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Chancery SMS®

Version 5.2

# Report Writer Guide

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*November 2004*  
CSL - 12333

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# CONTENTS

<b>Report Writing</b> .....	<b>1</b>
Permission to Create Custom Reports .....	1
What You Should Know .....	1
Support Services Available .....	2
Documentation Included .....	2
Providing Feedback .....	3
Getting Training .....	3
Getting Support .....	4
Consultation Services .....	4
<b>Database Fundamentals</b> .....	<b>5</b>
Reporting Restrictions .....	5
Comparing Database Models .....	5
Data Access Layer .....	7
Naming Conventions .....	8
Views .....	8
Intersection Views .....	9
Simple Fields .....	9
Dynamic Properties .....	9
ID Fields .....	10
Reference ID Fields .....	10
Dynamic Reference ID Fields .....	10
Owner Object ID Fields .....	11
Base Object ID Fields .....	11
Query ID Fields .....	11
<b>Report Design</b> .....	<b>13</b>
Mapping .....	13
Root View .....	13
Object Hierarchy .....	14
Data Ownership .....	14
Filters .....	15
Role-Level Security .....	15
Chancery SMS Filters .....	15
Crystal Reports Filters .....	16
Dynamic Properties .....	16
Rules .....	16
Report Building Help .....	17
Report Extensibility .....	18

<b>Linking</b> .....	<b>21</b>
Report Validation .....	21
Joins .....	21
Inner Joins .....	21
Left Outer Joins .....	22
Right Outer Joins .....	22
Link Types .....	22
Connections .....	23
Directional Links .....	23
Aliased Views .....	23
Intersection Views and Reference IDs .....	23
Query ID Connections .....	25
Linking Views .....	25
<b>Report Building</b> .....	<b>29</b>
Adding Fields and Sorting .....	29
Adding Groups and Summaries .....	30
Adding Filters .....	33
Adding Subreports .....	34
Adding Print Options .....	35
Formatting .....	39
Adding Page Numbers, Dates, and Other Special Fields .....	39
Changing Date and Time Formats .....	39
Adding Text .....	40
Revising and Formatting Text Objects .....	40
Moving, Resizing, or Deleting Fields and Text Objects .....	41
Positioning Elements on the Page .....	41
<b>Uploading Reports</b> .....	<b>43</b>
Uploading Reports .....	43
Step 1: Run SQL Script, If Necessary .....	43
Step 2: Upload Report File .....	44
Step 3: Set Report Filters .....	46
Step 4: Test Run the Report .....	48
<b>Addendum: Database Tables</b> .....	<b>51</b>
Database Tables .....	51
Naming Conventions .....	51
Connections .....	53
Adding Custom Reports (Database Tables) .....	54
Step 1: Preparation .....	54
Step 2: Create the Report .....	54
Step 3: Add the Report to Chancery SMS .....	54

Step 4: Test Run the Report in Chancery SMS .....	55
Modifying Custom Reports (Database Tables) .....	57
Step 1: Download the Report .....	57
Step 2: Customize the Report .....	58
Step 3: Add the Modified Report to Chancery SMS .....	58
Reverting to an Original Report .....	59
Modifying the Permissions of a Report .....	60
Deleting Custom Reports .....	60
Running Database Table Reports at the School Level .....	61
Working with Crystal Reports .....	62
Creating Custom Reports (Database Tables) .....	62
Step 1: Start a Report and Connect It to the Data .....	63
Step 2: Select Tables with the Data You Want .....	64
Step 3: Link the Tables .....	64
Step 4: Add Fields to the Report .....	65
Step 5: Group Information and Add Summaries .....	66
Step 6: Add Filters .....	67
Step 7: Complete the Formatting .....	68
Modifying Custom Reports (Database Tables) .....	68

**Addendum: XML Schema ..... 71**

XML Schema .....	71
Naming Conventions .....	71
Connections .....	72
Adding Custom Reports (XML Schema) .....	73
Step 1: Preparation .....	73
Step 2: Create the Report .....	74
Step 3: Add the Report to Chancery SMS .....	74
Step 4: Test Run the Report in Chancery SMS .....	75
Modifying Custom Reports (XML Schema) .....	75
Step 1: Download the Report .....	76
Step 2: Customize the Report .....	76
Step 3: Add the Modified Report to Chancery SMS .....	77
Reverting to an Original Report .....	77
Modifying the Permissions of a Report .....	78
Deleting Custom Reports .....	79
Working with Crystal Reports .....	79
Creating Custom Reports (XML Schema) .....	80
Step 1: Start a Report and Connect It to the XML Schema .....	80
Step 2: Select Tables with the Data You Want .....	81
Step 3: Link the Views .....	82
Step 4: Add Fields to the Report .....	83
Step 5: Group Information and Add Summaries .....	83
Step 6: Add Filters .....	84
Step 7: Complete the Formatting .....	84

Modifying Custom School Reports (XML Schema) ..... 85

# REPORT WRITING

Welcome to Chancery SMS<sup>®</sup> from Chancery Software. Chancery SMS is a software tool for managing student and family information in your school district.

Chancery SMS contains extensive functionality for creating custom reports to meet the specific needs of your district. This guide provides information and instructions required by advanced users in your district office to write these reports.

## Permission to Create Custom Reports

To create a custom report in Crystal Reports using the data access views, you need:

- a user ID and password for the Chancery SMS data access report writing database
- the name of the Chancery SMS data access report writing database (ends with \_DA)
- the name of the server that the Chancery SMS data access reporting writing database is on

If you do not have this information, contact the district administrator.

To upload a custom reports to Chancery SMS, you need the Create Custom Report permission set to Yes.

