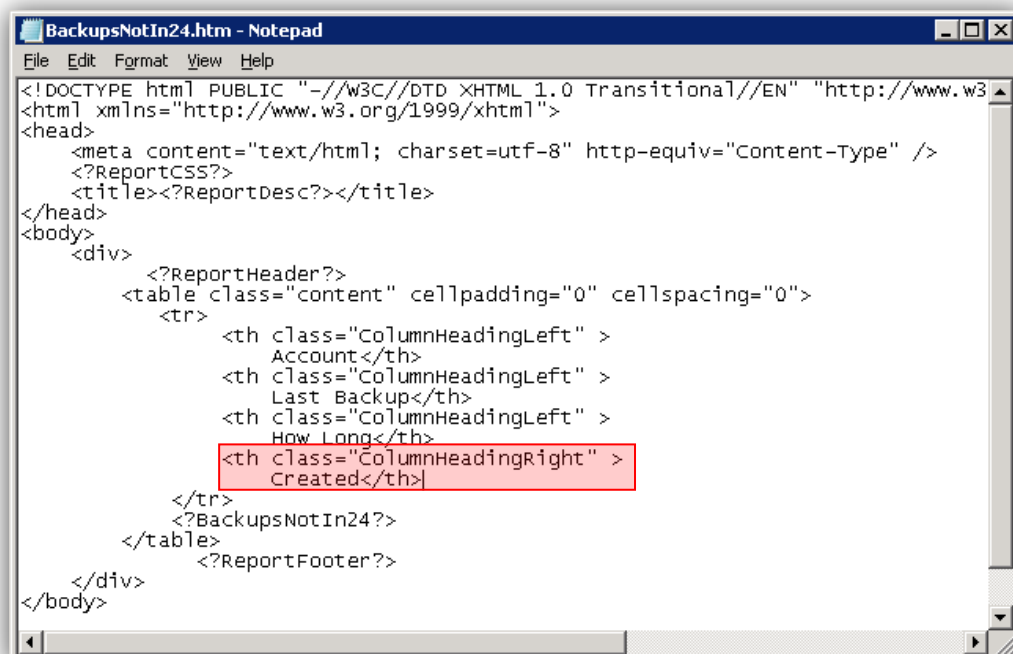
To include an extra column that displays the Backup Account's creation date:

1. On the AccountServer, navigate to: **C:\Program Files\Attix5 Pro\Storage Platform\Reports\Backup.**
2. In an HTML or text editor, open the **BackupsNotIn24.htm** file:



```
BackupsNotIn24.htm - Notepad
File Edit Format View Help
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
  <meta content="text/html; charset=utf-8" http-equiv="Content-Type" />
  <?ReportCSS?>
  <title><?ReportDesc?></title>
</head>
<body>
  <div>
    <?ReportHeader?>
    <table class="content" cellpadding="0" cellspacing="0">
      <tr>
        <th class="ColumnHeadingLeft" >
          Account</th>
        <th class="ColumnHeadingLeft" >
          Last Backup</th>
        <th class="ColumnHeadingRight" >
          How Long</th>
      </tr>
      <?BackupsNotIn24?>
    </table>
    <?ReportFooter?>
  </div>
</body>
</html>
```

3. Add an extra column header to the HTML table:



```
BackupsNotIn24.htm - Notepad
File Edit Format View Help
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
  <meta content="text/html; charset=utf-8" http-equiv="Content-Type" />
  <?ReportCSS?>
  <title><?ReportDesc?></title>
</head>
<body>
  <div>
    <?ReportHeader?>
    <table class="content" cellpadding="0" cellspacing="0">
      <tr>
        <th class="ColumnHeadingLeft" >
          Account</th>
        <th class="ColumnHeadingLeft" >
          Last Backup</th>
        <th class="ColumnHeadingLeft" >
          How Long</th>
        <th class="ColumnHeadingRight" >
          Created</th>
      </tr>
      <?BackupsNotIn24?>
    </table>
    <?ReportFooter?>
  </div>
</body>
```

**Notes:**

- You may need to refer to the **ReportCSS.html** file in the **Templates** folder to ensure that your use of CSS styles is correct.
- Classes ending in “Right” belong to the right of the screen, i.e., the last column.

4. Make a note of the sub-template that controls the data display. I.e. **BackupsNotIn24**.

```

BackupsNotIn24.htm - Notepad
File Edit Format View Help
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
  <meta content="text/html; charset=utf-8" http-equiv="Content-Type" />
  <?ReportCSS?>
  <title><?ReportDesc?></title>
</head>
<body>
  <div>
    <?ReportHeader?>
    <table class="content" cellpadding="0" cellspacing="0">
      <tr>
        <th class="ColumnHeadingLeft" >
          Account</th>
        <th class="ColumnHeadingLeft" >
          Last Backup</th>
        <th class="ColumnHeadingLeft" >
          How Long</th>
        <th class="ColumnHeadingRight" >
          Created</th>
      </tr>
      <?BackupsNotIn24?>
    </table>
    <?ReportFooter?>
  </div>
</body>

