



View Time Security for Crystal Enterprise

with Object Manager Lite

Installation & Administration Guide

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OVERVIEW

View Time Security for Crystal Enterprise utilizes the 'processing extensions' capability of Crystal Enterprise (v. 8.5 and greater) combined with an external database of business rules to meet 2 specific objectives:

a) apply row level security to your reports. Report content is filtered for the current user; whether running a report now, scheduling a report or viewing a saved report instance. Now you can maintain your business rules in a database and automatically have those rules applied to your reporting system.

b) create a database log of exactly when specific users view, run on demand or schedule a particular report. Ideal for system activity tracking and peak time usage analysis.

For each report object in your Crystal Enterprise system, you now have the option of applying one or both of these powerful capabilities. As well, *View Time Security* eliminates the need for C++ or Visual Basic programming expertise, creating an opportunity to fast track your reporting system deployment.

View Time Security also includes *Object Manager Lite*, a tool designed to assist you in assigning/deassigning processing extensions to multiple reports as well as providing an editing tool for maintaining the *View Time Security* database. Separate download instructions and the demo set-up password for *Object Manager Lite* is available on request.

DEMO VERSION LIMITATIONS & LICENSING

The demo version of *View Time Security* is a fully functional application with an expiry date. This limitation is removed in the purchased version.

The demo entitlement database provided includes a simple example that uses the 'Product Catalog' report that is included in the Report Samples folder that was created when you installed Crystal Enterprise Professional. If you have changed this default folder structure, you can either recreate a structure that matches it or change the sample entitlement database to use a different report. In any event, we recommend that you start by doing some basic testing of *View Time Security* with simple examples.

After purchasing a license for *View Time Security*, a license file will be emailed to you in order to remove the demo limitations. Apos.lic is a license file that incorporates a license for a specific number of servers in one site. If, however, you have a different location running a separate Crystal Enterprise system, an additional license must be purchased. This apos.lic file should be copied into the directory where you copied the *View Time Security* files, replacing any existing apos.lic file that may already be there.

Note that if your demo license expires, you will receive an error message, see Error Messages section below.

WHICH PROCESSING EXTENSION SHOULD WE USE?

VIEW TIME SECURITY BY REPORT ID AND USER GROUP

Use APOSVTSG.DLL to apply a business rule to:

- a specific report as identified by 'report id', FOR
- all users that are members of a specific user group

VIEW TIME SECURITY BY REPORT ID AND USER

Use APOSVTS.DLL to apply a business rule to:

- a specific report as identified by 'report id', FOR
- a specific user as identified by 'user id'

VIEW TIME SECURITY BY REPORT NAME AND USER GROUP

Use APOSVTSGN.DLL to apply a business rule to:

- a specific report as identified by 'report name', regardless of what folder its in, FOR
- all users that are members of a specific user group

VIEW TIME SECURITY BY REPORT NAME AND USER

Use APOSVTSN.DLL to apply a business rule to:

- a specific report as identified by 'report name', regardless of what folder its in, FOR
- a specific user as identified by 'user id'

VIEW TIME SECURITY BY REPORT PATH AND USER GROUP

Use APOSVTSGP.DLL to apply a business rule to:

- a specific report as identified by 'full report path', FOR
- all users that are members of a specific user group

VIEW TIME SECURITY BY REPORT PATH AND USER

Use APOSVTSP.DLL to apply a business rule to:

- a specific report as identified by 'full report path', FOR
- a specific user as identified by 'user id'

VIEW TIME SECURITY BY DYNAMIC PATH AND USER GROUP

Use APOSVTSGW.DLL to apply a business rule to:

- all reports within a folder or its sub folders, FOR
- all users that are members of a specific user group

VIEW TIME SECURITY BY DYNAMIC PATH AND USER

Use APOSVTSW.DLL to apply a business rule to:

- all reports within a folder or its sub folders, FOR
- a specific user as identified by 'user id'

FILES INCLUDED WITH VIEW TIME SECURITY

- a) **LICENSE FILE**
apos.lic - the APOS license file
- b) **VIEW TIME SECURITY DATABASE**
APOSTVS.mdb - the entitlement/log database used by *View Time Security*, it contains the following tables:
 - ViewTimeG - the entitlement data used by APOSTVSG.dll
 - ViewTime - the entitlement data used by APOSTVS.dll
 - ViewTimeGN - the entitlement data used by APOSTVSGN.dll
 - ViewTimeN - the entitlement data used by APOSTVSN.dll
 - ViewTimeGP - the entitlement data used by APOSTVSGP.dll
 - ViewTimeP - the entitlement data used by APOSTVSP.dll
 - ViewTimeGW - the entitlement data used by APOSTVSGW.dll
 - ViewTimeW - the entitlement data used by APOSTVSW.dll
 - Log - the activity log table used (optional) by all 8 processing extensions
- c) **VIEW TIME SECURITY BY REPORT ID AND USER GROUP**
APOSTVSG.dll - the processing extension itself
APOSTVSG.ini - the ini file used by APOSTVSG.DLL
- d) **VIEW TIME SECURITY BY REPORT ID AND USER**
APOSTVS.dll - the processing extension itself
APOSTVS.ini - the ini file used by APOSTVS.DLL
- e) **VIEW TIME SECURITY BY REPORT NAME AND USER GROUP**
APOSTVSGN.dll - the processing extension itself
APOSTVSGN.ini - the ini file used by APOSTVSGN.DLL
- f) **VIEW TIME SECURITY BY REPORT NAME AND USER**
APOSTVSN.dll - the processing extension itself
APOSTVSN.ini - the ini file used by APOSTVSN.DLL
- g) **VIEW TIME SECURITY BY REPORT PATH AND USER GROUP**
APOSTVSGP.dll - the processing extension itself
APOSTVSGP.ini - the ini file used by APOSTVSGP.DLL
- h) **VIEW TIME SECURITY BY REPORT PATH AND USER**
APOSTVSP.dll - the processing extension itself
APOSTVSP.ini - the ini file used by APOSTVSP.DLL
- g) **VIEW TIME SECURITY BY DYNAMIC PATH AND USER GROUP**
APOSTVSGW.dll - the processing extension itself
APOSTVSGW.ini - the ini file used by APOSTVSGW.DLL
- h) **VIEW TIME SECURITY BY DYNAMIC PATH AND USER**
APOSTVSW.dll - the processing extension itself
APOSTVSW.ini - the ini file used by APOSTVSW.DLL

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i) *SAMPLE REPORTS*

Activity Log By Date.rpt - detail listing of processing extension activity
Top 10 Report Activity.rpt - graph analysis of popular reports
Top 10 User Activity.rpt - graph analysis of user activity

j) *SAMPLE DATABASE SCRIPTS*

APOSVTS_Oracle_Create.sql - for migrating the database to Oracle
APOSVTS_SQL_Create.sql - for migrating the database to SQL Server

INSTALLATION OVERVIEW

Here is a checklist outline of the steps recommended to install and test *View Time Security*:

- a) Download and install the *View Time Security* files, see Page 7.
- b) Create ODBC data connectivity for the *View Time Security* entitlement/log databases, see Page 8.
- c) Decide which of the 8 supplied processing extensions you wish to use, see Page 5.
- d) Edit the ini files for the chosen processing extension(s) to match your Crystal Enterprise environment, see Page 9.
- e) Register the chosen *View Time Security* processing extensions within Crystal Enterprise, see Page 11.
- f) Assign a processing extension to a test report, see Page 13.
- g) Edit the Microsoft Access entitlement databases and update the ReportID from your system for the sample report, see Page 15.
- h) Test the row level security capabilities, see Pages 18-32.
- i) Test the activity logging capabilities, see Pages 33.
- j) Optional - Try *Object Manager Lite* by downloading and installing Object Manager for Crystal Enterprise - Demo. Choose the version for Crystal Enterprise v.8.5 or v.9 to match your environment. Please follow the Installation Overview instructions in the Object Manager Readme pdf file.

INSTALL VIEW TIME SECURITY FROM DOWNLOAD

Please follow these steps to install *View Time Security*:

- a) Ensure that the computer server is running Crystal Enterprise 8.5 or greater.
- b) Download the *View Time Security* Demo zip file from the Downloads section of www.apos.on.ca and save it to your local system environment.
- c) Unzip (contact apos@apos.on.ca for the set-up password) the contents of ViewTimeSecuritySetup.zip to the following folder on your Crystal Enterprise v8.5 system:
C:\Program Files\Crystal Decisions\WCS\ProcessExt\

or your Crystal Enterprise v9 system:
C:\Program Files\Crystal Decisions\Enterprise 9\win32_x86\ProcessExt\

d) Continue by creating ODBC data connectivity, as follows . . .

CREATING ODBC CONNECTIVITY TO ENTITLEMENT DATA

Please follow these steps to create ODBC data connectivity to the *View Time Security* entitlement databases:

- a) Using ODBC Administrator, create the following ODBC data source:
System DSN: APOSVTS
and on your Crystal Enterprise v8.5 system, point it to:
..\Crystal Decisions\WCS\ProcessExt\APOSVTS.MDB

or on your Crystal Enterprise v9 system, point it to:
..\Crystal Decisions\Enterprise 9\win32_x86\ProcessExt\APOSVTS.MDB
- b) Continue by editing the *View Time Security* processing extensions ini files that you wish to use, as follows . . .

EDITING THE INI FILES

Each of the 8 processing extensions located in C:\Program Files\Crystal Decisions\WCS\ProcessExt has an ini file that controls how that processing extension connects to Crystal Enterprise and the entitlement database as well as some miscellaneous settings. These settings can be changed using an editor like Notepad at any time. Make sure to edit these ini files and make any changes necessary to properly identify your APS name, administrator name, administrator password, etc.

The contents of the 8 ini files are similar and follow this APOSVTS.ini example:

```
[DB]
//Set the APOS VTS database connection string -----
ConnectionString=Provider=MSDASQL.1;Data Source=APOSVTS
//Set the APS VTS database table name -----
TableName=ViewTime
//Convert CE user name to upper case -----
ConvertToUpperCase=Y

[APS System]
//Set the APS name -----
APSSystem=YOURAPSNAMEHERE
//Set the CE administrator user id -----
APSUsernameString=Administrator
//Set the CE administrator password -----
APSPasswordString=
//Set the CE authentication -----
APSAuth=secEnterprise
//Parse the Selection Formula -----
ParseSelForm=Y
//Set the Parse Selection Formula Delimiter -----
ParseDelim=//

[Control]
//Apply row level security -----
Security=Y
//Create log records -----
Log=Y

[Log]
//Set the APOS VTS log database connection string -----
ConnectionString=Provider=MSDASQL.1;Data Source=APOSVTS
//Set the APOS VTS log database table name -----
TableName=Log
//Include instance id in log -----
IncludeInstanceID=Y
//Include parent report id in log -----
IncludeReportID=Y
//Include parent report name in log -----
IncludeReportName=Y
//Include folder id in log -----
IncludeFolderID=Y
```

CONTINUED ON NEXT PAGE...

```

//Include folder name in log -----
IncludeFolderName=Y
//Create a log record when reports are scheduled -----
LogSchedule=Y

[Trace]
//Create a trace log of steps - for debug only -----
LogActions=N
//Set the debug trace text file name -----
LogFileNames=logAPOSVTS.txt

```

Most ini file settings are self-explanatory, please review them all and change them to suit your environment as necessary. A few settings may need some explanation . . .