## What You Should Know

Before you create custom reports, you should have a thorough understanding of the various tools, applications, and requirements used in the report writing process:

- Chancery SMS: You should have a working knowledge of Chancery SMS and its features. The reporting framework is based on a logical representation of the database, meaning that you must understand the way that various entities in Chancery SMS relate to each other in order to find and select the appropriate types of data for users. For example, when creating a discipline report, you must understand what an incident is, and how it relates to an infraction and an action. In addition, you should understand the rationale behind whether data is owned by the district or by individual schools.

- **Relational databases/SQL:** A basic understanding of relational databases is required to understand the Chancery SMS reporting framework. SQL is also required if your reports are complex enough that the report extensibility functionality is required.
- **Crystal Reports:** You should be comfortable working Crystal Reports, which is the third-party application used to create custom reports.

## Support Services Available

Chancery offers a full suite of documentation, online Help, and technical support to help you with your day-to-day tasks.

### Documentation Included

The following documentation is included with Chancery SMS:

See	For
Chancery SMS Guides	<p>The following guides are available in PDF format on the Installation CD and at our Support web site:</p> <ul style="list-style-type: none"> <li>• <b>School User Guide:</b> For teachers and school secretaries, the School User Guide covers the basics of using Chancery SMS at the school level, including how to take attendance, enter grades, and work with student data.</li> <li>• <b>School Setup Guide:</b> For school administrators, the School Setup Guide provides instructions on establishing school-wide features, such as scheduling, setting up grading information, and configuring user access.</li> <li>• <b>District Administration Guide:</b> For district administrators, the District Administration Guide provides instructions on maintaining the centralized Chancery SMS solution, including setting up your district, adding schools to the district, standardizing data across the district using setup lists, working with custom data, and importing key student demographic data.</li> <li>• <b>District User Guide:</b> For district office users, such as data entry clerks, the District User Guide covers the basics of using Chancery SMS at a district level, including working with student data and maintaining setup lists.</li> <li>• <b>Grading Setup Guide:</b> For school administrators, the Grading Setup Guide is a feature-area specific guide that describes the process of setting up grading properties in detail.</li> </ul> <p>Depending on the school, school staff, such as teachers, attendance clerks, and vice principals, might use Win School® and Mac School® to manage school-owned information. See the Win School and Mac School guides for those procedures.</p>



See	For
Chancery SMS Specialty Guides	Additional guides are available in PDF format on the Installation CD and at our Support web site to supplement the standard guides: <ul style="list-style-type: none"> <li>• Customization Guide: For district administrators, the Customization Guide covers how to create custom student pages, custom panels for existing pages, customization packages, custom reports, and custom setup lists in Chancery SMS.</li> <li>• Report Writer Guide: For district administrators and report writing contractors, the Report Writer Guide covers how to create custom reports using the Chancery SMS reporting framework and Crystal Reports.</li> <li>• Interoperability Guide: For district administrators, the Interoperability Guide covers how to integrate third-party applications with Chancery SMS using SIF and Import/Export functionality.</li> </ul>
Chancery SMS Online Help	Help for the page you're currently working on is always available by accessing the Help menu from the task bar.
Chancery SMS Data Dictionary	The data dictionary contains lists of tables and fields in the district database. It is recommended for the report developer who uses a reporting tool such as Crystal Reports® to retrieve additional information from the district database.
Release Notes	Release Notes are summaries of the new features and changes in this release.
Installation Documentation	The Installation Guide provides technical details of installing the entire Chancery SMS system for district administrators.  Installment Notes are detailed instructions of upgrading from a prior version.

## Providing Feedback

To improve the quality of your documentation, we welcome your comments regarding this guide and the online Help. Please email your comments to Chancery's Technical Communications Department at [user\\_docs@chancery.com](mailto:user_docs@chancery.com).

## Getting Training

This guide is intended to give you the basic information you need to create reports. To learn more about Crystal Reports, Chancery offers additional training courses on Introductory, Intermediate, and Advanced Report Writing.

Choose from on site training, regional workshops, live online training, or Chancery University. We can also create a customized training program to meet your district's needs.

Phone us toll free at 1-800-999-9931 or see the Training area of our Support web site at <http://support.chancery.com> for an up-to-date list of scheduled courses.

## Getting Support

The following support programs are available by subscription only:

One-on-one Technical Support	Talk to a technical support analyst to help solve problems and answer questions when software doesn't produce the expected results. Analysts can use the telephone or Internet access to troubleshoot your issues.  Monday to Friday, 5 am to 5 pm Pacific Time Phone: 1-800-688-9939 Fax: 1-800-446-5650 Email: <a href="mailto:techsupp@chancery.com">techsupp@chancery.com</a>
Access to our web site	<a href="http://support.chancery.com">http://support.chancery.com</a> In Chancery SMS, from the Help menu, click Support Website. Chancery's web site includes a searchable KnowledgeBase with frequently asked questions, tips, and troubleshooting instructions, as well as support forums for users to share experience and knowledge.
Software updates	Releases of new versions with improved functions and software updates. Updates are provided free of charge for three months from your date of purchase and are included in the subscription to Chancery Support Programs.

For more information on Technical Support Programs, phone Chancery Customer Service at 1-800-999-9931.

## Consultation Services

Performing complex, infrequent technology tasks can be a challenge for busy School Districts. Save time and effort by having Chancery experts take care of the activities that place demands on your district's schedule and resources. Chancery offers contract services for:

- Scheduling
- Data conversion
- Custom report development
- Template creation
- Program and need assessment
- Upgrade planning
- Project management
- Training and technology requirement evaluation
- And much, much more.