```

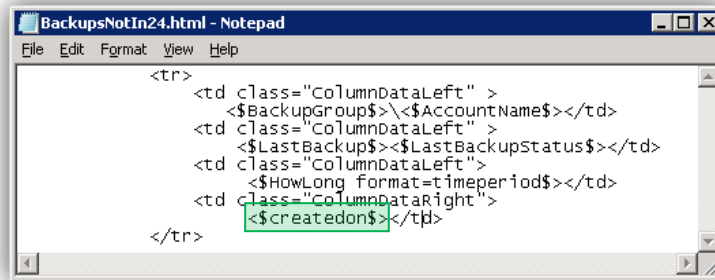
5. Before you edit the **BackupsNotIn24** sub-template, you need to modify the SQL query to include the create date information. To do this, open **BackupsNotIn24.sql** file in **C:\Program Files\Attix5 Pro\Storage Platform\Templates**, and then add the **createdon** identifier to the select statement:

```

BackupsNotIn24.sql - Notepad
File Edit Format View Help
Select
  BG.GroupPath BackupGroup,
  BA.Name AccountName,
  LastBackupDate LastBackup,
  Case when LastBackupDate IS null then 'Never' else null end LastBackupStatus,
  Datediff(second, LastBackupDate, getUTCdate()) HowLong,
  createdon
From
  BackupAccount BA
  Join BackupGroupPath BG on BG.Id = BA.BackupGroupId
Where
  BA.Deleted = 0
  and LastBackupDate < getUTCdate() - 1
  and BG.GroupType = 2
  and BA.BackupGroupId = dbo.GetGroupId(@GROUPNAME)
  and BA.BackupGroupId in (Select distinct Id from AccessuserBackupGroup where AccessUser = @UserName)
Order by
  BG.Name, BA.Name

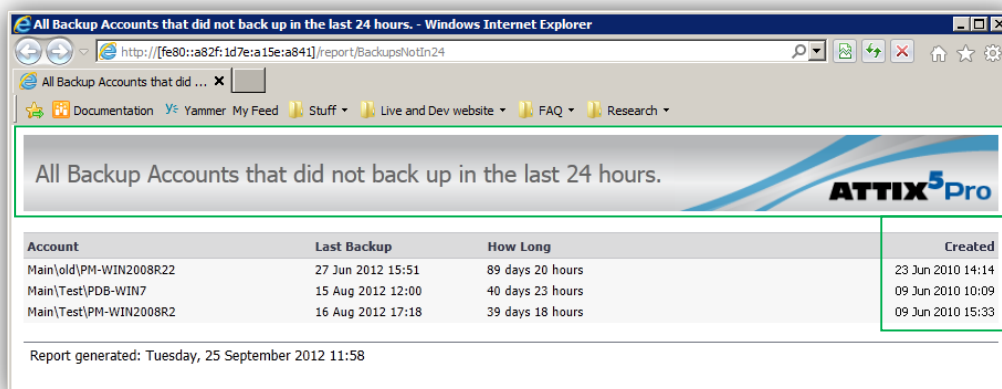
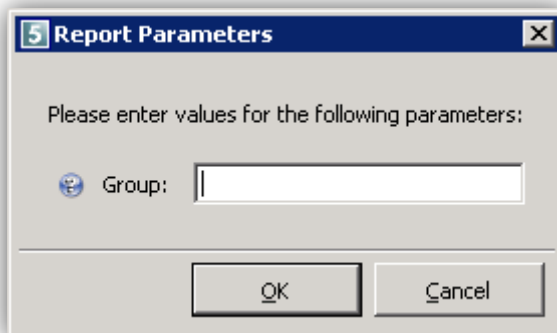
```

6. In **C:\Program Files\Attix5 Pro\Storage Platform\Templates**, open the **BackupsNotIn24.html** file.
7. Add an extra column to the table, paying close attention to the styles used. (Classes ending in “Right” belong to the right of the screen, i.e., the last column.) Save.
8. Add a placeholder for the `createdon` identifier:



9. Save the changes.
10. Open the SP Console, wait for the “Updating Report Template: BackupsNotIn24” message to display in the AccountServer Diagnostics pane, and then double-click the **BackupsNotIn24** Report Template name.

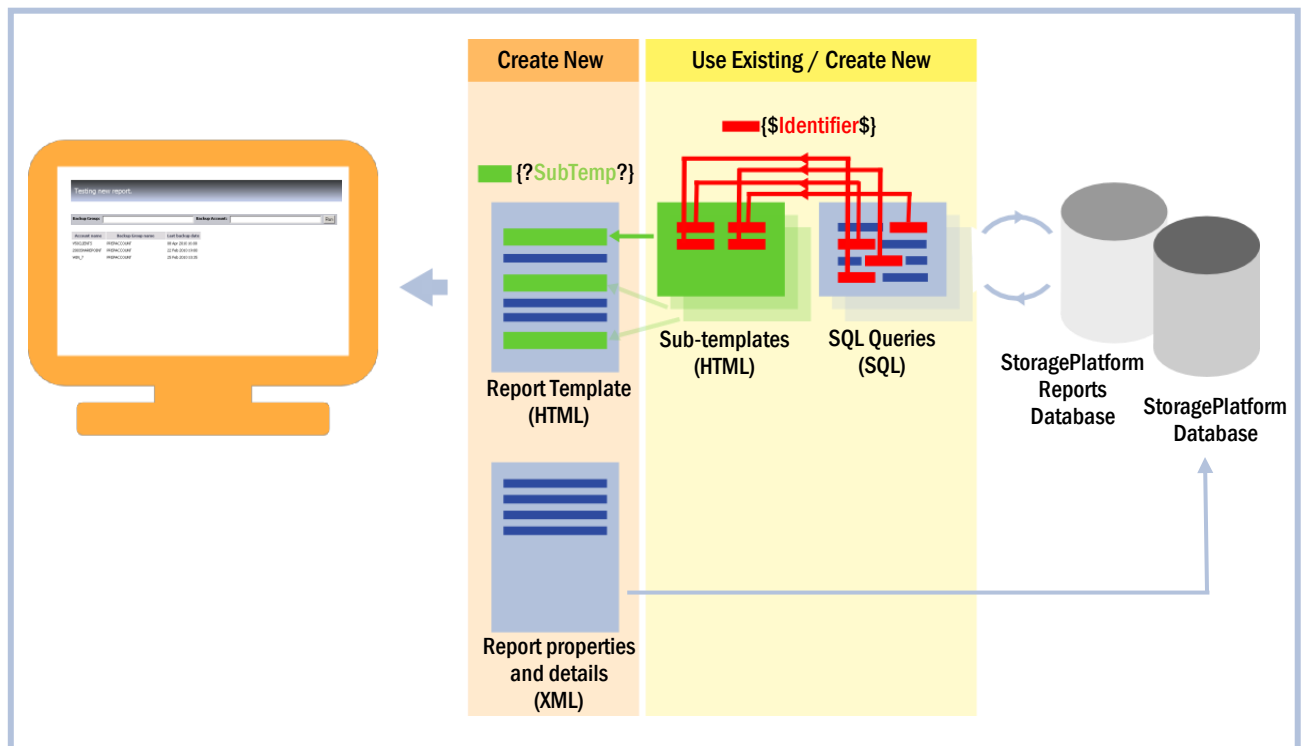
Results:



4. Creating a new Enterprise Report template

You can create your own Enterprise Report templates and make them available from the SP Console in five steps:

1. Create a report category (optional)
2. Create an XML file containing the report details and parameters
3. Create a Report Template
4. Define SQL query/ies
5. Create report sub-templates to format the data pulled by the SQL query/ies or use existing sub-templates.