ConvertToUpperCase=Y

Microsoft Access - The contents of the User, User Group and Report Name fields of the View Time Security database should normally be stored in upper case. The ConvertToUpperCase= setting should normally be set to Y.

Oracle or SQL Server - If your Oracle/SQL Server system is set to be 'not case-sensitive' the contents of the User, User Group and Report Name fields of the View Time Security database must always be stored in upper case. The ConvertToUpperCase= setting of must always be set to Y.

Oracle or SQL Server - If your Oracle/SQL Server system is set to be 'case-sensitive' the contents of the User, User Group and Report Name fields of the View Time Security database does not have to be stored in upper case. The ConvertToUpperCase= setting may be set to Y or N as you wish. Storing all data in upper case is still recommended.

Security=Y

If this flag in the ini file is set to Y as provided as the default, row level security is activated. If this flag is set to N, row level security functions are de-activated.

Log=Y

If this flag in the ini file is set to Y as provided as the default, a log record will be written whenever a report is run on demand or when a historical instance is viewed. Scheduling a report may also be logged, depending on the setting of the LogSchedule= setting, outlined below. If this Log= flag is set to N, schedule report activities will not be logged.

LogSchedule=Y

If this flag in the ini file is set to Y as provided as the default, a log record will be written whenever a report is scheduled. If this flag is set to N, schedule report activities will not be logged.

Edit all 8 provided ini files following the same rules: APOSVTS.ini, APOSVTSN.ini, APOSVTSG.ini, APOSVTSGN.ini, APOSVTSP.ini, APOSVTSGP.ini, APOSVTSW.ini, APOSVTSGW.ini

After editing the ini files as necessary to match your system requirements, continue to the next step, as follows . . .

REGISTERING PROCESSING EXTENSIONS WITH CRYSTAL ENTERPRISE

View Time Security includes 8 different processing extensions, you may choose to use one or more or all of them. To enable any of the processing extensions you wish to use, they must be registered within the Crystal Enterprise environment, as follows:

- a) Log into the Crystal Management Console within Crystal Enterprise.
- b) Click on Manage Objects
- c) Click on the Extensions button at the top of the Objects screen.
- d) Enter the following exactly:
Name: APOSVTS
Location: APOSVTS
Description: VTS by Report Id & User
- e) Press Add and confirm that the entered data appears in the Existing Extensions list.
- f) Enter the following:
Name: APOSVTSG
Location: APOSVTSG
Description: VTS by Report Id & User Group
- g) Press Add and confirm that the entered data appears in the Existing Extensions list.
- h) Enter the following:
Name: APOSVTSN
Location: APOSVTSN
Description: VTS by Report Name & User
- i) Press Add and confirm that the entered data appears in the Existing Extensions list.
- j) Enter the following:
Name: APOSVTSGN
Location: APOSVTSGN
Description: VTS by Report Name & User Group
- k) Press Add and confirm that the entered data appears in the Existing Extensions list.

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- h) Enter the following:
 Name: APOSVTSP
 Location: APOSVTSP
 Description: VTS by Report Path & User
- i) Press Add and confirm that the entered data appears in the Existing Extensions list.
- j) Enter the following:
 Name: APOSVTSGP
 Location: APOSVTSGP
 Description: VTS by Report Path & User Group
- k) Press Add and confirm that the entered data appears in the Existing Extensions list.
- h) Enter the following:
 Name: APOSVTSW
 Location: APOSVTSW
 Description: VTS by Dynamic Path & User
- i) Press Add and confirm that the entered data appears in the Existing Extensions list.
- j) Enter the following:
 Name: APOSVTSGW
 Location: APOSVTSGW
 Description: VTS by Dynamic Path & User Group
- k) Press Add and confirm that the entered data appears in the Existing Extensions list.
- l) Confirm that all entered processing extensions appear in the Existing Extensions list and look like this:

Processing extensions can be applied when processing an object (set in the object's filters). Add them by name and location here to make them available for use. The location should be a relative path and the name should not include the file extension.

Add Extension:

Name:	Location:	Description:	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="button" value="Add"/>

Existing Extensions:

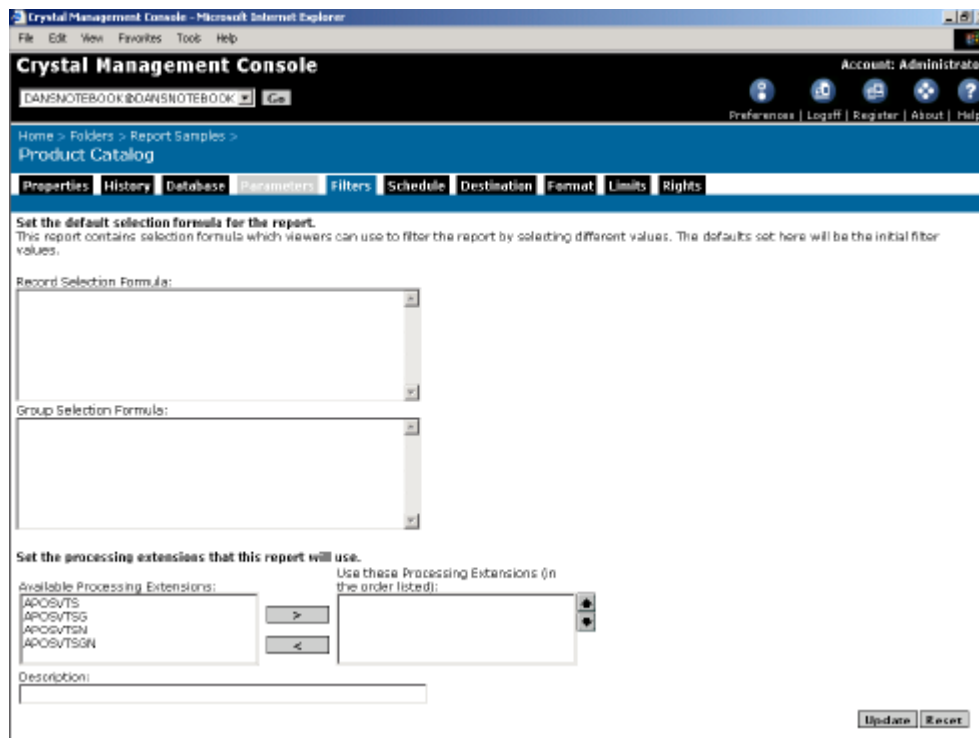
Name:	Location:	Description:	<input type="button" value="Delete"/>
APOSVTS	APOSVTS	VTS by Report Id & User	<input type="checkbox"/>
APOSVTSG	APOSVTSG	VTS by Report Id & User Group	<input type="checkbox"/>
APOSVTSN	APOSVTSN	VTS by Report Name & User	<input type="checkbox"/>
APOSVTSGN	APOSVTSGN	VTS by Report Name & User Group	<input type="checkbox"/>
APOSVTSP	APOSVTSP	VTS by Report Path & User	<input type="checkbox"/>
APOSVTSGP	APOSVTSGP	VTS by Report Path & User Group	<input type="checkbox"/>

- m) You have now successfully registered the *View Time Security* processing extensions to the Crystal Enterprise environment, to test them with a specific report, continue . . .

ASSIGNING A PROCESSING EXTENSION TO A REPORT OBJECT

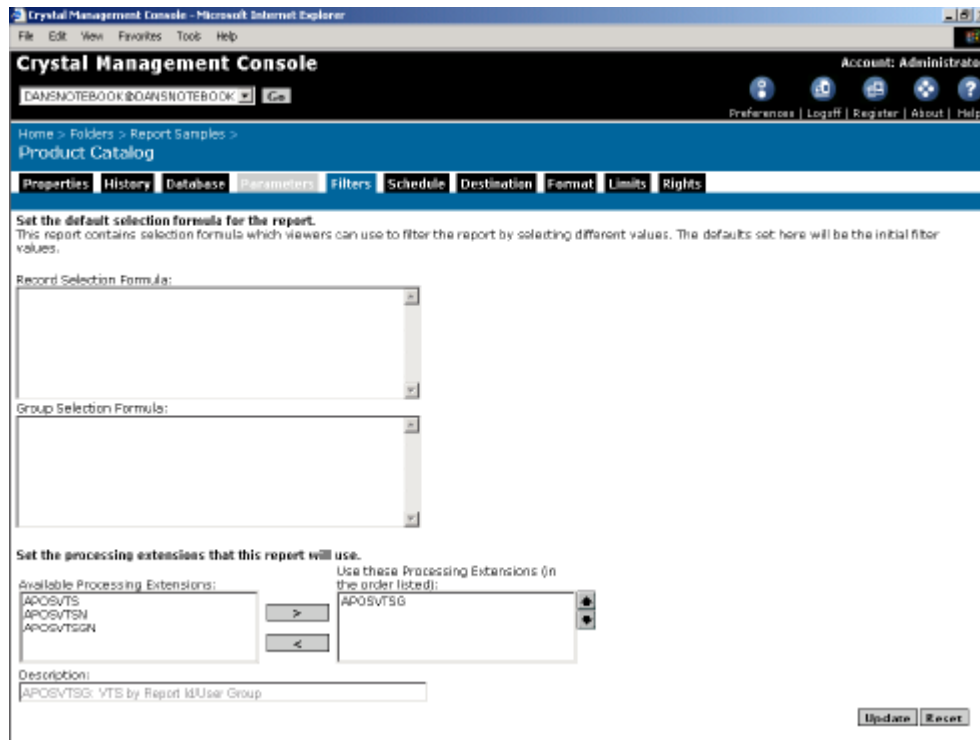
To assign a specific processing extension to a specific report object, an assignment must be made within the Crystal Enterprise environment, as follows:

- a) Log into the Crystal Management Console within Crystal Enterprise.
- b) Click on Manage Objects
- c) Find and right mouse click on the 'Product Catalog' report located in the 'Report Samples' folder. Select 'Properties' from the General tab that displays and make a note of the &id=setting. This is the Report Id that you will need in the next step (editing the entitlement database).
- d) Click on the 'Product Catalog' report from the list displayed.
- e) Click on the Filters tab at the top of the Objects screen and you should see the following:



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- f) In the Available Processing Extensions list, highlight APOSVTSG and click on the right arrow button to move it to the "Use these Processing . . ."
- g) Click on the Update in the lower right corner of the screen to save your changes.
- h) Confirm that the screen looks like this:



- i) Note that viewing any saved report instances that were generated using an assigned Processing Extension will always attempt to use the assigned processing extensions.
- j) You have now successfully assigned the [View Time Security](#) processing extension to the Product Catalog report, to test it, continue . . .

EDITING THE ENTITLEMENT DATA

The 8 entitlement database tables must contain the fields provided, do not change the structure, field names or field definitions. The sample database is in Microsoft Access format but you may wish to store your entitlement information in some other database, such as SQL Server or Oracle. This is acceptable; just ensure that the connection string information in the appropriate ini file is updated accordingly.