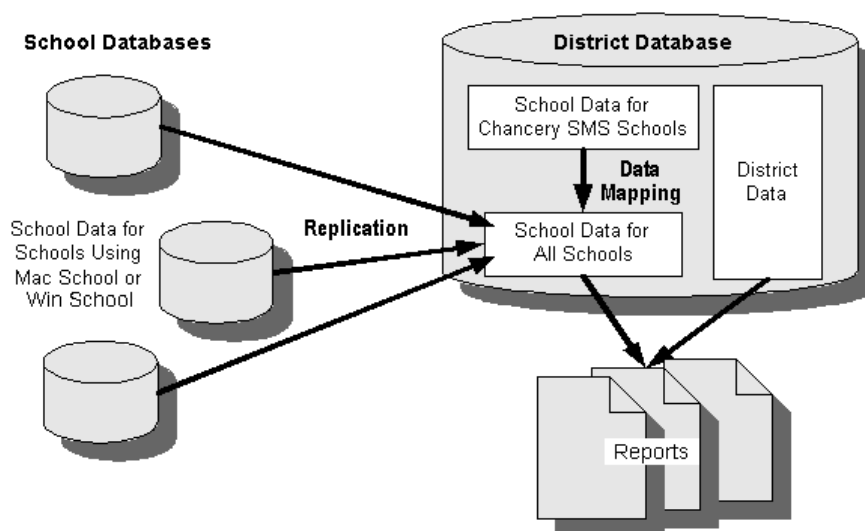
Consultation with a Chancery expert is an indispensable investment in your district's success.

## DATABASE FUNDAMENTALS

You can create new reports or customize existing reports using Crystal Reports version 9.0 and add your reports to Chancery SMS so that district and school users can run the reports as required.

### Reporting Restrictions

The district database is the central location for all reporting data. Any data held in Win School or Mac School is transferred to common tables in Chancery SMS using the District Replicator. School data held in Chancery SMS is stored in specific tables and has to be mapped to the common tables containing the Win School and Mac School data.



Only districts with schools that maintain their school data in Chancery SMS can access school reports. Districts with schools that maintain their school data in Win School or Mac School can use Crystal Reports to create and run district-level reports or use the Report Manager module to create and run school-level reports.

Also note that you cannot customize reports on the Macintosh. You can run reports, but you cannot use Crystal Reports to modify built-in reports or to create new custom reports.

### Comparing Database Models

In the context of reporting, there are two ways of looking at the database: the physical model and the logical model.

The physical model of the database represents how the data is actually structured. The database itself is a collection of tables, each of which contains records, which are in turn made up of fields.

When you build a report on the physical structure of the database, the connections between the report and the data are rigid. This means that any changes that are made to the tables – such as deleting a field – can adversely affect your report.

By contrast, the logical model of the database is made up of metadata – data about data. This metadata is a description of the physical tables in the database, with information grouped in a logical way. This metadata removes complex joins between tables, simplifies field selection, and applies the business logic required to interpret information like attendance data and to prevent users from viewing information from other schools.

Where the physical structure of the database is made up of tables, records, and fields, the logical structure is made up of schemas, entities, and properties. The following outlines the relationships between elements in the physical and logical models of the database:

Physical	Logical	Definitions
Table	Schema	<p>A <b>table</b> is a collection of records in the database.</p> <p>A <b>schema</b> is a way of looking at a particular table or collection of tables in the database, based on a logical grouping of information.</p>
Record	Entity	<p>A <b>record</b> is a collection of related fields that describe a particular object, such as a student, a homeroom, or a grade level. In a database table, a record is a row of information.</p> <p>An <b>entity</b> is a collection of properties that describe an object in a schema in a similar way.</p>
Field	Property	<p>A <b>field</b> is a particular type of information that is shared by records in a table. The fields each describe some aspect of the object. In a database table, a field is a column.</p> <p>A <b>property</b> is a particular type of information that is shared by entities in a schema. There are several types of properties:</p> <ul style="list-style-type: none"> <li>• <b>Simple</b> properties relate directly to a field in the database</li> <li>• <b>Reference</b> properties connect schemas together in a one-to-one relationship.</li> <li>• <b>Complex</b> properties connect schemas together in a one-to-many relationship as collections or parent/child collections.</li> <li>• <b>Simple dynamic</b> properties are formulas that return values for information not contained in a particular field.</li> <li>• <b>Reference dynamic</b> properties are formulas that return entire records.</li> </ul>

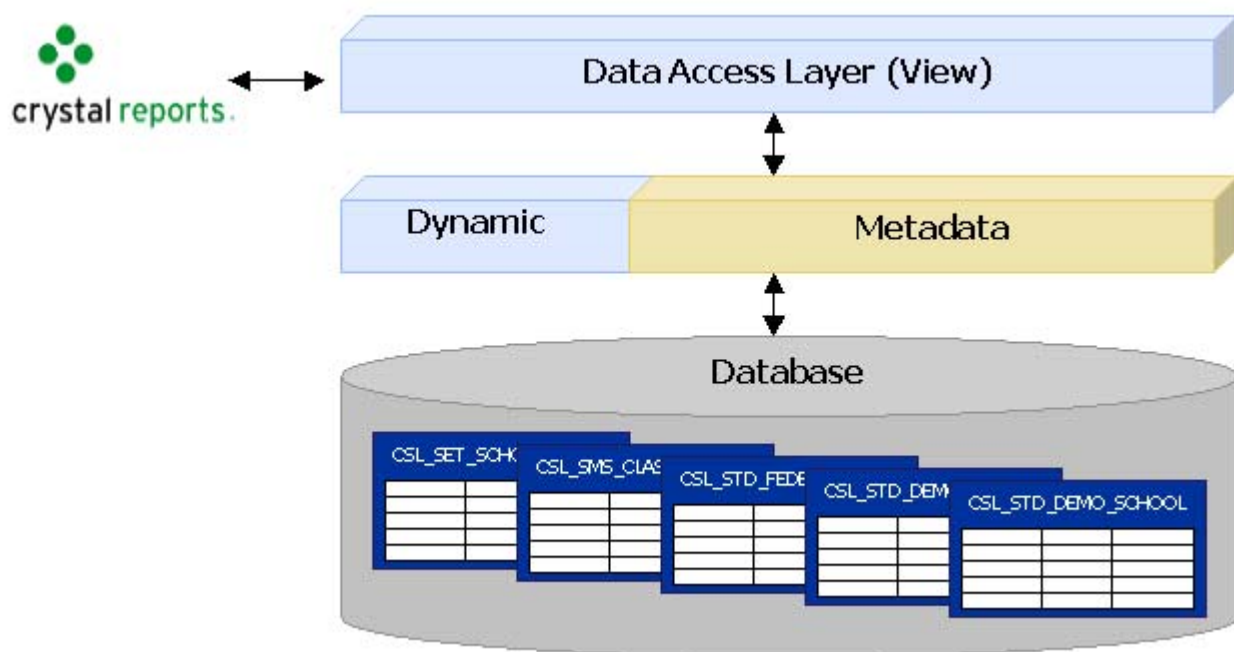
Referencing the metadata associated with the tables in the logical model creates a flexible link between the report and the data, making it possible for changes to be made to the tables without losing the integrity of the reports that use them.