Step 1: Create a report category

To create a report category:

On the AccountServer, navigate to the **Reports** folder (The default path is: **C:\Program Files\Attix5 Pro\Storage Platform\Reports**), create a new folder and name it with your new category name (e.g. create a folder called “**Accounts**” to add an Accounts category to the SP Console.)

Step 2: Define the report details and parameters

In the category folder you created in step 1 above, create an XML file containing the report details and parameters.




Note: XML markup does not have to be standards-compliant.

The following are properties typically defined in Enterprise Report XML files:

- Report name
- Admin only access (true/false)
- Report description
- Report template filename
- Parameters (optional)

XML tags and attributes explained...	
Attribute	Value
name	The value of the name attribute determines the name displayed by the SP Console on the Report Templates tab and Internet Browser when the report is viewed.
admin	A value of “true” for this attribute renders the report available to admin users only. All users with fewer permissions will not be able to run the report.
<desc></desc>	The description between these tags displays on the SP Console’s Report Templates tab.

XML tags and attributes continued...

Attribute	Value
<code><reportFilename></reportFilename></code>	<p>The name specified between these tags is the filename of the Report Template that controls the layout of the report.</p> <p> Warning: If you change this value, please ensure that you change the name of the Report Template in the Reports/<Category> folder accordingly. E.g. If <code><reportFilename>AuditTrailGrABC</reportFilename></code> is defined, the Report Template HTML file, under Reports/Audit, must be named: <code>AuditTrailGrABC.html</code>.</p>



Example: To create a Report Template called “AccountsAll” that is available to admin users only and describes all Backup Accounts for a specified Group (prompts the user to define the Backup Group on which to run the report), you can create an XML file called “AccountsAll.xml” with the following content:

AccountsAll.xml

```
<report name="AccountsAll" admin="true">
  <desc>All Accounts for specified Backup Group.</desc>
  <reportFilename>AccountsAll.html</reportFilename>
  <params>
    <param type="String" name="Group" alias="GROUPNAME">
      <desc>Group Name</desc>
    </param>
  </params>
</report>
```

Step 3: Create a Report Template

To create a Report Template:

1. On the AccountServer, in **C:\Program Files\Attix5 Pro\Storage Platform\Reports\<Category>**, create a file with the same filename as your XML file but with an HTML extension, e.g., if you've defined your report properties in a file called "AccountsAll.xml", name the Report Template: "AccountsAll.html."
2. In the HTML file, you can include the following:
 - a. Basic HTML formatting to control the layout and style of the overall report
 - b. Sub-template placeholders (Place the name of a sub-template, which may be reusable or report-specific, between "<?>" and "<?>" marks)



Tip: It is advisable to create a generic Report Template that contains only the static content and sub-template placeholders to represent all dynamic content. See "Step 5: Create a report sub-template" below for more information.



Example: If you create an AccountsAll.html file and already have an AccountsAll.xml file (as described in Step 2's example), you can create a basic HTML page that includes a <head> element (in which you can insert a placeholder for a sub-template containing the report description), and in the <body> of the report, you could include a <div> element containing a set of sub-template placeholders that represent a generic report header and footer and a report-specific sub-template that represents the dynamic content of this Report Template:

AccountsAll.html

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
  <meta content="text/html; charset=utf-8"
http-equiv="Content-Type" />
  <?ReportCSS?>
  <title><?ReportDesc?></title>
</head>
<body>
  <div>
    <?ReportHeader?>
    <?AccountsAll?>
    <?ReportFooter?>
  </div>
</body>
</html>
```


In this example, the contents of a sub-template called "ReportCSS" will replace the <?ReportCSS?> entry when a report is generated, and similarly, the contents of the ReportDesc, ReportHeader, AccountsAll, and ReportFooter sub-templates will replace their placeholders, building a full report containing both static, generic, and dynamic content. For information on creating sub-templates, see "Step 5: Create a report sub-template" below.

Step 4: Define SQL query/ies

To define new SQL queries:

1. On the AccountServer, open Windows Explorer, and then navigate to: **C:\Program Files\Attix5 Pro\Storage Platform\Templates**.
2. Create an SQL file and define one or more database queries to retrieve the information you wish to include in the report.



Tips:

- Use a SQL query tool such as Microsoft SQL Management Studio to execute test queries.
- Refer to the database views (under "**StoragePlatform > Views**" in default installations) instead of tables when creating queries for reports.
- The **TypeId** column in the **BackupAccountInfo** view controls whether the report will apply to SE or DL Backup Accounts. Specify **TypeId=1** for SE reports and **TypeId=0** for DL reports.

3. Save the file.



Tip: To make it clear which files are affected by the SQL file, it is advised to use the same filename as the Report Template HTML file that it is created for. E.g. If creating this SQL file to define the SQL queries to be used by the AccountsAll Report Template, you should name the file AccountsAll.sql.

4. Using the same filename, create an HTML sub-template to format the data (as described in "Step 5: Create report sub-templates" later in this chapter).



Tip: To reuse a SQL query already saved in the **Templates** folder, you need to use the sub-template that it is linked to (the HTML file with the matching filename) by inserting a placeholder in the Report Template.

Step 5: Create a report sub-template

If you have defined SQL queries in an SQL file to be used in your Report Template, you need to create a sub-template to format the information pulled from the database.



Tip: You can also create sub-templates to format information that you wish to reuse in multiple Report Templates. E.g. Header and footer sub-templates are used to give all Attix5 Pro Enterprise Reports the same header and footer.

To create a sub-template for dynamic data:

1. In **C:\Program Files\Attix5 Pro\Storage Platform\Templates**, create an HTML file.
2. Refer to the Report Template that will generate the report and make a note of the position of the sub-template placeholder in the HTML.
3. In your sub-template, format the data pulled by the SQL query/ies by placing the SQL identifiers, surrounded by dollar signs (\$), into an HTML layout.



Tip: The identifiers are the dynamic data references used in the corresponding SQL file that contains the full ReportServer database query/ies.



Example:

AuditTrailGroups.html - Notepad