Note that the syntax for the SelForm field is critical and should be carefully tested. This is easy if you open the desired report in Crystal Reports designer and append the extra selection formula into the Record Selection Formula Editor and Check syntax. The sample entitlement databases provided are as follows:

a) VIEW TIME SECURITY BY REPORT ID AND USER GROUP

The sample entitlement data table ViewTimeG contains an example that is designed to apply row level security that shows only "Accessory" products to members of the Administrators group and only "Bicycle" products to members of the Everyone group. The fields in the table are:

ReportID	the report id from your Crystal Enterprise system. For demo purposes, change the 176 number shown to match the Report ID for Product Catalog in your system.
GroupID	the user group name from your Crystal Enterprise system
SelForm	the selection formula that should be appended to the report's selection formula

b) VIEW TIME SECURITY BY REPORT ID AND USER

The sample entitlement data table ViewTime contains an example that is designed to apply row level security that shows only "Accessory" products to the Administrator user and only "Bicycle" products to the Guest user. The fields in the table are:

ReportID	the report id from your Crystal Enterprise system. For demo purposes, change the 176 number shown to match the Report ID for Product Catalog in your system.
UserID	the user name from your Crystal Enterprise system
SelForm	the selection formula that should be appended to the report's selection formula

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c) *VIEW TIME SECURITY BY REPORT NAME AND USER GROUP*

The sample entitlement data table ViewTimeGN contains an example that is designed to apply row level security that shows only "Accessory" products to members of the administrators group and only "Bicycle" products to members of the Everyone group. Because the security is by report name, this business rule will be assigned to all system-wide occurrences of this report (by name) that have this processing extension assigned to it. This helps with situations where the same report object exists in multiple folders and the entitlement database manages the rules for them all. The fields in the table are:

ReportName	the report name from your Crystal Enterprise system
GroupID	the user group name from your Crystal Enterprise system
SelfForm	the selection formula that should be appended to the report's selection formula

d) *VIEW TIME SECURITY BY REPORT NAME AND USER*

The sample entitlement data table ViewTimeN contains an example that is designed to apply row level security that shows only "Accessory" products to the Administrator user and only "Bicycle" products to the Guest user. Because the security is by report name, this business rule will be assigned to all system-wide occurrences of this report (by name) that have this processing extension assigned to it. This helps with situations where the same report object exists in multiple folders and the entitlement database manages the rules for them all. The fields in the table are:

ReportName	the report name from your Crystal Enterprise system
UserID	the user name from your Crystal Enterprise system
SelfForm	the selection formula that should be appended to the report's selection formula

e) *VIEW TIME SECURITY BY REPORT PATH AND USER GROUP*

The sample entitlement data table ViewTimeGP contains an example that is designed to apply row level security that shows only "Accessory" products to members of the administrators group and only "Bicycle" products to members of the Everyone group. This helps with situations where business rules are developed in a development/qa environment as long as the same path to the report is used in the production environment. The fields in the table are:

ReportPath	the report path from your Crystal Enterprise system
GroupID	the user group name from your Crystal Enterprise system
SelfForm	the selection formula that should be appended to the report's selection formula

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f) VIEW TIME SECURITY BY REPORT PATH AND USER

The sample entitlement data table ViewTimeP contains an example that is designed to apply row level security that shows only "Accessory" products to the Administrator user and only "Bicycle" products to the Guest user. This helps with situations where business rules are developed in a development/qa environment as long as the same path to the report is used in the production environment. The fields in the table are:

ReportPath	the report path from your Crystal Enterprise system
UserID	the user name from your Crystal Enterprise system
SelForm	the selection formula that should be appended to the report's selection formula

g) VIEW TIME SECURITY BY DYNAMIC PATH AND USER GROUP

The sample entitlement data table ViewTimeGW contains an example that is designed to apply row level security that shows only "Accessory" products to the Administrator user and only "Bicycle" products to the Guest user on all reports (with the processing extension assigned) within the designated path. This helps with situations where the same business rule needs to be applied to all reports within a specific folder and all its subfolders. The fields in the table are:

ReportPath	the report path from your Crystal Enterprise system
GroupID	the user group name from your Crystal Enterprise system
SelForm	the selection formula that should be appended to the report's selection formula

h) VIEW TIME SECURITY BY DYNAMIC PATH AND USER

The sample entitlement data table ViewTimeW contains an example that is designed to apply row level security that shows only "Accessory" products to the Administrator user and only "Bicycle" products to the Guest user on all reports (with the processing extension assigned) within the designated path. This helps with situations where the same business rule needs to be applied to all reports within a specific folder and all its subfolders. The fields in the table are:

ReportPath	all or part of the report path from your Crystal Enterprise system
UserID	the user name from your Crystal Enterprise system
SelForm	the selection formula that should be appended to the report's selection formula

SELECTION FORMULA PARSING

If special tags are placed in the selection formula, *View Time Security* will replace the tags with specific information. In the *View Time Security* INI file, set the delimiter you wish to use (// by default) and whether or not you want to activate this formula parsing capability.

The following options are available:

Current Crystal Enterprise User Id

<delim>USER-SI_ID<delim> - will provide the value of the current user id.

Current Crystal Enterprise User Name

<delim>USER-SI_NAME<delim> - will provide the value of the current user name.

Current Crystal Enterprise Report Id

<delim>REPORT-SI_ID<delim> will provide the value of the current report id.

Current Crystal Enterprise Report Name

<delim>REPORT-SI_ID<delim> will provide the value of the current report name.

Current System Date

<delim>NOW-DATE<delim> - will provide the current date in the format Date(year,month,day)

Current System Date-Time

<delim>NOW-DATETIME<delim> - will provide the current date and time in the format DateTime(year,month,day,hour,minute,second)

Current System Time

<delim>NOW-TIME<delim> - will provide the current time in the format Time(hour,minute,second)

Note - Please note that Object Manager will check the syntax of your special tag as part of its syntax checking function.

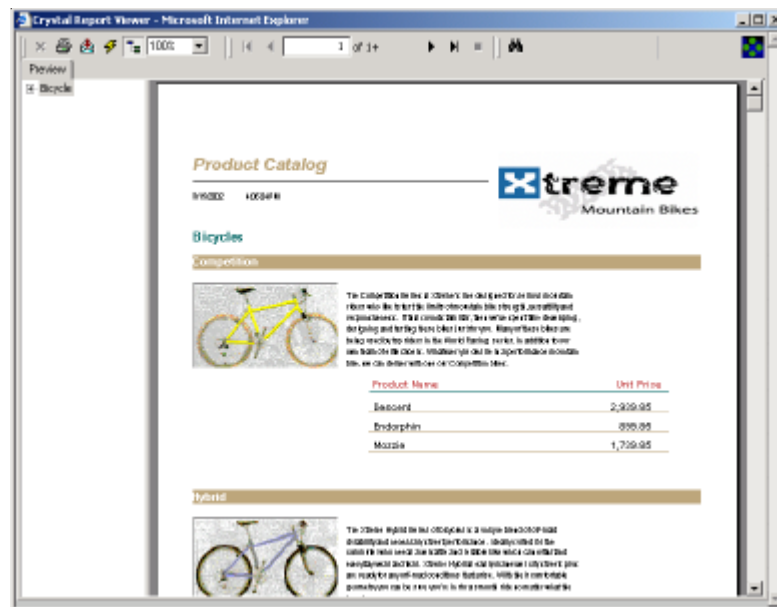
Note - You can use any property that exists in the Crystal Enterprise Properties property bag including your own custom properties. The syntax is:

<delim>REPORT-<your property here><delim> or

<delim>USER-<your property here><delim>

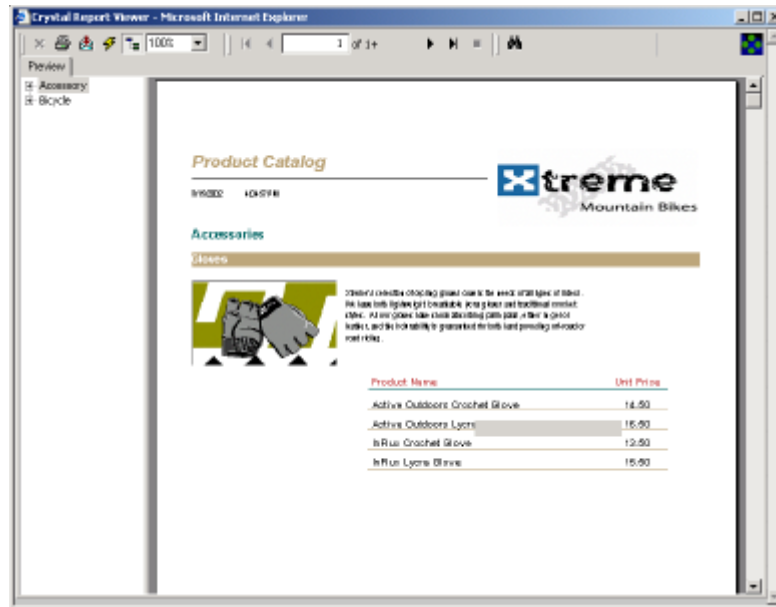
TESTING VIEW TIME SECURITY BY REPORT ID AND USER GROUP

- a) The sample entitlement data table ViewTimeG assumes that the following User Groups exist: Administrators and Everyone. Further, it assumes that the Report ID for Product Catalog is 176, make sure to change it in ViewTimeG if yours is different. Right mouse click - properties on Product Catalog in the Objects listing in the Crystal Management console.
- b) After assigning the APOSVTSG processing extension to the Product Catalog as outlined above, log into ePortfolio as Guest and View the Product Catalog. You should see only the Bicycle group of products, as shown here:

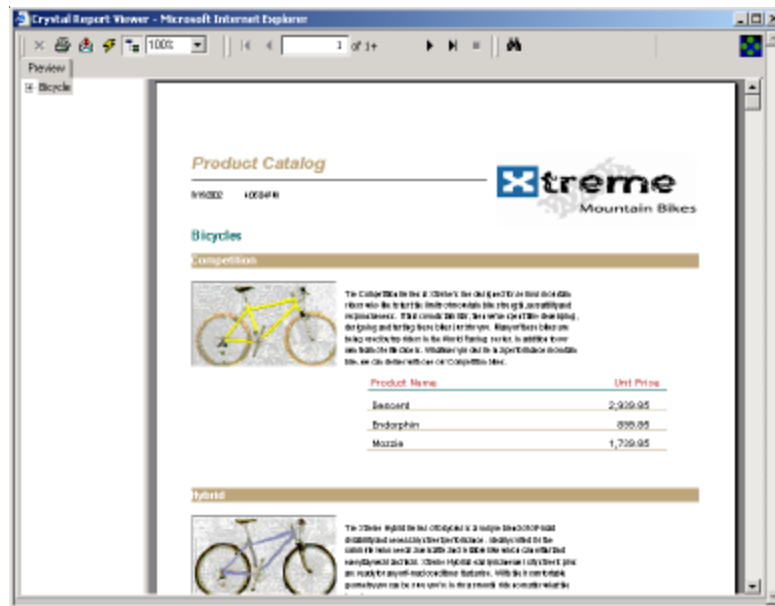


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- c) Log into ePortfolio as Administrator and View the Product Catalog. Since Administrator is a member of both user groups identified in ViewTimeG, you should see both the Accessory and Bicycle groups of products, as shown here:

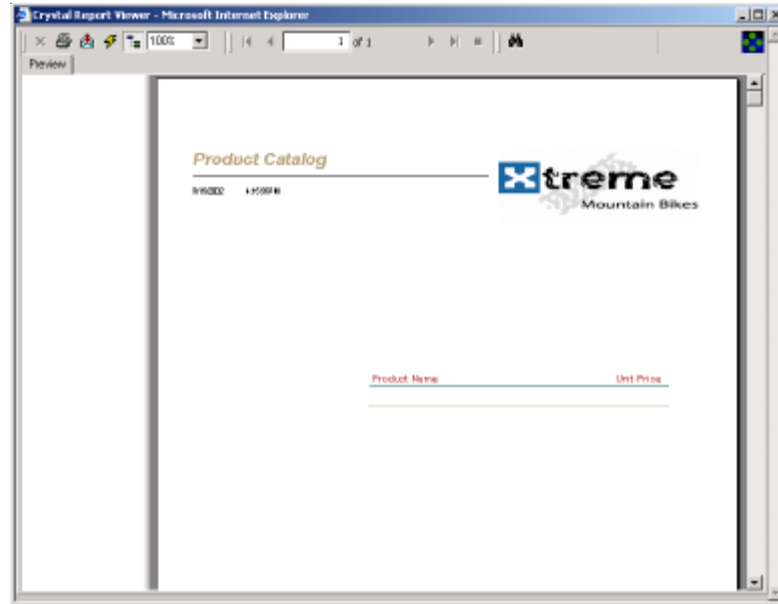


- d) Log into ePortfolio as any other user and View the Product Catalog. Since this user is a member of only the EVERYONE user groups identified in ViewTimeG, you should see only the Bicycle group of products.