## Data Access Layer

The physical structure of the database is a collection of SQL objects, and so it can be directly interpreted by any number of third-party applications, including Crystal Reports, which is the reporting tool that Chancery SMS supports. However, the logical structure of the database exists within Chancery SMS, and was created using unique programming syntax. In order for Crystal Reports to interpret the metadata, the logical structure must be converted into a recognizable format.

The Data Access Layer is an additional layer in the structure of Chancery SMS that interprets the existing metadata so that it can be converted to SQL. The Data Access Layer also includes an extension to the metadata that encompasses dynamic properties, which are calculated fields that interpret other information in the database using the imbedded business logic.

Attached to the Data Access Layer is a collection of dynamically-generated SQL views of all of the tables in the database for which metadata exists. All of these views are then accessed in Crystal Reports through the data access database, which is used specifically for report writing. The data access database protects the tables in the actual database from corruption.



These views are created by the Data Access View Generator, which is a task that runs as part of the Task Manager, a feature in Chancery SMS that allows you to schedule system maintenance tasks to run automatically at regular intervals or when certain conditions arise. Whenever changes are made to the metadata, such as additions through Customization Builder, the Data Access View Generator automatically updates the views to incorporate these changes.

When you upload the report to Chancery SMS, it carries the views you referenced over into the reporting filters. This means that you can use any of the fields that are part of the views as filters for your report – all without the need to write code or set up complicated parameters in Crystal Reports.

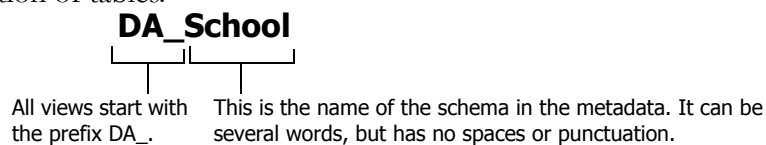
All of the tables available in Chancery SMS are available as views in the Data Access Layer, meaning that you can use the instructions in the following chapters to report on any type of data you want. In previous releases, some types of data were only available through the legacy methods of creating reports, which involved connecting to the tables directly or accessing them through the XML Schema, a subset of available metadata. Although these methods are still supported (see the Appendices for details), the recommended method is to create your reports using the Data Access Layer.

## Naming Conventions

In order to be able to build reports from these data access views, you need to understand how the different components in the Data Access Layer are derived from the logical model, which is reflected in the naming convention. This naming convention is critical to understanding how to connect related information in a meaningful way.

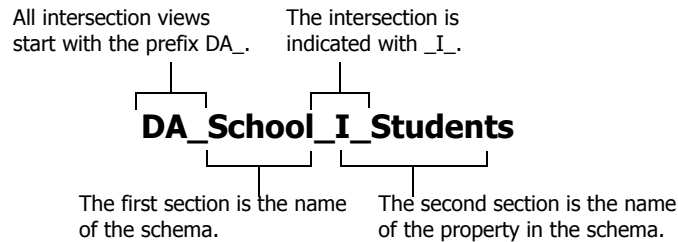
### Views

Views are derived from schemas in the logical model. Each view contains a selection of fields in a related area that may come from a single table or a collection of tables.



## Intersection Views

When views are related to each other in a one-to-many relationship, such as the link between a school and all of the students enrolled at that school, the Data Access Layer creates an “intersection view”. The only purpose of this view is to link the two views together. This is the equivalent of a complex property in the logical model.



## Simple Fields

In each view, there are fields that correspond directly to fields in the database, also known in the logical model as simple properties. They have no prefixes or suffixes, and no special formatting except that there are no spaces between words. Any fields available in a view can be used in your reports. Examples of fields include LastName, Gender, and Description.

## Dynamic Properties

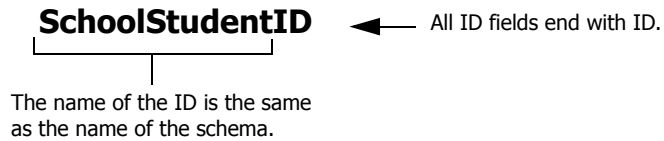
There is also a sub-category of fields that deserves special attention. Occasionally, you will need to report on information for which there is no correlating field in the database. To address this issue, new fields called dynamic properties have been added to the data access views. Dynamic properties are formulas that have been created to combine fields in the database in meaningful ways.

Dynamic properties are identified by a prefix of D#, followed by a description of the information they contain. They return the information the formula calculates as a field that can be added to your reports like any other field.

For example, there is no actual field in the database that allows you to include the full name of a student. However, there is a dynamic property in the DA\_SchoolStudent view called D#FullName, which can be added to your report to serve the same function. This simple dynamic property combines the values from several fields in the database at the time that the report is run and returns the appropriate value without using a formula in Crystal Reports to do the concatenation.