```
<tr>
  <td nowrap class="ColumnDataLeft">
    <$LogDateTime$>
  </td>
  <td class="ColumnDataLeft">
    <$RPCUser$>
  </td>
  <td class="ColumnDataLeft">
    <$RPCIP$>
  </td>
  <td class="ColumnDataLeft">
    <$GroupName$>
  </td>
  <td class="ColumnDataLeft">
    <$Action$>
  </td>
  <td class="ColumnDataLeft">
    <$Oldvalue format=csv$>
  </td>
  <td class="ColumnDataLeft">
    <$Newvalue format=csv$>
  </td>
</tr>
```

AuditTrailGroups.sql - Notepad

```
SELECT
  BG.GroupPath GroupName,
  LogDateTime,
  RPCUser,
  RPCIP,
  Action,
  Oldvalue,
  Newvalue
from AuditBackupGroup A,
BackupGroupPath BG
where BG.Id = A.BackupGroupId
Union
SELECT
  Oldvalue,
  LogDateTime,
  RPCUser,
  RPCIP,
  Action,
  ''
from AuditBackupGroup A
where Action = 'Deleted'
order by LogDateTime
```



Tip: You can use HTML style sheets and classes

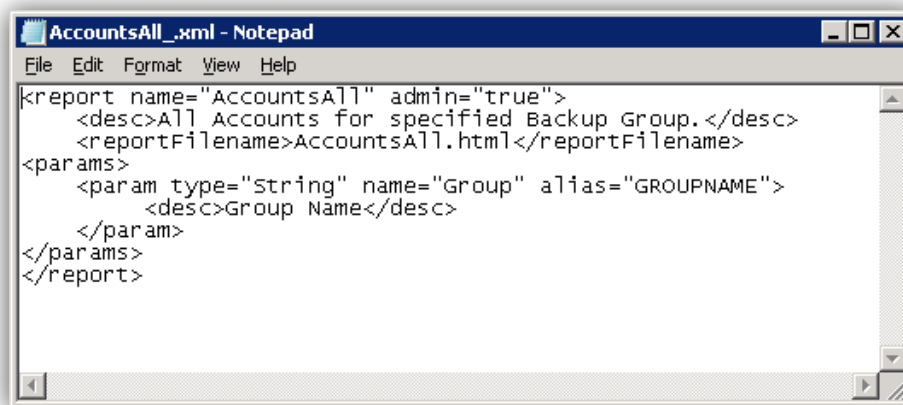
You also have the option of creating sub-templates that refer to other sub-templates.

To create a sub-template that refers to other sub-templates:

Full example: Creating an AccountsAll Report Template

To create a Report Template called **AccountsAll** in a category called **Accounts**:

- On the AccountServer, navigate to the **Reports** folder (The default path is: **C:\Program Files\Attix5 Pro\Storage Platform\Reports**).
- Create a new folder called "Accounts".
- In the **Accounts** folder, create an XML file called **AccountsAll.xml** with the following contents:

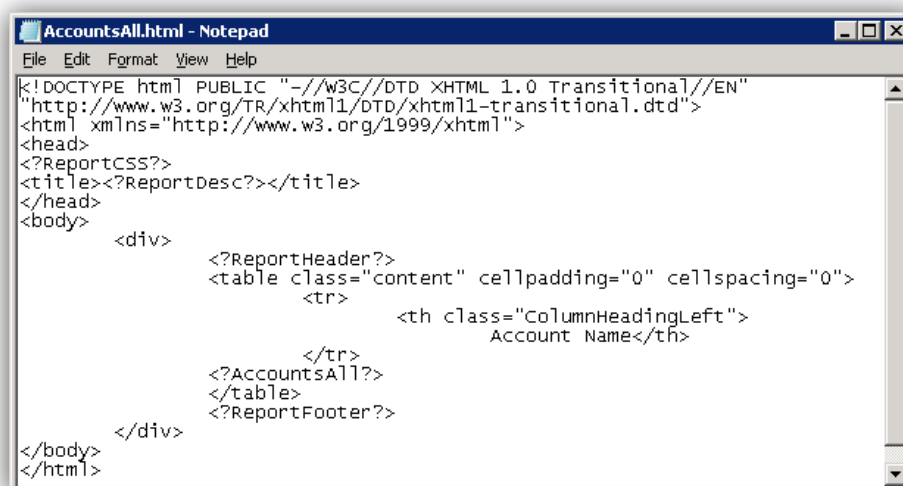


```

<report name="AccountsAll" admin="true">
  <desc>All Accounts for specified Backup Group.</desc>
  <reportFilename>AccountsAll.html</reportFilename>
  <params>
    <param type="String" name="Group" alias="GROUPNAME">
      <desc>Group Name</desc>
    </param>
  </params>
</report>

```

- In the **Accounts** folder, create an HTML file called **AccountsAll.html** with the following contents:

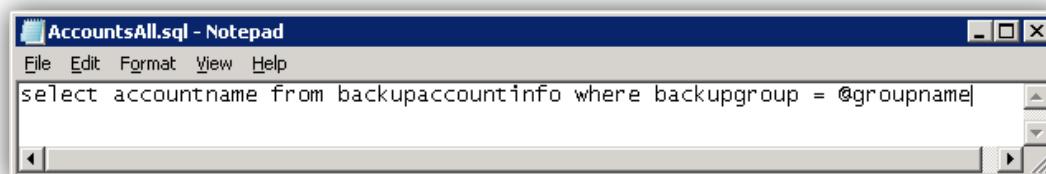