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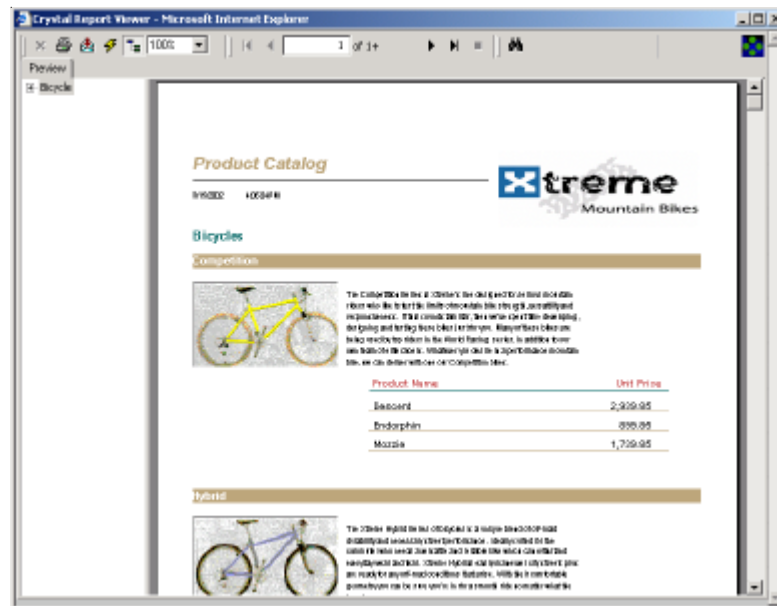
- e) Edit the ViewTimeG table and change the EVERYONE group name to a non-existent user group. Then log into ePortfolio as any other user and View the Product Catalog. Since this user has no records in ViewTimeG, you should see an empty report, like this:



- f) This completes a demonstration of the following *View Time Security* principles:
- i) empty report if no security defined
 - ii) one data element selected for one report for one user group
 - iii) multiple data elements selected for one report for more than one user group

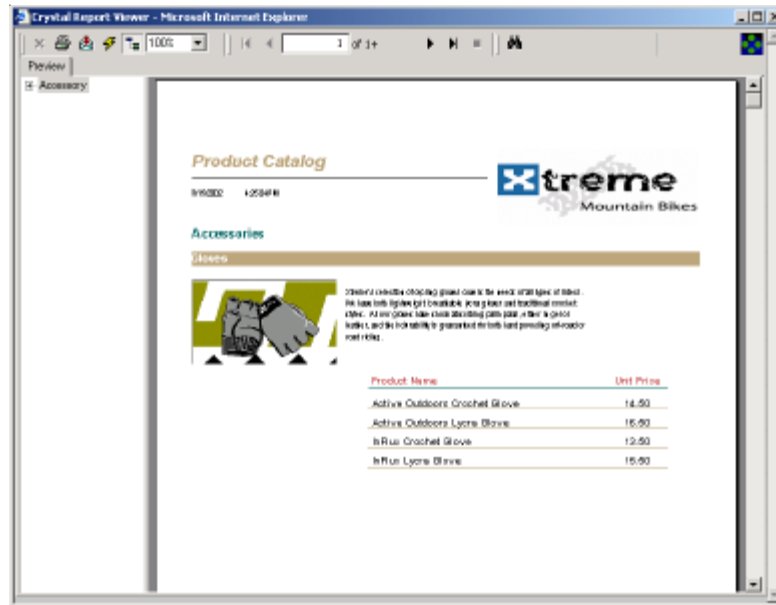
TESTING VIEW TIME SECURITY BY REPORT ID AND USER

- a) The sample entitlement data table ViewTime assumes that the following Users exist: Administrator and Guest. Further, it assumes that the Report ID for Product Catalog is 176, make sure to change it in ViewTime if yours is different. Right mouse click - properties on Product Catalog in the Objects listing in the Crystal Management console.
- b) After assigning the APOSVTS processing extension to the Product Catalog as outlined above, log into ePortfolio as Guest and View the Product Catalog. You should see only the Bicycle group of products, as shown here:

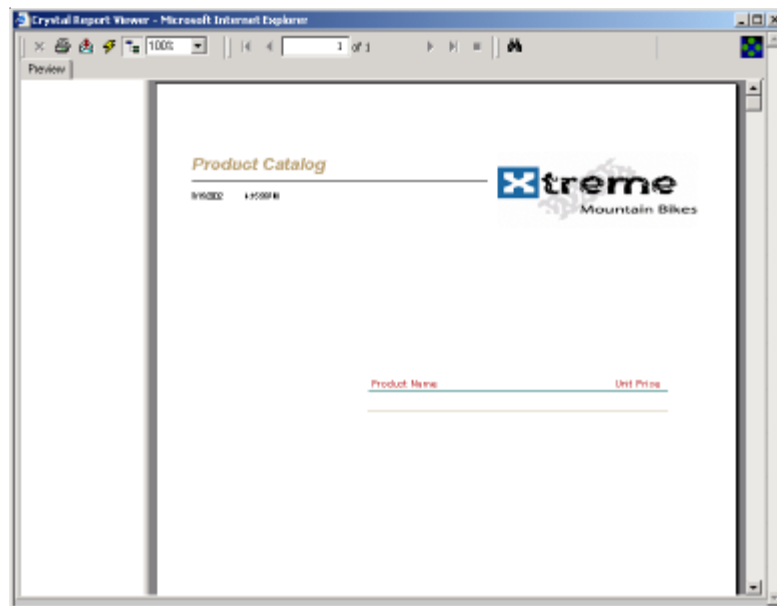


CONTINUED ON NEXT PAGE...

- c) Log into ePortfolio as Administrator and View the Product Catalog. You should see only the Accessory group of products, as shown here:



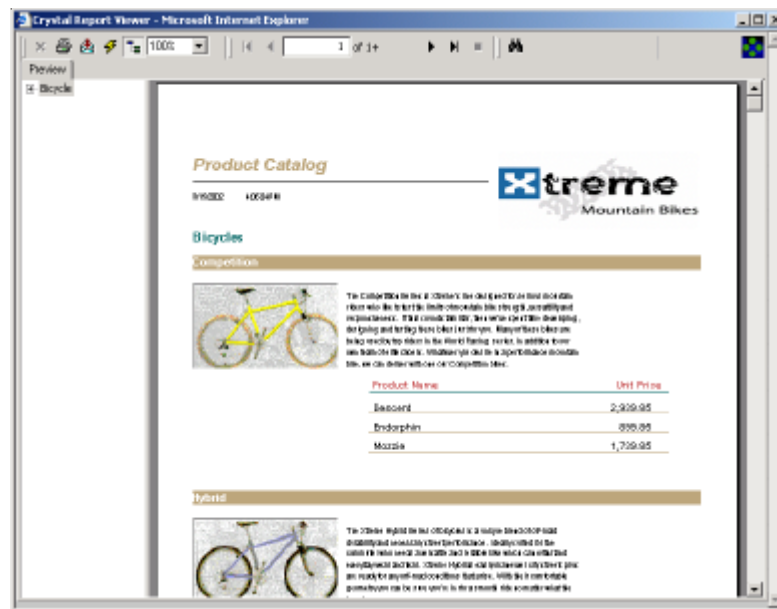
- d) Log into ePortfolio as any other user and View the Product Catalog. Since this user has no records in ViewTime, you should see an empty report, like this:



- e) This completes a demonstration of the following *View Time Security* principles:
- i) empty report if no security defined
 - ii) one data element selected for one report for one user

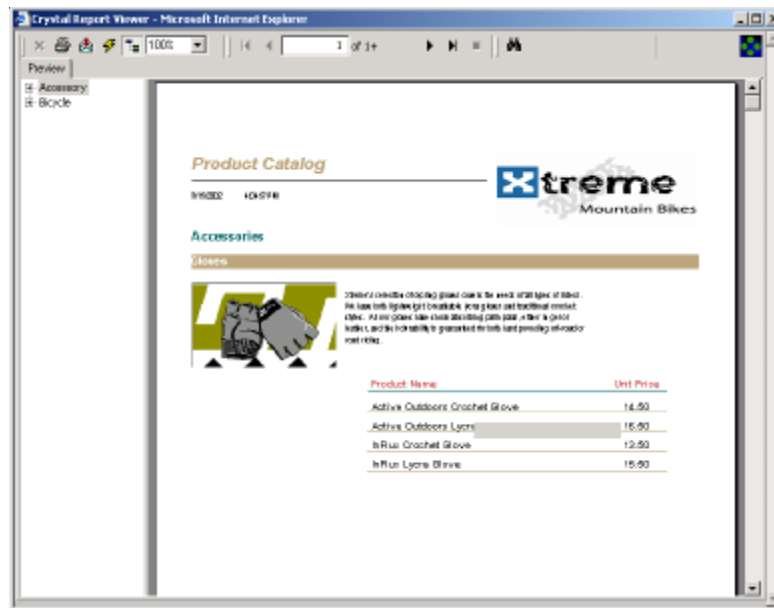
TESTING VIEW TIME SECURITY BY REPORT NAME AND USER GROUP

- a) The sample entitlement data table ViewTimeGN assumes that the following User Groups exist: Administrators and Everyone. Further, it assumes that the Product Catalog exists in your Crystal Enterprise system, make sure to change it in ViewTimeGN if yours is different.
- b) After assigning the APOSVTSGN processing extension to the Product Catalog as outlined above, log into ePortfolio as Guest and View the Product Catalog. You should see only the Bicycle group of products, as shown here:

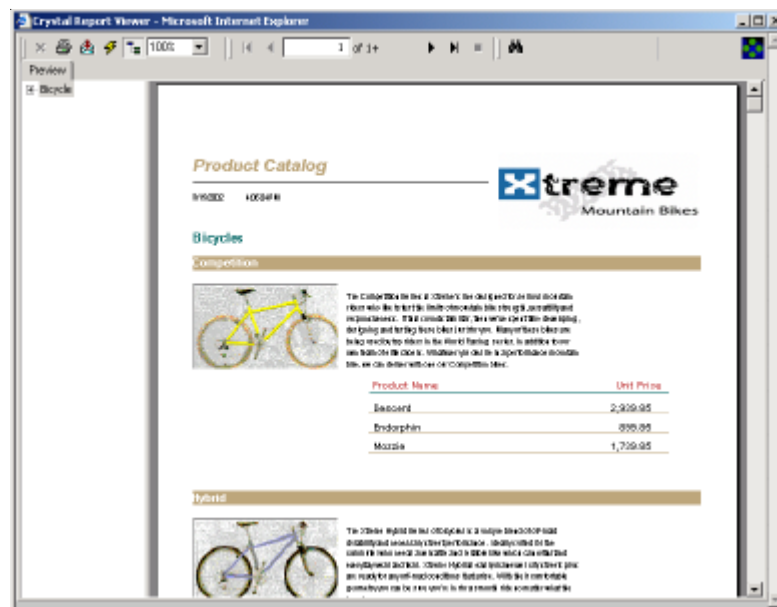


CONTINUED ON NEXT PAGE...