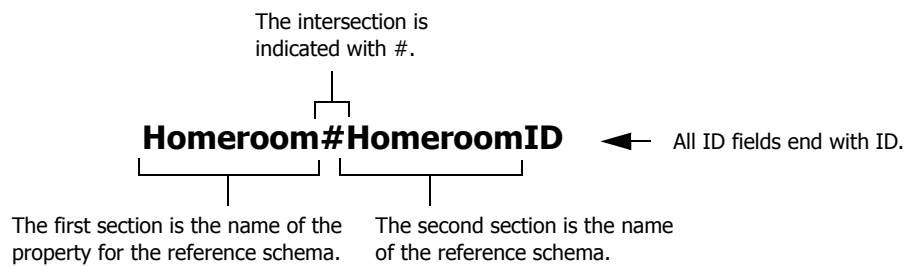
## ID Fields

Each view has a specific field that uniquely identifies that view, called its primary ID. These fields cannot be used as fields in your report; they are for identification purposes only.



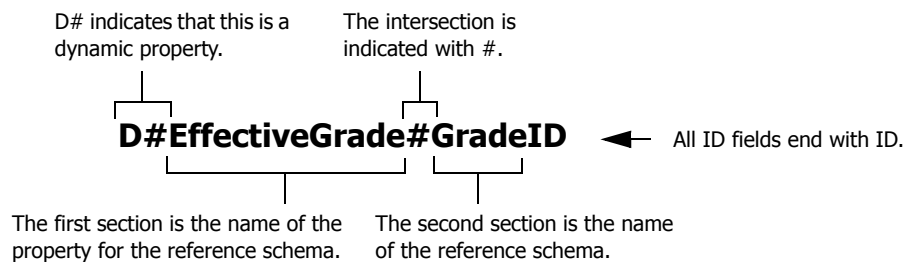
## Reference ID Fields

When a view is related to another view in a one-to-one relationship, such as the link between a student’s demographics and the student’s homeroom, a reference ID field is included that allows the two views to be linked. For this type of link, the reference ID in one view links to the primary ID in the other view. This is the same as the reference property in the logical model.



## Dynamic Reference ID Fields

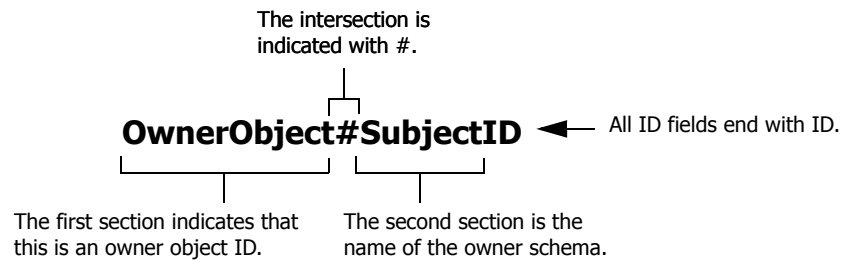
As with a regular reference ID, a dynamic reference ID is used when views are related in a one-to-one relationship. However, a dynamic reference ID is used when the record to be retrieved from the second view needs to be determined at the time that the report is run, such as the effective grade level of a student as of a particular date.





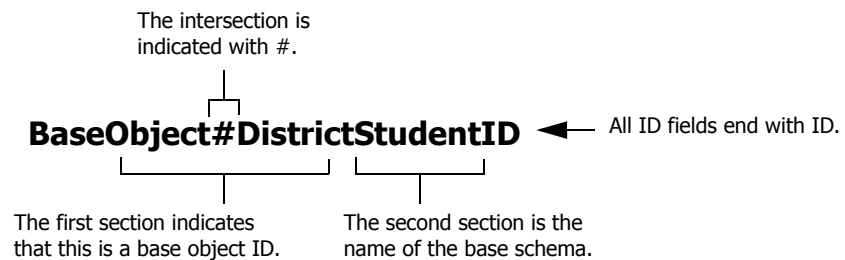
## Owner Object ID Fields

When there is a one-to-one relationship where you can access the a view from one of the views it owns, such as the link from a class back to the subject to which it belongs, an owner object ID is also created in the second view to form the return link. Here, the owner object ID in the view links to the primary ID in the view that owns it.



## Base Object ID Fields

When a view inherits information from another view, such as the demographics information a student’s school record inherits from his or her district record, a base object ID is created in the view that inherits the data to allow you to link the two views. The base object ID in the view links to the primary ID in the view that it is based on.



## Query ID Fields

Every view in the database also has an ID field that allows queries to be generated. All query IDs are called QUID.



# REPORT DESIGN

Designing your report – determining what data to display, what views to include, what filters to use, etc. – is the most difficult part of the report writing process. Unfortunately, it's also the part of the process that lends itself the least to documentation. Most of designing your reports is going to be a question of trial and error. However, the sections that follow are intended to give you a head start on the process.

## Mapping

If your report is very complex, it's a good idea to create a diagram of how you intend to link the various views together before you start building the report. Checking your logic ahead of time will save you a lot of frustration in the long run. As you work through the mapping process, pay particular attention to selecting the correct root view, determining your object hierarchy, and defining the appropriate data ownership.

## Root View

The first step of the process is to determine the view that the entire report will be based on. This is known as the root view. All of the links between views move outward from this root view.

The root view for a report varies depending on the type of information you wish to have available in your report. When selecting your root view, ask yourself the following questions:

- Which view provides the greatest amount of fields required for my report canvas?
- Which view provides the greatest number of links to the other views required for the report.
- Which view is the logical owner of all of the other views included in the report?

The answers to these questions will not necessarily be the same view, but they will provide a jumping-off point for further investigation.