```

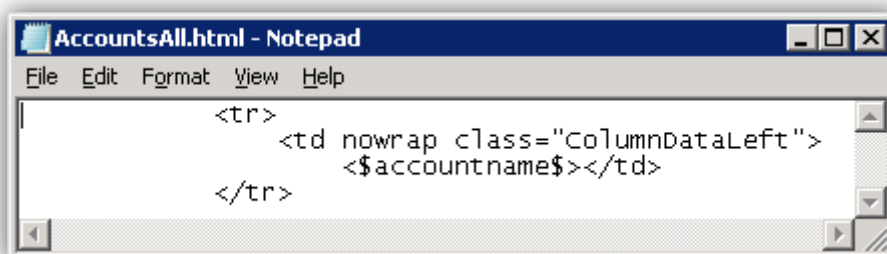
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
  <?ReportCSS?>
  <title><?ReportDesc?></title>
</head>
<body>
  <div>
    <?ReportHeader?>
    <table class="content" cellpadding="0" cellspacing="0">
      <tr>
        <th class="ColumnHeadingLeft">
          Account Name</th>
      </tr>
      <?AccountsAll?>
    </table>
    <?ReportFooter?>
  </div>
</body>
</html>

```

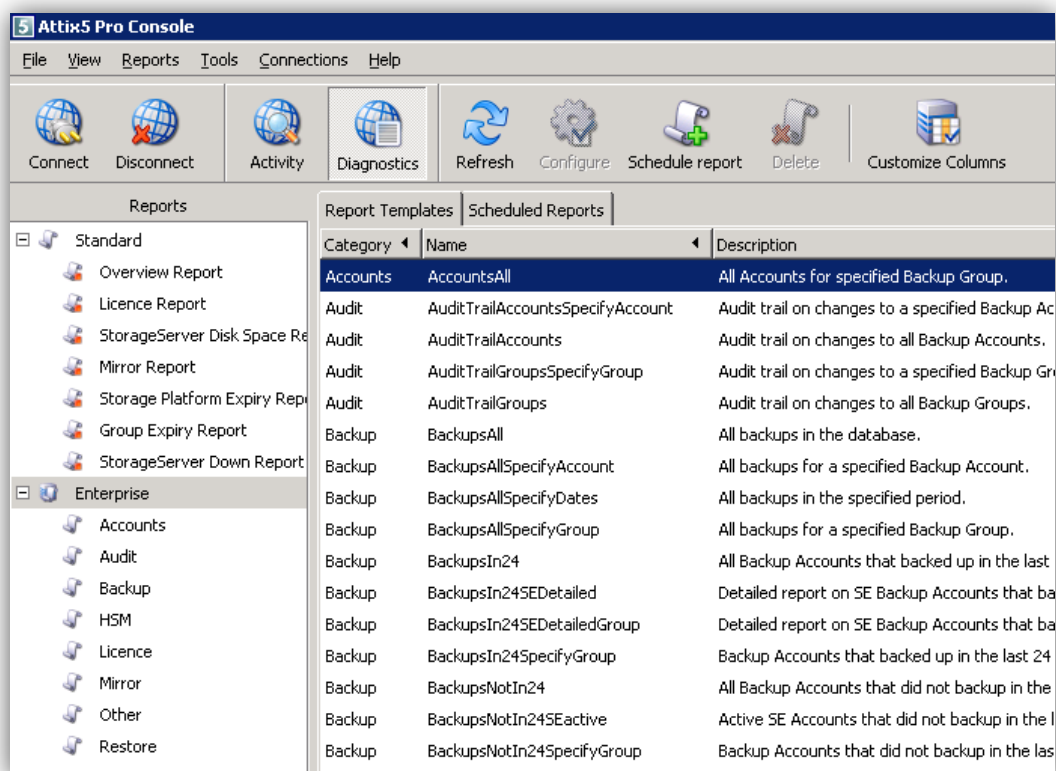
- e) In the **Templates** folder (the default path is: **C:\Program Files\Attix5 Pro\Storage Platform\Templates**), create a file called **AccountsAll.sql** with the following contents:



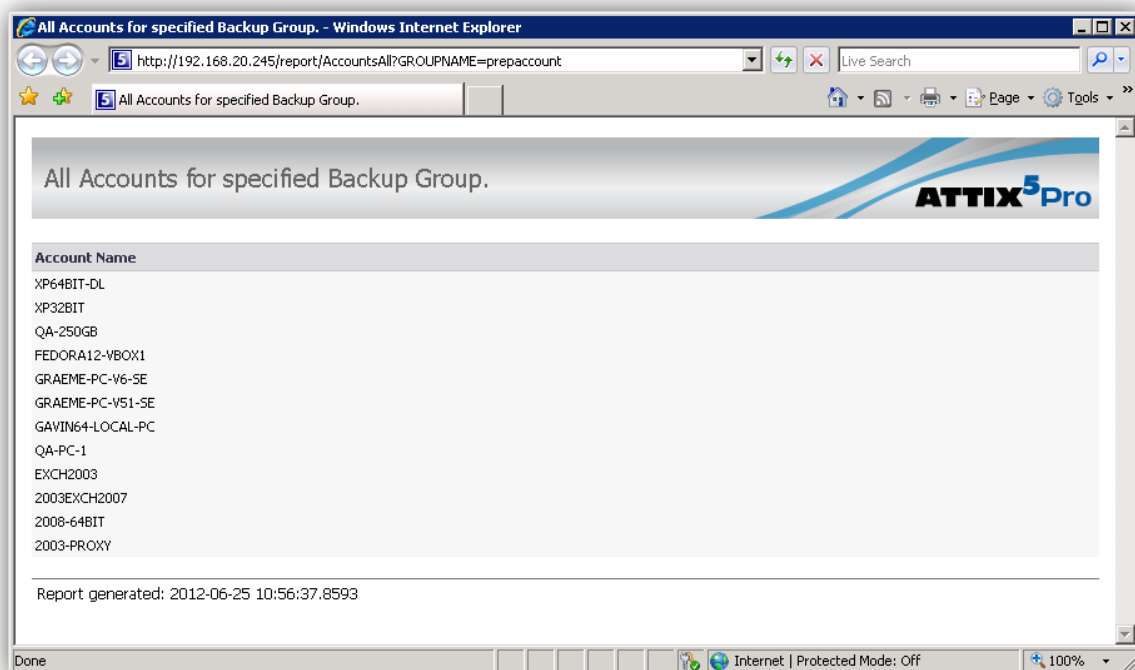
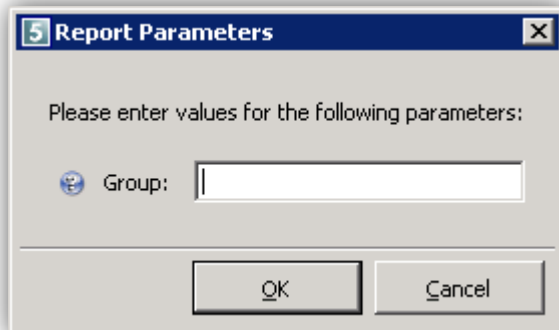
- f) In the **Templates** folder, create a file called **AccountsAll.html** with the following contents:



Console Result:



When run:



Full example: Creating an HSM report for SE Accounts

In this example, we'll create a report similar to the Attix5 HSMAll Enterprise Report, which displays a list of all HSM activities on the Storage Platform, but the one we'll be creating will display results for SE Backup Accounts only.

Step 1

Because this new report will be based on the existing HSMAll report, we'll locate all the AccountServer files that are used to build the existing report (excluding the header and footer-related files, as we will not be changing those):