- c) Log into ePortfolio as Administrator and View the Product Catalog. Since Administrator is a member of both user groups identified in APOSVTSGN, you should see both the Accessory and Bicycle groups of products, as shown here:

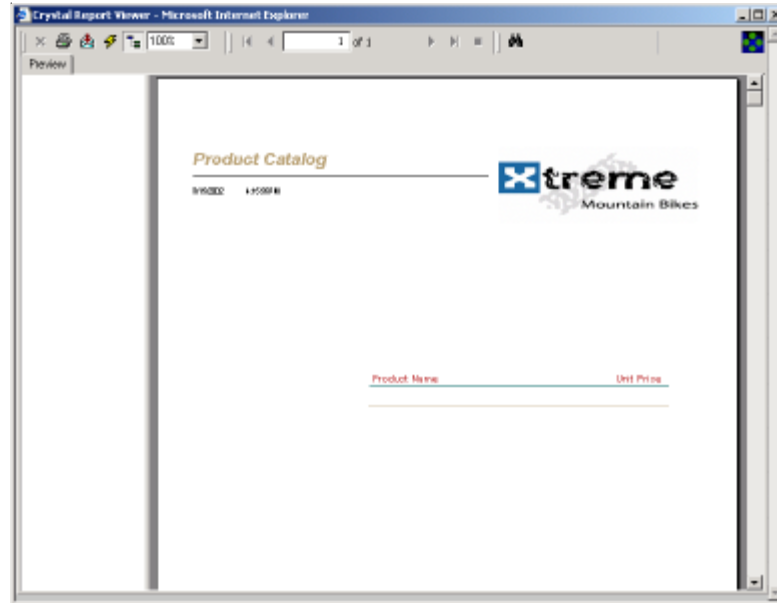


- d) Log into ePortfolio as any other user and View the Product Catalog. Since this user is a member of only the EVERYONE user groups identified in APOSVTSGN, you should see only the Bicycle group of products.



CONTINUED ON NEXT PAGE...

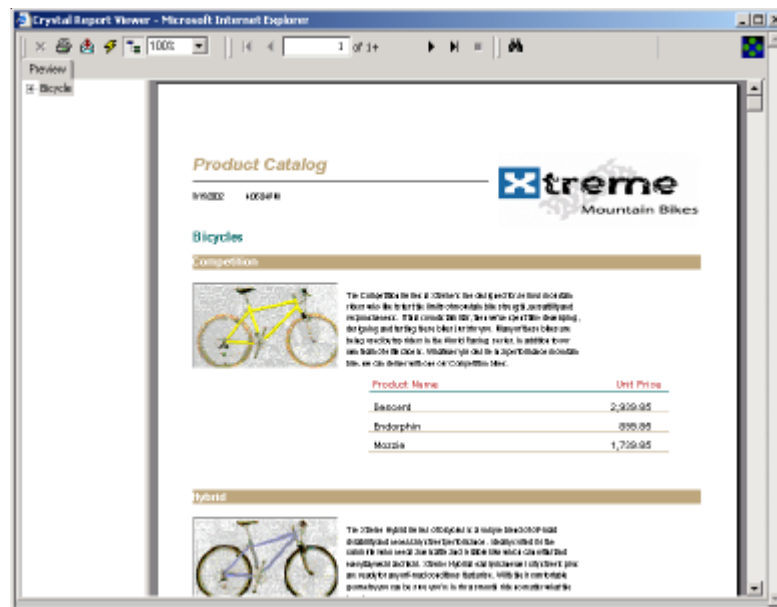
- e) Edit the ViewTimeGN table and change the EVERYONE group name to a non-existent user group. Then log into ePortfolio as any other user and View the Product Catalog. Since this user has no records in APOSVTSGN, you should see an empty report, like this:



- f) Since this processing extension is not locked into a specific report id, consider adding Product Catalog to a different folder, applying this processing extension to it and repeating the test.
- g) This completes a demonstration of the following *View Time Security* principles:
- i) empty report if no security defined
 - ii) one data element selected
 - iii) multiple data elements selected
 - iv) one business rule applied to multiple instances of the same report

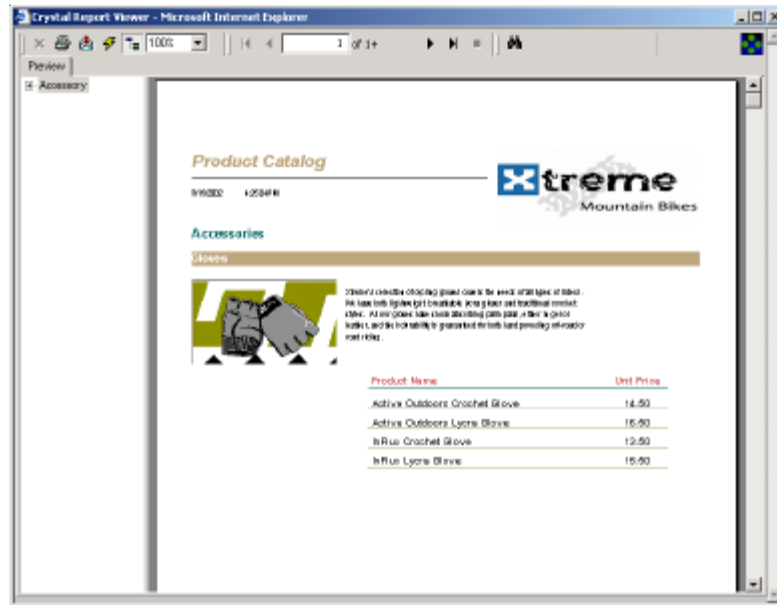
TESTING VIEW TIME SECURITY BY REPORT NAME AND USER

- a) The sample entitlement data table ViewTimeN assumes that the following users exist: Administrator and Guest. Further, it assumes that the Product Catalog exists in your Crystal Enterprise system, make sure to change it in ViewTimeN if yours is different.
- b) After assigning the APOSVTSN processing extension to the Product Catalog as outlined above, log into ePortfolio as Guest and View the Product Catalog. You should see only the Bicycle group of products, as shown here:

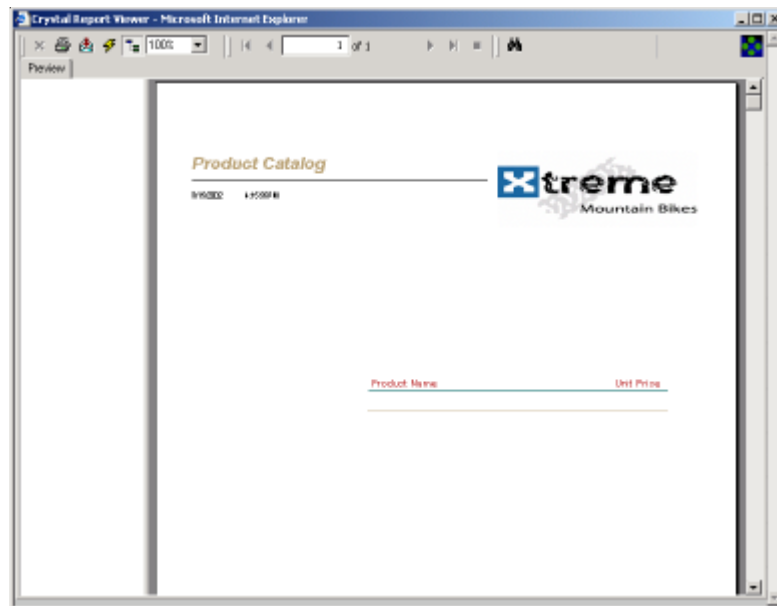


CONTINUED ON NEXT PAGE...

- c) Log into ePortfolio as Administrator and View the Product Catalog. You should see only the Accessory group of products, as shown here:



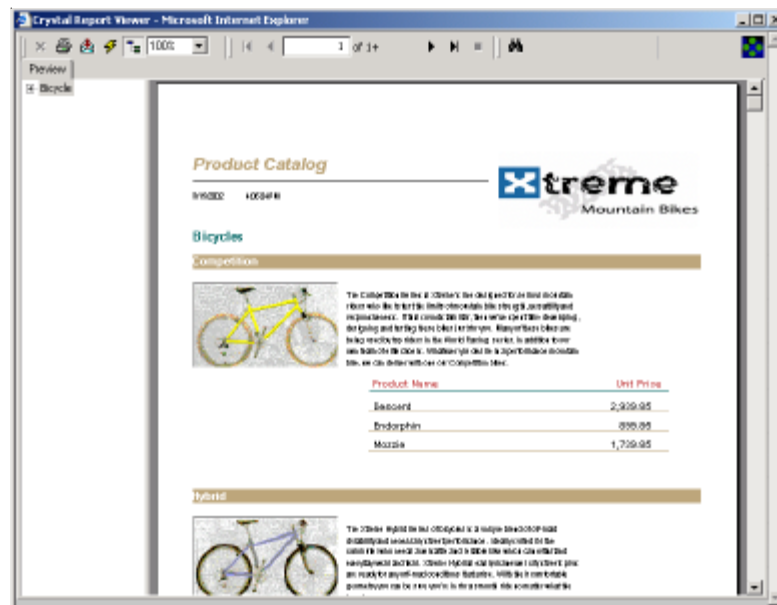
- d) Log into ePortfolio as any other user and View the Product Catalog. Since this user has no records in ViewTimeN, you should see an empty report, like this:



- e) This completes a demonstration of the following *View Time Security* principles:
- i) empty report if no security defined
 - ii) one data element selected
 - iii) multiple data elements selected
 - iv) one business rule applied to multiple instances of the same report

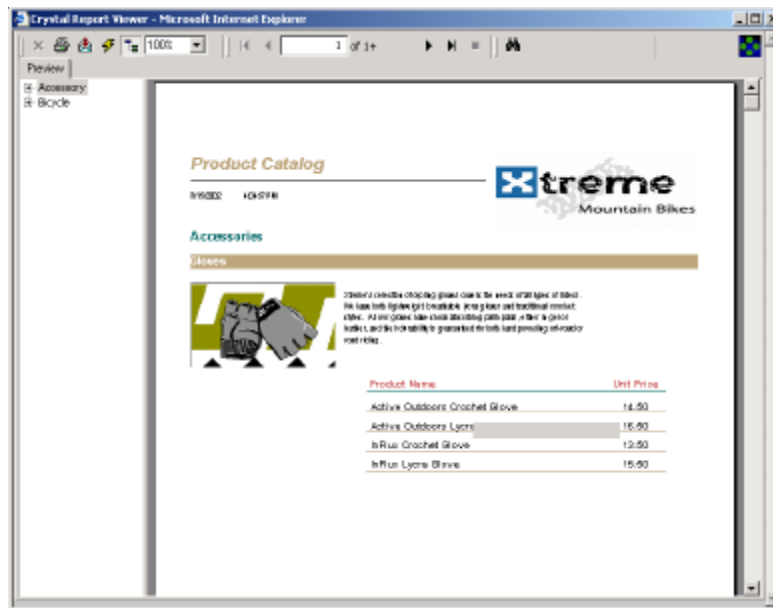
TESTING VIEW TIME SECURITY BY REPORT PATH AND USER GROUP

- a) The sample entitlement data table ViewTimeGP assumes that the following User Groups exist: Administrators and Everyone. Further, it assumes that the Product Catalog exists in your Crystal Enterprise system, make sure to change it in ViewTimeGP if yours is different.
- b) After assigning the APOSVTSGP processing extension to the Product Catalog as outlined above, log into ePortfolio as Guest and View the Product Catalog. You should see only the Bicycle group of products, as shown here:

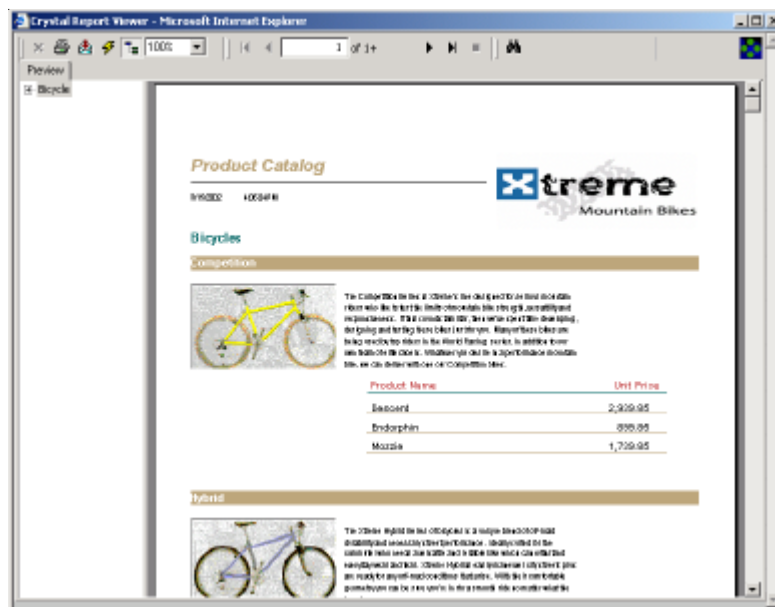


CONTINUED ON NEXT PAGE...

- c) Log into ePortfolio as Administrator and View the Product Catalog. Since Administrator is a member of both user groups identified in APOSVTSGP, you should see both the Accessory and Bicycle groups of products, as shown here:

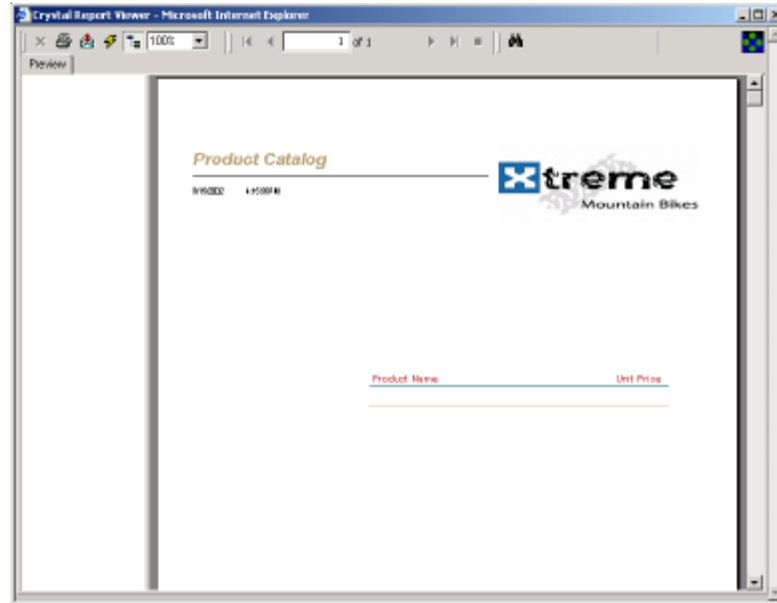


- d) Log into ePortfolio as any other user and View the Product Catalog. Since this user is a member of only the EVERYONE user groups identified in APOSVTSGP, you should see only the Bicycle group of products.



CONTINUED ON NEXT PAGE...

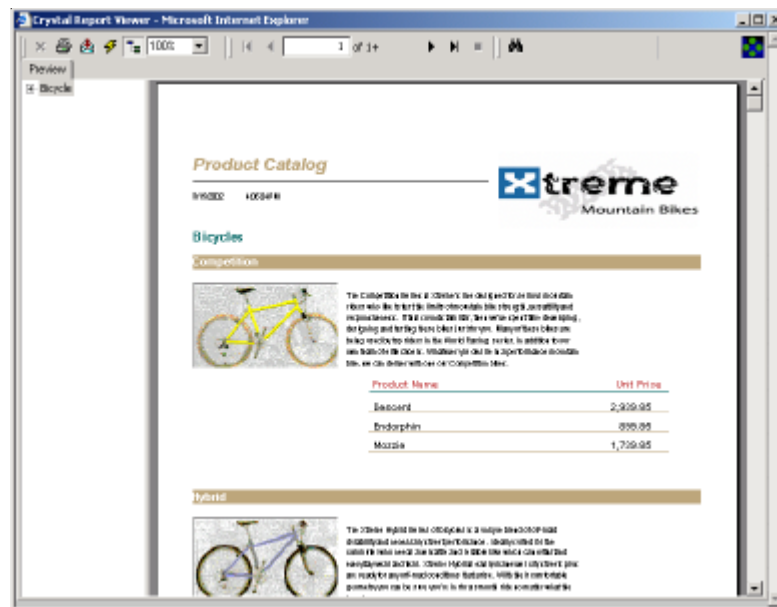
- e) Edit the ViewTimeGP table and change the EVERYONE group name to a non-existent user group. Then log into ePortfolio as any other user and View the Product Catalog. Since this user has no records in APOSVTSGP, you should see an empty report, like this:



- g) This completes a demonstration of the following *View Time Security* principles:
- i) empty report if no security defined
 - ii) one data element selected
 - iii) multiple data elements selected
 - iv) one business rule applied to multiple instances of the same report

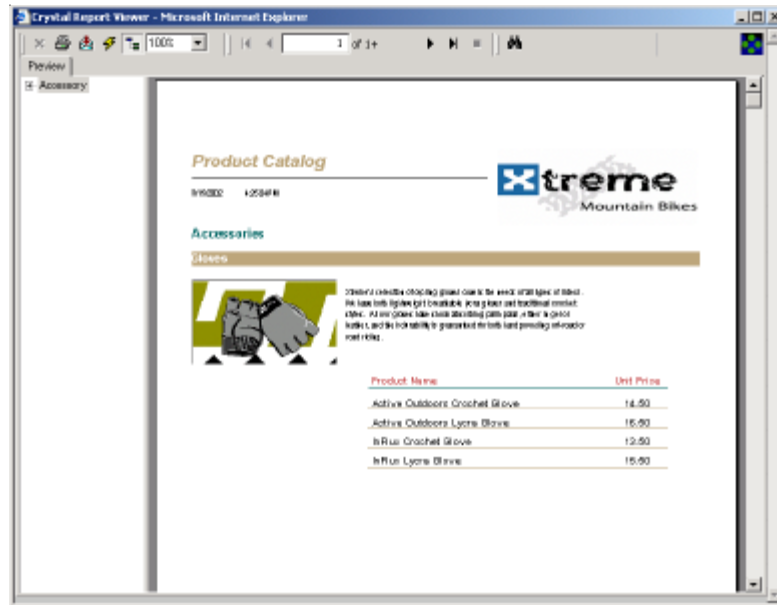
TESTING VIEW TIME SECURITY BY REPORT PATH AND USER

- a) The sample entitlement data table ViewTimeP assumes that the following users exist: Administrator and Guest. Further, it assumes that the Product Catalog exists in your Crystal Enterprise system, make sure to change it in ViewTimeP if yours is different.
- b) After assigning the APOSVTSP processing extension to the Product Catalog as outlined above, log into ePortfolio as Guest and View the Product Catalog. You should see only the Bicycle group of products, as shown here:

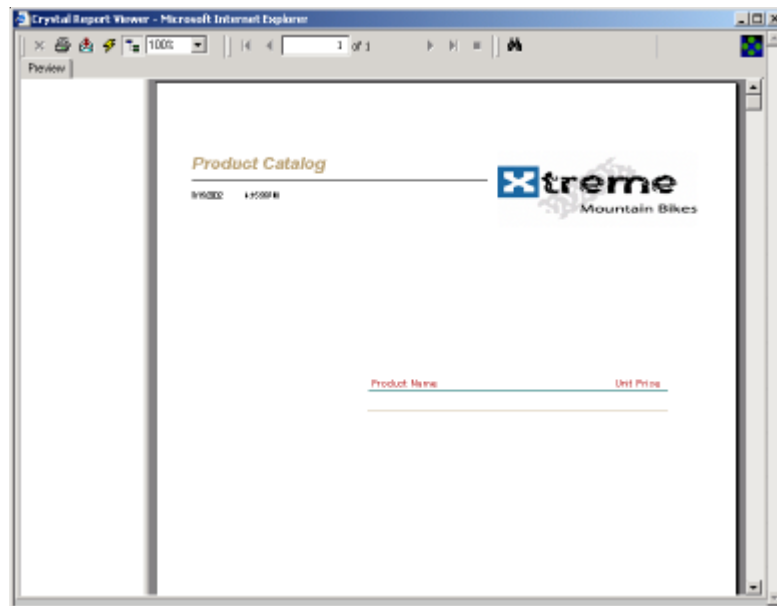


CONTINUED ON NEXT PAGE...