For the example, if you are creating a school report that contains mostly Student Demographics information, the view with the greatest amount of fields required for the report canvas is probably the School Student view. This is also the view that provides the greatest number of links to other required views. However, the most logical owner of the other views, at the highest level, is actually the School view (you can tell that the School Student view is owned by the School view by the names). If you intend to include information

about the School itself, such as the school name or address, you might consider using the School view as your root view. You can still link from School to School Student, plus you can link from School to School Info for that additional information.

For information on how to find out which views contain which fields and connections to other views, see “Report Building Help” on page 17.

## Object Hierarchy

Another factor that influences how you map out your report design is the concept of object hierarchy. In the Database Fundamentals chapter, you read about intersection views. These views are used to connect objects that have a one-to-many relationship, which means that one object (the parent object) can have a collection of other objects (child collection) related to it.

You also read about Owner Object IDs, which can be used to link a child object back to its parents. However, because this is a reference link, rather than an intersection, the same data will be returned as a one-to-one relationship, rather than a one-to-many relationship.

When you connect objects, the best practice is to start with the parent object and end with the child collection. The reason for this is that, when the report is generated, the data is filtered as it moves from one object to another. If you start with the largest objects first, the filtering process is much more efficient, thereby increasing system performance.

To use the same example of School and School Student, the school itself is higher in the hierarchy because it has a collection of students associated with it. If you use the School view first when connecting your views, when the report is generated, it will be filtered first on Schools, reducing the number of student records to be returned. If you use the School Student view first, the report will pull all student records, and then sort and filter them based on the school to which they belong.

## Data Ownership

When mapping out your report, you must also consider who owns the data you want to include in your report. For example, core demographic information about students is owned at the district-level. However, there is additional information that relates to a student’s demographic at a particular school (homeroom, grade level, etc.) that the district does not have access to.

If you are creating a report that requires information stored at the district level, look for views that reflect that data ownership, such as the District Student view. Conversely, if your report focuses on information owned by the individual schools, choose school-related views.

Occasionally, you may need to include both District-only and School-only information in the same report. In these cases, you can link this disparate information either by linking two views on the Base Object ID or Owner Object ID (for example, District Student is the base object of School Student) or creating a sub-report for one of the types of data and linking them on a shared field, such as the student number. See “Adding Subreports” on page 34.

## Filters

Another aspect of report design you need to consider before building your report is how you will filter the information so that the report returns precisely the data you want. There are several characteristics of the reporting framework that you need to take into consideration: role-level security; flexible filters; built-in filters; and filtering on dynamic properties.

### Role-Level Security

Role-level security is a security feature in Chancery SMS that limits what information users can view in a report based on the roles to which they are assigned.

For example, a school administrator and a school teacher can have permission to run the same report – this permission is granted when the report is uploaded to Chancery SMS, providing the ability to view, edit, or delete the report.

However, with role-level security in place, the report looks different for each of these users. The school administrator can view data for the school(s) to which he or she is assigned. The teacher’s version of the report displays information only for students in that teacher’s classes.

When you are creating custom reports, keep these security measures in mind. Using role-level security can eliminate the need for other filters.

### Chancery SMS Filters

The reporting framework is set up in such a way that all of the views you link together to build your reports are uploaded with the report to Chancery SMS and are available for filtering. You can specify default filters when you upload the report; users can also choose their own filters at run-time. See “Step 3: Set Report Filters” on page 46.

For example, if you create a Student Demographics report using the School and School Student views, both of those views – including all of the fields that are contained in the tables referenced by those views – are available when you

run the report. From a design perspective, this means that, if you want to filter on a particular field in the Chancery SMS database, you must ensure the view that references that field is included when you build the report, regardless of whether you include any fields from that view in the actual report canvas.

## Crystal Reports Filters

The flexible nature of reports in Chancery SMS means that, while you can specify what the default filters are for a particular report, you cannot prevent users from changing those filters at run-time. If you wish to ensure that a particular filter is always used for a report, you must insert that filter in Crystal Reports, where it becomes “hard-coded”. See “Adding Filters” on page 33.

## Dynamic Properties

In the Database Fundamentals chapter, you read about dynamic properties and dynamic reference IDs, which are used to include values and records that are calculated at runtime. Because of the complexity of these calculations, dynamic properties and views linked using dynamic reference IDs cannot be used to filter a report from within Chancery SMS; in other words, the dynamic properties and dynamically-linked views are not carried over into Chancery SMS at upload time, as the other fields and views are.

If you want to filter your report on a dynamic property, you must add the filter in Crystal Reports. See “Adding Filters” on page 33.

Like other filter in Crystal Reports, these filters are “hard-coded”, so you cannot change them at run-time. Depending on how you want to filter the report, you may need to create multiple versions of the same report to cover all of the options. For example, if you wanted to filter a report on a student’s active status, which is a dynamic property in the School Student view, you would have to create one version of the report for each status you want to filter on.

## Rules

The following rules also need to be taken into account when you are designing your report:

- A report may contain one or more subreports. A subreport must not have any subreports.
- A report may use only DA\_ views, but not any other type of views, tables, or stored procedures (exceptions are allowed for report extensibility; see “Report Extensibility” on page 18).
- A report must have at least one view.

- A report may use any number of fields.
- All report links must be directional (one view is the source and the other is the destination).
- All view links must use either left outer joins or inner joins. Right outer joins are not allowed.
- One and only one view must have only outgoing links and no incoming links (the root view).
- View links must not form any cyclic path (a path that starts at one view and leads back to the same view). If necessary, you can create a copy of a view that you have already used and create an alias for it. This allows you to continue moving in a linear path.
- Links between views must only be made on valid ID fields.
- The maximum number of links allows from one view to another view is two (one of for the ID link and one for the QUID link).

## Report Building Help

The Data Access Layer makes the whole Chancery SMS database available to reporting. This significantly increases your ability to create custom reports that reflect the needs of your district and school.

However, with the sheer volume of information available, it can be difficult to find the views and fields that contain the specific data you require. To assist you in this, report building help is provided.