- a) C:\Program Files\Attix5 Pro\Storage Platform\Reports\HSM\HSMAll.html
- b) C:\Program Files\Attix5 Pro\Storage Platform\Reports\HSM\HSMAll_.xml
- c) C:\Program Files\Attix5 Pro\Storage Platform\Templates\HSMAll.sql
- d) C:\Program Files\Attix5 Pro\Storage Platform\Templates\HSMAll.html

Step 2

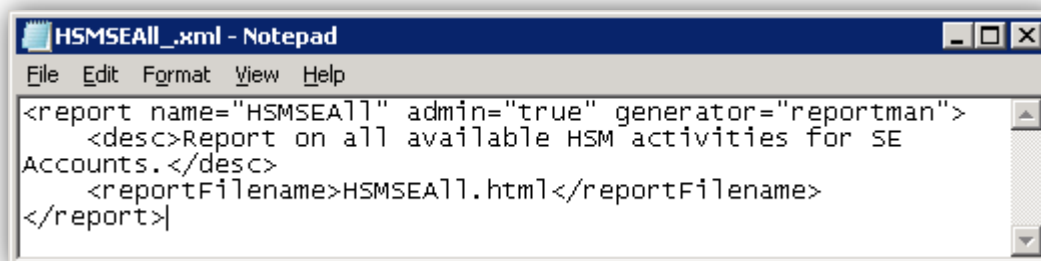
Create copies of all the related files and rename them to be descriptive of the new version. In this instance, we're going to add "SE" to the filenames:

- a) C:\Program Files\Attix5 Pro\Storage Platform\Reports\HSM\HSMSEAll.html
- b) C:\Program Files\Attix5 Pro\Storage Platform\Reports\HSM\HSMSEAll_.xml
- c) C:\Program Files\Attix5 Pro\Storage Platform\Templates\HSMSEAll.sql
- d) C:\Program Files\Attix5 Pro\Storage Platform\Templates\HSMSEAll.html

Step 3

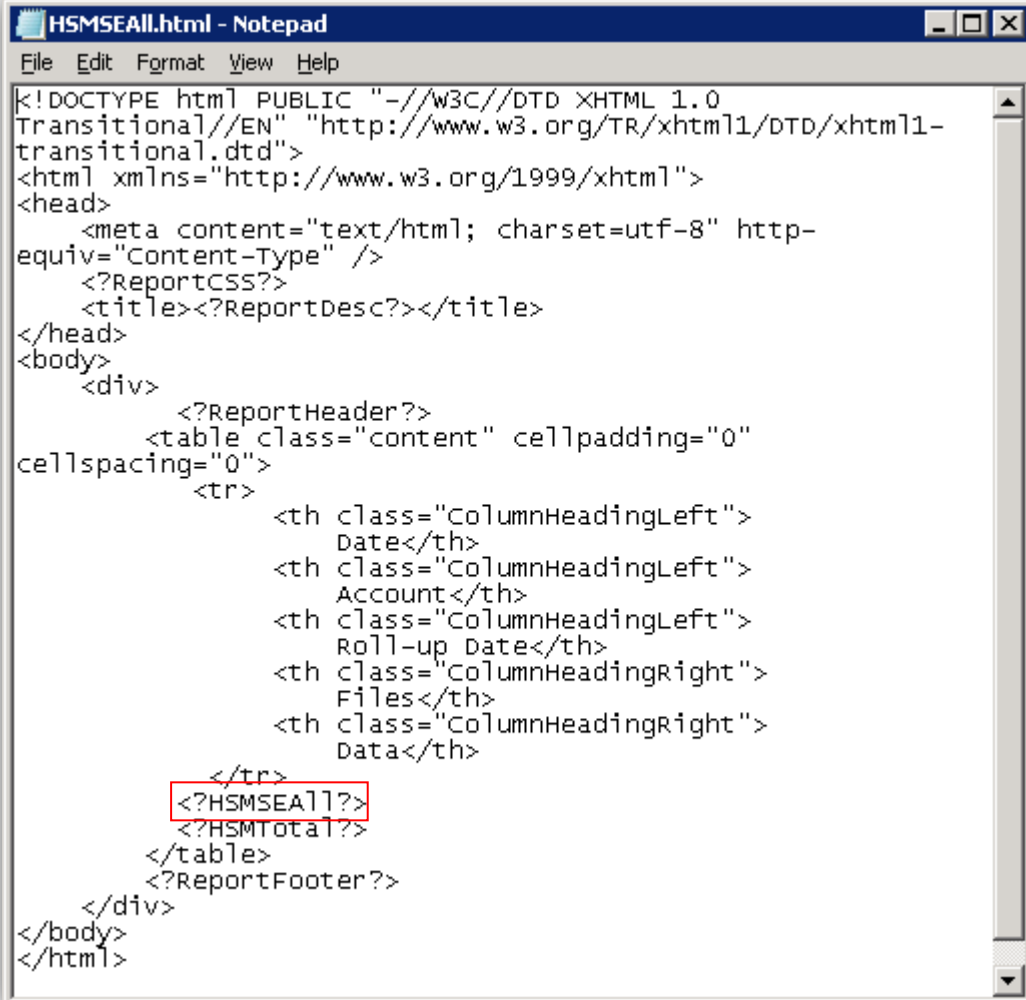
Open the **HSMSEAll.xml** file (b), and then change the following:

1. Change the `<report name>` value to "HSMSEALL".
2. Change the `<reportfilename>` value to "HSMSEALL.html".
3. Change the `<desc>` value to: "Report on all available HSM activities for SE accounts."



Step 4

Modify the **HSMSEAll.html** file in the **Reports** folder by changing the HSMAll sub-template reference to point to the new HSMSEAll sub-template, as illustrated below. You can leave the HSMTotal sub-template reference as is, because it merely calculates the total of all values displayed in the report.



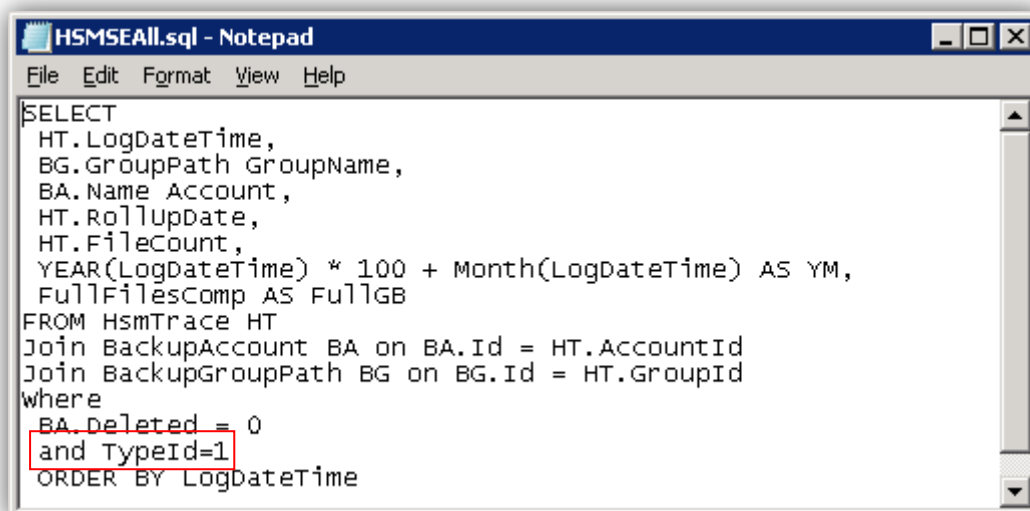
```