- c) Log into ePortfolio as Administrator and View the Product Catalog. You should see only the Accessory group of products, as shown here:

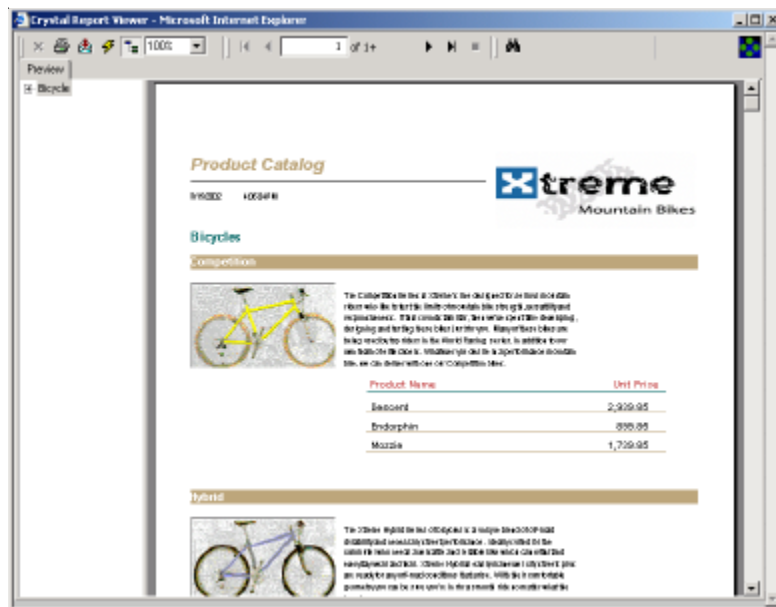


- d) Log into ePortfolio as any other user and View the Product Catalog. Since this user has no records in ViewTimeP, you should see an empty report, like this:



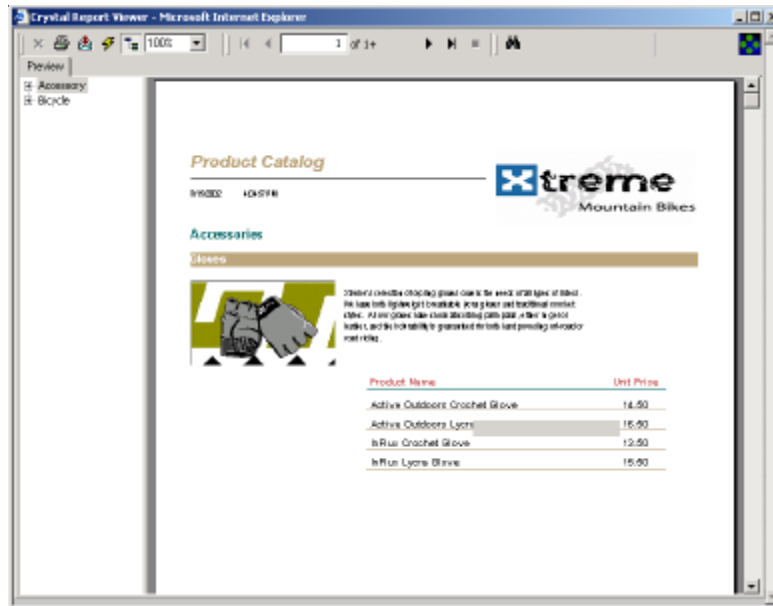
TESTING VIEW TIME SECURITY BY DYNAMIC PATH AND USER GROUP

- a) The sample entitlement data table ViewTimeGW assumes that the following User Groups exist: Administrators and Everyone. Further, it assumes that the Product Catalog exists in your Crystal Enterprise system, make sure to change it in ViewTimeGW if yours is different.
- b) After assigning the APOSTSGW processing extension to the Product Catalog as outlined above, log into ePortfolio as Guest and View the Product Catalog. You should see only the Bicycle group of products, as shown here:

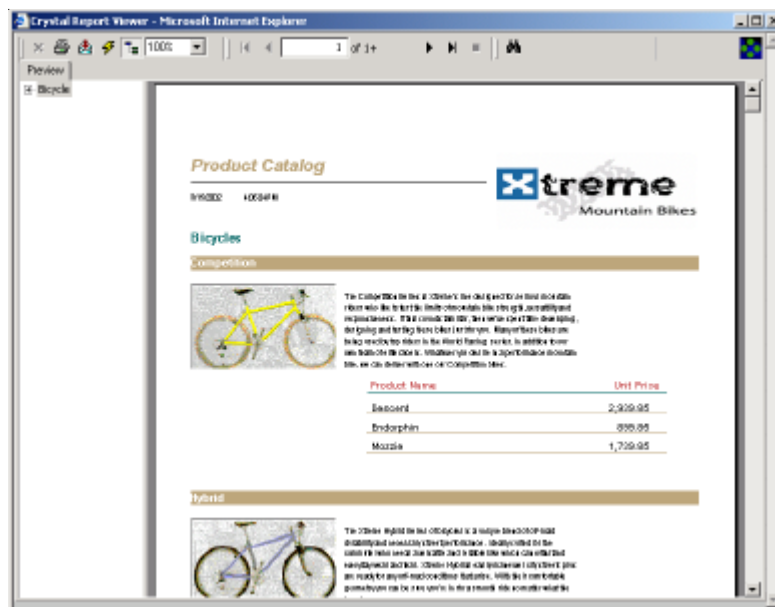


CONTINUED ON NEXT PAGE...

- c) Log into ePortfolio as Administrator and View the Product Catalog. Since Administrator is a member of both user groups identified in APOSVTSGW, you should see both the Accessory and Bicycle groups of products, as shown here:

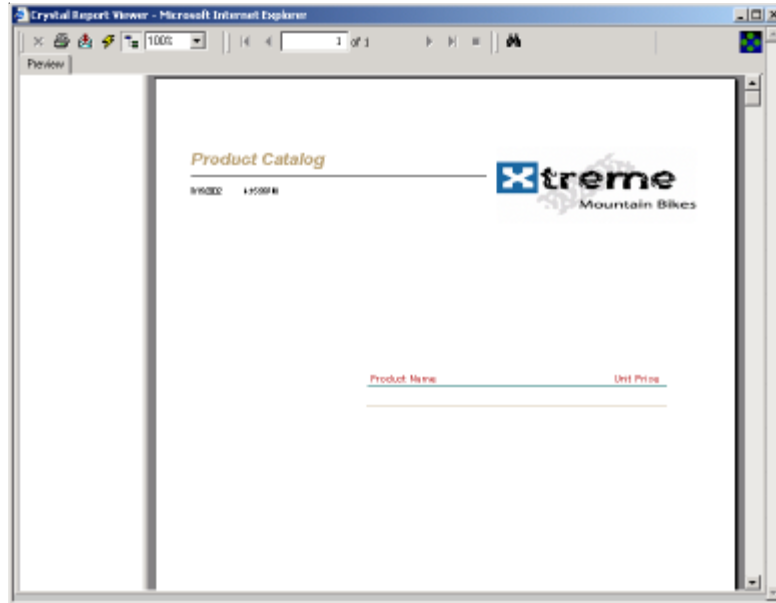


- d) Log into ePortfolio as any other user and View the Product Catalog. Since this user is a member of only the EVERYONE user groups identified in APOSVTSGW, you should see only the Bicycle group of products.



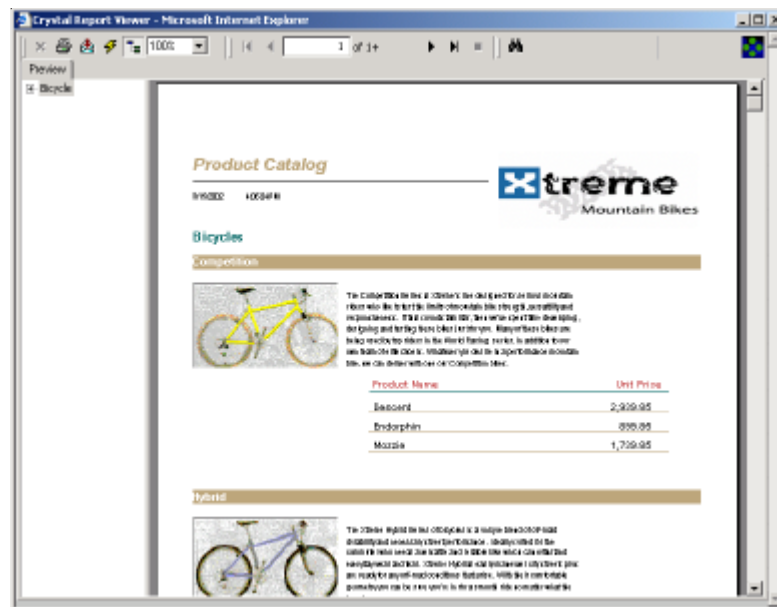
CONTINUED ON NEXT PAGE...

- e) Edit the ViewTimeGW table and change the EVERYONE group name to a non-existent user group. Then log into ePortfolio as any other user and View the Product Catalog. Since this user has no records in APOSVTSGW, you should see an empty report, like this:



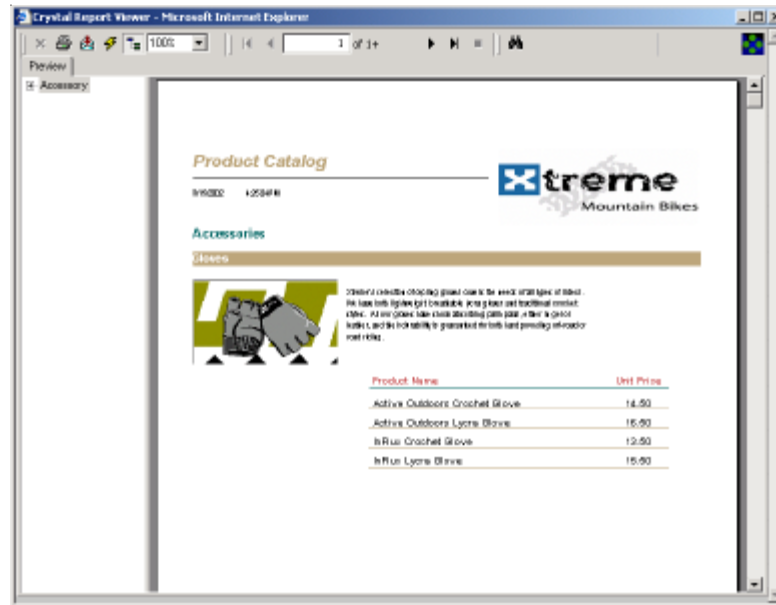
TESTING VIEW TIME SECURITY BY DYNAMIC PATH AND USER

- a) The sample entitlement data table ViewTimeW assumes that the following users exist: Administrator and Guest. Further, it assumes that the Product Catalog exists in your Crystal Enterprise system, make sure to change it in ViewTimeP if yours is different.
- b) After assigning the APOSVTSW processing extension to the Product Catalog as outlined above, log into ePortfolio as Guest and View the Product Catalog. You should see only the Bicycle group of products, as shown here:

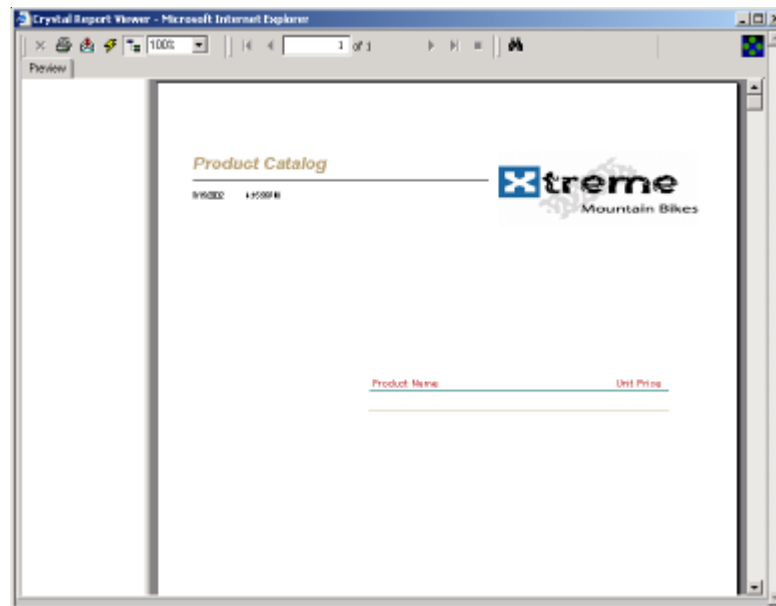


CONTINUED ON NEXT PAGE...