This report building help is an SQL query that allows you to select a schema (a logical grouping of records, such as SchoolStudent, Address, or Federal Ethnic Category), and provides the following for each:

- The view for the schema displays below the schema in the View field (e.g, DA\_SchoolStudent).
- The Property column contains all of the properties in that particular schema in alphabetical order (e.g, LastName). Scroll through the list to find the property you want to include in your report.
- The Field column indicates which field the property is attached to (e.g, LastName). There may be key differences between the name of the property and the name of the related field.
- The Help column provides instructions for how to include the property for a particular schema in a report (e.g, To access the [EthnicCategory] property of the [SchoolStudent] schema, join the [DA\_SchoolStudent] view with the [DA\_EthnicCategory] view on the fields [EthnicCategory#EthnicCategoryID] and [EthnicCategoryID]

respectively). The instructions indicate which views need to be connected to the view for that schema using which reference IDs and intersection views. If the Help field is empty for a property, the property is a field in the view and can be added directly to the report.

**TO VIEW THE SCHEMA HELP**

- 1 In the control bar, under Admin, click School Setup.
- 2 On the School Setup page, under Customization, click Customize Reports.
- 3 On the School Report List page, from the Actions menu, click Report Schema Help.
- 4 On the Schema Help page, in Schema dropdown, select the schema that represents the group of records you want to view.

Select a schema from the dropdown list below to see its properties and how you can use them in templates.

Schema:  View: DA\_School Total: 20

Property	Field	Help
Address	Address#AddressID	To access the [Address] property of the [School] schema, join the <a href="#">[DA_School]</a> view with the <a href="#">[DA_Address]</a> view on the fields [Address#AddressID] and [AddressID] respectively.
AttendanceCodes	AttendanceCode	To access the [AttendanceCodes] property of the [School] schema, join the <a href="#">[DA_School]</a> view with the <a href="#">[DA_School I AttendanceCodes]</a> view on the fields [SchoolID] and [SchoolID] respectively. Then join the <a href="#">[DA_School I AttendanceCodes]</a> view with the <a href="#">[DA_AttendanceCode]</a> view on the fields [AttendanceCodeID] and [AttendanceCodeID] respectively

## Report Extensibility

In spite of the flexibility of the reporting framework and the many options available in Crystal Reports, there may be certain complex functions that you cannot accomplish.

The reporting framework has the ability to be extended through the use of SQL transactions that can be created to perform complicated processes when the report is generated.



However, this report extensibility feature can result in issues with the database if they are not created properly. If, during the report design process, you determine that you require access to report extensibility, you can contact Customer Services at 1-800-999-9931 to have the report (or components of it) custom designed for you.



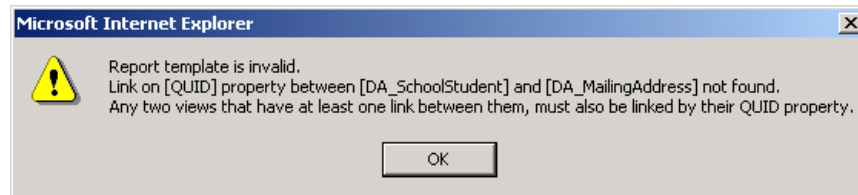
# LINKING

Once you have determined the specifications for a report, the process of building the report begins with creating connections between the various views the report is based on.

## Report Validation

When a report created using the data access views is uploaded to Chancery SMS, it goes through a validation process that checks that the linking in the report has been done correctly.

In the event that the report contains an illegal link, Chancery SMS displays a system message indicating the nature of the error.



For this reason, it is extremely important that you give careful consideration to how you join views when you create your report.

## Joins

There are three types of joins available in Crystal Reports:

- Inner Joins
- Left Outer Joins
- Right Outer Joins

### Inner Joins

An inner or equal join returns information only when there is a match between two views. If a record in the left view has a matching record in the right view, the information is returned in the report. If there is no matching record in the right view, no information is returned for that record.

Inner joins are useful when you wish to return only those records for which a specific condition is true, such as only those schools that have enrolled students, or when you know that a match is guaranteed, such that fact that all students must have a physical address.

The inner join is the default join in Crystal Reports.

## Left Outer Joins

A left outer join returns all records in the left view, regardless of whether there is a corresponding record in the right view. If there is a matching record in the right view, that record is returned; if not, the value is blank.

Left outer joins are useful when you want to view all records of a specific type, with their associated characteristics, such as viewing all buildings in the district and their associated rooms, even if rooms have not yet been created. You can use this type of report to check for completeness of your data.

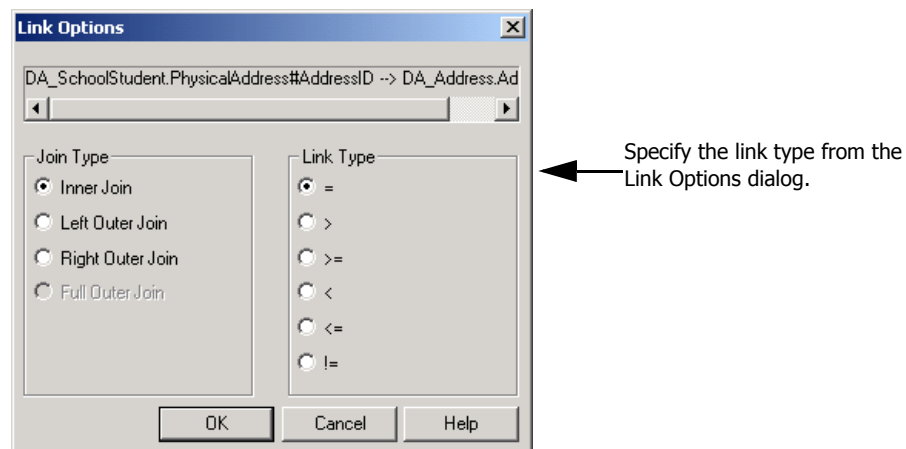
## Right Outer Joins

Using a right outer join returns information for all records in the right view, regardless of whether there is a corresponding record in the left view.