HSMSEAll.html - Notepad
File Edit Format View Help
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
  <meta content="text/html; charset=utf-8" http-
equiv="Content-Type" />
  <?ReportCSS?>
  <title><?ReportDesc?></title>
</head>
<body>
  <div>
    <?ReportHeader?>
    <table class="content" cellpadding="0"
cellspacing="0">
      <tr>
        <th class="ColumnHeadingLeft">
          Date</th>
        <th class="ColumnHeadingLeft">
          Account</th>
        <th class="ColumnHeadingLeft">
          Roll-up Date</th>
        <th class="ColumnHeadingRight">
          Files</th>
        <th class="ColumnHeadingRight">
          Data</th>
      </tr>
      <?HSMSEAll?>
      <?HSMTotal?>
    </table>
    <?ReportFooter?>
  </div>
</body>
</html>

```


Step 5

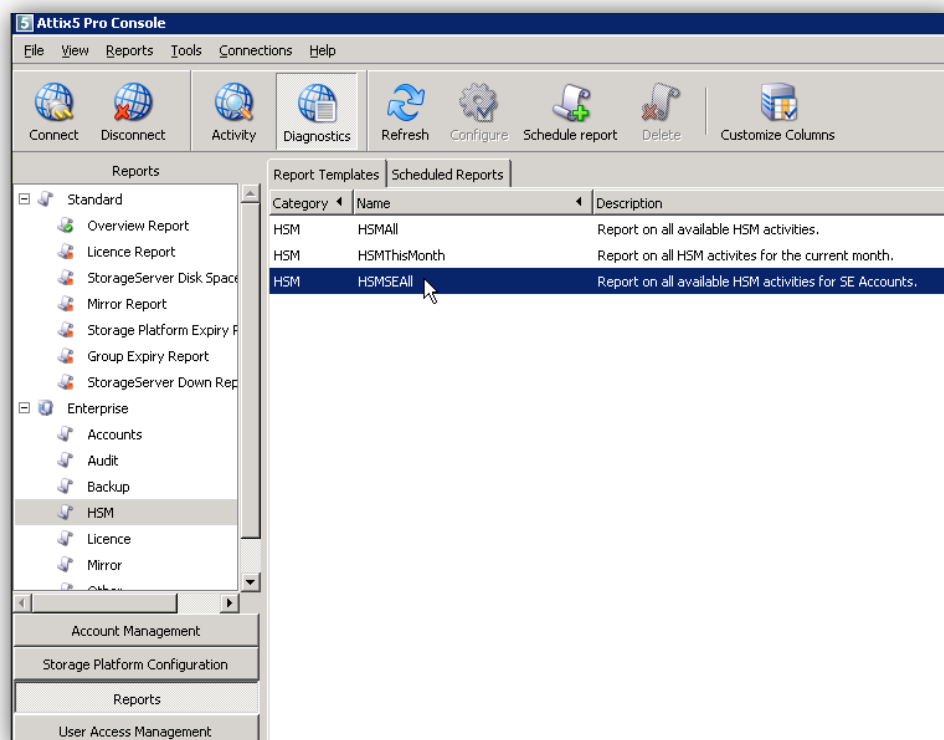
Open the **HSMSEAll.sql** file (c), and then add “and TypeId=1” to the Select query as follows:



```

SELECT
  HT.LogDateTime,
  BG.GroupPath GroupName,
  BA.Name Account,
  HT.RollupDate,
  HT.FileCount,
  YEAR(LogDateTime) * 100 + Month(LogDateTime) AS YM,
  FullFilesComp AS FullGB
FROM HSMTrace HT
Join BackupAccount BA on BA.Id = HT.AccountId
Join BackupGroupPath BG on BG.Id = HT.GroupId
Where
  BA.Deleted = 0
  and TypeId=1
ORDER BY LogDateTime
  
```

After a few minutes, the Storage Platform Console should log messages indicating that the report files have been changed. You will then be able to run the new report by double-clicking its name on the **Report Templates** tab, as illustrated below.



Result:

Report on all available HSM activities for SE Accounts. - Windows Internet Explorer

http://192.168.20.245/report/HSMSEAll

Report on all available HSM activities for SE Accounts.

ATTIX⁵Pro

Date	Account	Roll-up Date	Files	Data
09 Jun 2010 16:36	PREPACCOUNT\GRAEME-PC-V51-SE	09 Jun 2010 16:26	185	137.25 KB
09 Jun 2010 16:59	PREPACCOUNT\GRAEME-PC-V51-SE	09 Jun 2010 16:44	185	134.55 KB
09 Jun 2010 17:26	PREPACCOUNT\GRAEME-PC-V51-SE	09 Jun 2010 17:14	171	130.11 KB
09 Jun 2010 17:46	AUTO\AUTOV6	09 Jun 2010 17:43	1	1.87 KB
09 Jun 2010 17:55	AUTO\AUTOV6	09 Jun 2010 17:48	0	0.00 KB
09 Jun 2010 17:58	PREPACCOUNT\GRAEME-PC-V51-SE	09 Jun 2010 17:41	180	153.68 KB
09 Jun 2010 17:58	AUTO\AUTOV6	09 Jun 2010 17:55	5	9.34 KB
09 Jun 2010 18:02	AUTO\AUTOV6	09 Jun 2010 17:59	3	5.60 KB
09 Jun 2010 18:09	AUTO\AUTOV6	09 Jun 2010 18:03	3	5.60 KB
09 Jun 2010 18:12	AUTO\AUTOV6	09 Jun 2010 18:09	0	0.00 KB
09 Jun 2010 18:19	AUTO\AUTOV6	09 Jun 2010 18:16	1	8.60 MB
09 Jun 2010 18:23	AUTO\AUTOV6	09 Jun 2010 18:21	0	0.00 KB
09 Jun 2010 18:27	PREPACCOUNT\GRAEME-PC-V51-SE	09 Jun 2010 18:11	179	153.23 KB
09 Jun 2010 18:27	AUTO\AUTOV6	09 Jun 2010 18:24	1	4.00 MB
09 Jun 2010 18:34	AUTO\AUTOV6	09 Jun 2010 18:30	1	4.00 MB
09 Jun 2010 18:40	AUTO\AUTOV6	09 Jun 2010 18:36	0	0.00 KB
09 Jun 2010 18:47	AUTO\AUTOV6	09 Jun 2010 18:46	1	8.60 MB
09 Jun 2010 18:49	AUTO\AUTOV6	09 Jun 2010 18:48	0	0.00 KB
09 Jun 2010 18:56	PREPACCOUNT\GRAEME-PC-V51-SE	09 Jun 2010 18:41	182	144.68 KB
09 Jun 2010 18:56	AUTO\AUTOV6	09 Jun 2010 18:51	3	5.60 KB
09 Jun 2010 19:01	AUTO\AUTOV6	09 Jun 2010 18:57	1	1.87 KB
09 Jun 2010 19:09	AUTO\AUTOV6	09 Jun 2010 19:05	0	0.00 KB
09 Jun 2010 19:19	AUTO\AUTOV6	09 Jun 2010 19:15	0	0.00 KB
09 Jun 2010 1				
09 Jun 2010 1				
09 Jun 2010 1				
09 Jun 2010 1				
09 Jun 2010 1				
09 Jun 2010 20				
09 Jun 2010 20				
09 Jun 2010 20				
09 Jun 2010 20				
09 Jun 2010 20				
22 Jul 2010 12:53	AUTO\AUTOV6	22 Jul 2010 12:51	1	5.00 MB
22 Jul 2010 12:55	AUTO\AUTOV6	22 Jul 2010 12:53	1	5.01 MB
			7,369	5.02 GB

Report generated: 2012-07-22 14:33:54.9843

Done

Internet | Protected Mode: Off

100%

Scroll down to view the total number of files and amount of data stored.

Appendix A – Identifier format types

Format type	Description
csv	Comma-separated value format
Bare	Does not format value types
Size	Represents the size of the field (K/KB/MB/GB, etc)
Sizeinmb	Represents the size of the field in MB
Sizeingb	Represents the size of the field in GB
Timeperiod	Represents the difference between two time periods

Appendix B – System functions

A list of system functions can be found here:

http://nlog-project.org/wiki/Layout_Renderers.

Appendix C – Storage Platform report relations