- c) Log into ePortfolio as Administrator and View the Product Catalog. You should see only the Accessory group of products, as shown here:



- d) Log into ePortfolio as any other user and View the Product Catalog. Since this user has no records in ViewTimeW, you should see an empty report, like this:



- e) This completes a demonstration of the following *View Time Security* principles:
- empty report if no security defined
 - one data element selected
 - multiple data elements selected
 - one business rule applied to multiple instances of the same report

TESTING ACTIVITY LOGGING

- a) Edit APOSVTS.INI and ensure that the [Control] and [Log] sections are set properly for your environment. Please review the *Editing the INI Files* section on Pages 9-10 for additional information if necessary.
- b) Ensure that the APOSVTS processing extension works properly with the Product Catalog report as per the testing instructions on page 21.
- c) Using Microsoft Access, open the APOSVTS.MDB and view the Log table and review the information provided.
- d) Editing the APOSVTS.INI file in different ways will allow you to reduce/increase the amount of data captured, turn on/off the logging of scheduling activity, etc.
- e) Repeat the above tests with the other processing extensions as desired, make sure that each ini file is edited appropriately.

MORE ABOUT ACTIVITY LOGGING

- a) The Log table will grow based on the settings in the ini file and how busy your Crystal Enterprise system is - maintenance of this file is your responsibility.
- b) If your report activity volumes are significant, SQL Server or Oracle is recommended, scripts to assist in this process are available on request. Remember to edit both connection strings (for security and logging) in the appropriate ini files.
- c) The resulting Log table is designed for external analysis, create your own Crystal Report to analyze the data as you wish. Several sample reports are provided to get you started, make sure to open them and set location to whatever database you wish to connect to, the default is set to an ODBC data source called APOSVTS.

ENVIRONMENT REQUIREMENTS

View Time Security must be installed on each server that contains the following Crystal Enterprise components:

Crystal Enterprise v.8.5/9 Page Server

Crystal Enterprise v.8.5/9 Job Server

In addition, any computer that has *View Time Security* on it requires ADO (v.2.6 or greater) to support connectivity to the entitlement database and/or the activity log database. If required, ADO may be downloaded from Microsoft's download area or from the Downloads area of the APOS web site at www.apos.on.ca

TIPS AND TRICKS

A few tips and tricks . . .

1. Note that viewing any saved report instances that were generated using an assigned Processing Extension will always attempt to use the assigned processing extensions. To test the implications, try this:
 - a) Assign a processing extension to a report
 - b) Run a scheduled instance to generate a History instance
 - c) Confirm that viewing this instance as different users filters data correctly
 - d) Remove the processing extension assignment for this report in the Crystal Management Console.
 - e) View the same History instance as different users and you will get the same results as occurred when the Processing Extension was assigned. This is because Crystal Enterprise permanently assigns the saved instance to the Processing Extension that was used when the instance was generated.
 - f) Also, note that if this processing extension no longer exists in the ../Crystal Decisions/WCS/ProcessExt folder, an error message will occur as per the Error Messages section below.
2. Note that changes to assigned Processing Extensions in the Crystal Management Console or the actual files in the ../ProcessExt folder are essentially immediate and do not require the restarting of the Web Component Server (WCS) or restarting of browser sessions.
3. Performance of processing extensions can be enhanced through the use of indexes in your reports. If possible, try to assign an internal report index to the specific report elements that are used in the *View Time Security* database selection formula. See your Crystal Reports designer documentation for additional information.
4. If you require activity logging for all or most reports but only need to apply row level user security to some reports, you may need to apply 2 processing extensions to some reports, as follows:
 - in the row level security processing extension's ini file, set activity logging off, set row level security on and assign it to reports needing row level security. Make sure to set the security database connection string appropriately.
 - in one of the other processing extension's ini file, set activity logging on, set row level security off and assign it to all reports needing activity logging. Make sure to set the log database connection string appropriately.
5. Performance of *View Time Security* may be enhanced by turning off the following setting in the appropriate ini, set it as follows:
IncludePath=N

TECHNICAL SUPPORT

EMAIL SUPPORT

If you are unsuccessful installing *View Time Security* and require assistance, please email the details of your problem to support@apos.on.ca

HELP DESK

Telephone help desk support is available at 519-653-8332.

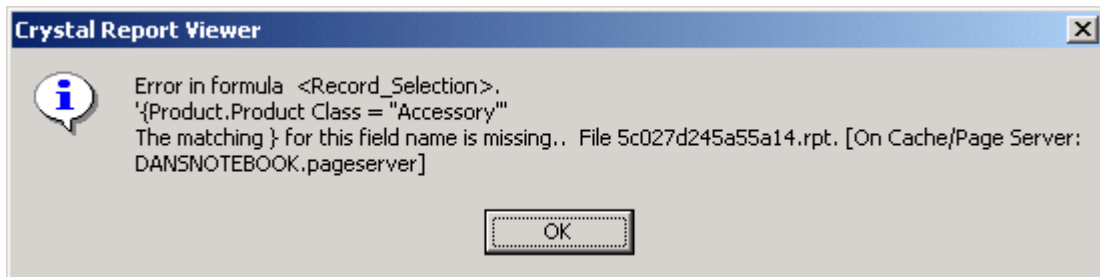
ERROR MESSAGES

Potential error messages include:

EMPTY REPORT WITH NO DATA DISPLAYED

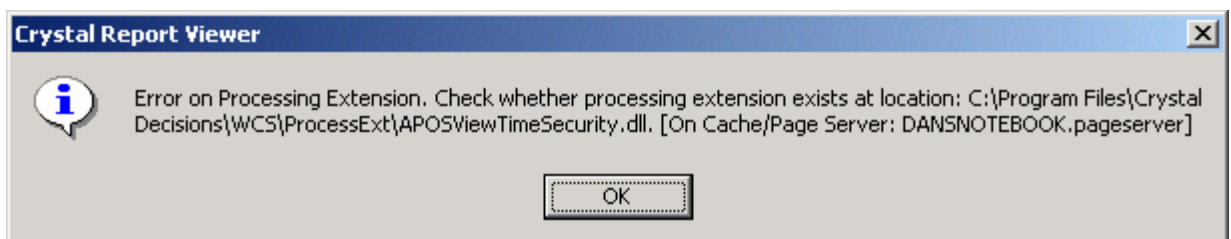
If the viewer displays the desired report without any data but does not display an error message, this is typically because the assigned processing extension is working and the current user has no rights to see any data.

ERROR IN FORMULA...



If the viewer displays an error message similar to the above, it typically indicates that there is a syntax error in the SelForm field of the record being used for this viewing request. To correct this error, make necessary changes to the SelForm syntax as necessary for the records being accessed. To confirm syntax, consider opening the target report in Crystal Reports Designer, enter the desired SelForm string into the Selection Formula editor and check syntax.

ERROR ON PROCESSING EXTENSION. CHECK WHETHER PROCESSING EXTENSION EXISTS ...



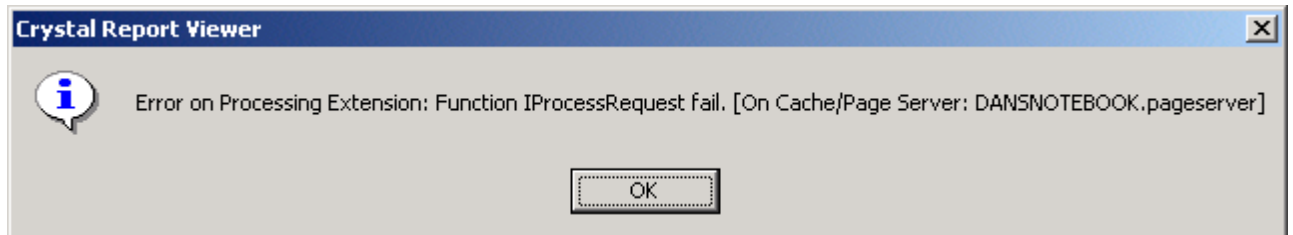
If you are viewing a report on demand and receive the above error message, it typically indicates that the assigned processing extension is missing. To correct this error, make sure the indicated processing extension exists in the ../Crystal Decisions/WCS/ProcessExt folder. Alternatively, change or remove the assigned processing extension for the parent report object in the Crystal Management Console.

CONTINUED ON NEXT PAGE...

If you are viewing a saved instance and receive the above error message, it typically indicates that this instance was generated with a processing extension that no longer exists. To correct this error, make sure the indicated processing extension exists in the ../Crystal Decisions/WCS/ProcessExt folder.

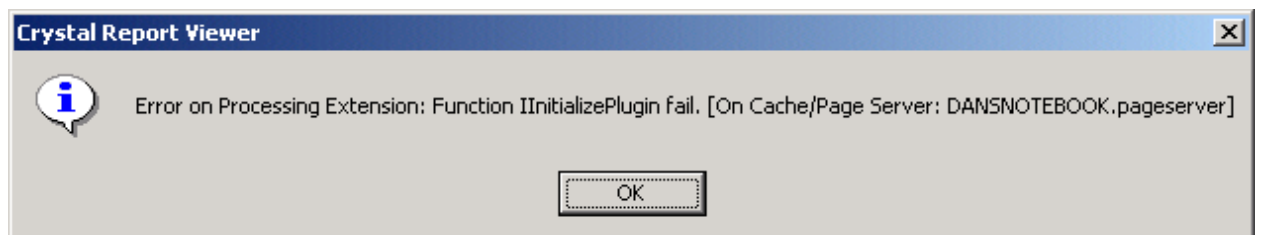
If you have scheduled a report and receive the above error message when you click on the Failed link in the History screen, it typically indicates that this instance was generated with a processing extension that no longer exists. To correct this error, make sure the indicated processing extension exists in the ../Crystal Decisions/WCS/ProcessExt folder.

ERROR ON PROCESSING EXTENSION: FUNCTION IPROCESSREQUEST FAIL.



This error typically indicates the ODBC name in the ini file cannot be found or the table name in ini file cannot be found. To correct this error, confirm that the ini file information about the ODBC connection and the table name is correct. Also, ensure that the actual ODBC connection exists and is defined correctly.

ERROR ON PROCESSING EXTENSION: FUNCTION IINITIALIZEPLUGIN FAIL.



If you are viewing on demand or scheduling a report and receive the above error message, it typically indicates that one of the following conditions exists:

- your apos.lic license file is missing, is corrupt or has expired
- the assigned processing extension is corrupt or invalid

This error message will also create an Event Log message - check it for additional error information. Note also that the supplied View Time Security files may not be renamed, doing so may also cause this error message.

CONTINUED ON NEXT PAGE...

EVENT LOG ERRORS

If in doubt to what errors may be occurring, consider checking the Event Log, in the Application section, for additional information that may assist you. Most errors are self-explanatory, here are some typical examples:

```
APOSVTS: Could not open license file.
```

```
APOSVTS: Invalid or expired runtime license.
```

```
APOSVTS: COM error - [Microsoft][ODBC Microsoft Access Driver] The Microsoft Jet database engine cannot find the input table or query 'ViewTime'. Make sure it exists and that its name is spelled correctly. Query: SELECT SelfForm FROM ViewTime WHERE UserID='ADMINISTRATOR' AND ReportID=176;
```

```
APOSVTS: COM error - [Microsoft][ODBC Microsoft Access Driver] Could not find file '(unknown)'. Connection String: Provider=MSDASQL.1;Data Source=APOSVTS
```

```
APOSVTS: COM error - [Microsoft][ODBC Driver Manager] Data source name not found and no default driver specified Connection String: Provider=MSDASQL.1;Data Source=APOSVTS
```

PROCESSING EXTENSION SELECTION FORMULA IS INVALID

The Crystal Enterprise v.9 Interactive DHTML Viewer will fail if the Select statement in the report contains double carriage returns. If this occurs, please open the report in Crystal Designer and remove the extra carriage return and try again. To confirm that that the Interactive Viewer is the problem, switch to the DHTML Viewer and try again. Please contact our Help Desk for additional information.

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