Right outer joins are illegal for reports being uploaded to Chancery SMS, and will not pass the validation process. If you need a right outer join to return the data you require, you need to re-assess the mapping of your report.

## Link Types

In most cases, you will be linking tables on an ID field, which means that only equal values are relevant. However, in the rare case that you wish to link on a different type of field, such as when you add a subreport to your report canvas, you may wish to refine the nature of your joins by selecting a link type.



By default, all joins are equal. However, if you are linking on a field that contains a numeric value, you may specify a link type that selects only those records that are greater than or less than the value in the left view.

## Connections

In addition to the join types in Crystal Reports, there are other conventions related to connecting views that are required for reports being uploading to Chancery SMS.

### Directional Links

All of the connections in your report must move in a single direction outward from your root view.

When connecting views, you should organize them in Crystal Reports so that they flow logically from left to right. Any joins that do not move in this direction will cause the report to be rejected when it undergoes the validation process at upload time.

### Aliased Views

If necessary, you can add the same view to a report more than once. Crystal Reports creates an alias for the additional version by adding `_1` to the end of the view's name. You can change the name of the aliased view to something more distinctive, if required.

The ability to add aliased views is particularly useful when one view accesses multiple types of the same information. For example, if you want to show a student's physical address and mailing address on the same report, you must add the view for addresses twice. You then link the student's record to one instance of the view on the reference ID for physical address, and to the other instance on the reference ID for mailing address.

#### Note

In this case, consider changing the name of both instances of the view to reflect their respective natures.

### Intersection Views and Reference IDs

There are two ways to link views:

- Intersection views are special views created to link views in a one-to-many relationship. The intersection view contains no actual fields – just the ID fields of the two views it joins.

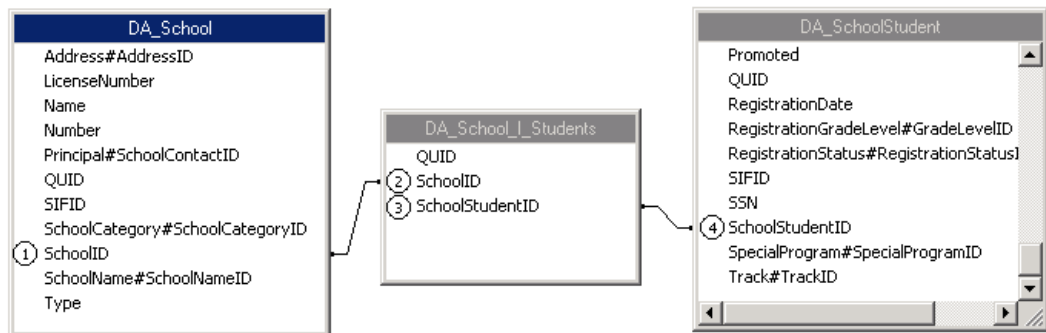
- Reference IDs are special fields that reference the IDs of other views. The reference ID is used to link views in a one-to-one relationship.

To illustrate, use the example of a simple report that shows the name and enrollment status of all of the students in a particular school.

The first step of the process is to determine the view that the entire report will be based on. This is known as the root view. All of the links between views move outward from this root view. For the example, the root view is the view for the school, which will then have a collection of students associated with it. The name of our root view in this case is DA\_School, which has an ID field of SchoolID.

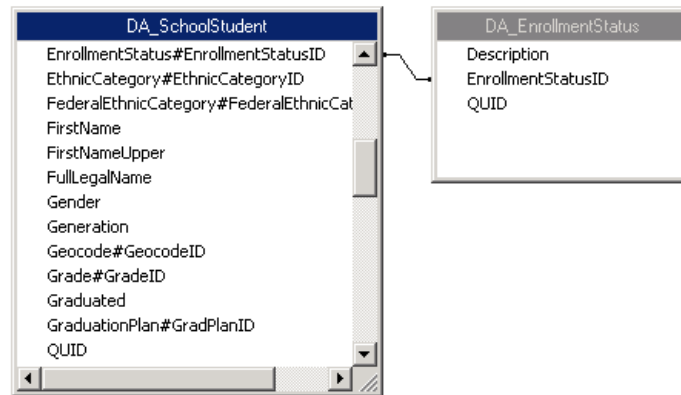
Because the school must have a collection of students attached to it, the next step is to look for a view of students related to a particular school and the appropriate intersection view. In this case, that view is called DA\_SchoolStudent, and the intersection view is called DA\_School\_I\_Students.

To link your views, connect the ID field of the first view (1) to the same field in the intersection view (2), then connect the other ID field key from the intersection view (3) to the related field in the second view (4). The links look like this:



There is then a one-to-one relationship between a student and his or her enrollment status. Identify the reference ID in the DA\_SchoolStudent, which is EnrollmentStatus#EnrollmentStatusID. Add the view

DA\_EnrollmentStatus to the report and the link from the reference ID in DA\_SchoolStudent to the ID field, EnrollmentStatusID, in the other view. Then, you join the QUIDs for both views. The link looks like this:



## Query ID Connections

In addition to IDs and reference IDs, each view contains a Query ID, or QUID, used to uniquely identify the version of a report being run by a particular user. This ensures that if multiple users are running the report at the same time, a user will receive the appropriate data in their version of the report.

In order to ensure that a single ID applies to all views in the report, you must link the QUIDs of all of the views in the same order as the links between IDs, intersection views, and reference IDs were made.



## Linking Views

The first part of building a report involves connecting to the data, selecting your views, and linking them logically.

- 1 Start Crystal Reports 9.
- 2 In the Welcome to Crystal Reports dialog, click “As a Blank Report”, and then click OK.

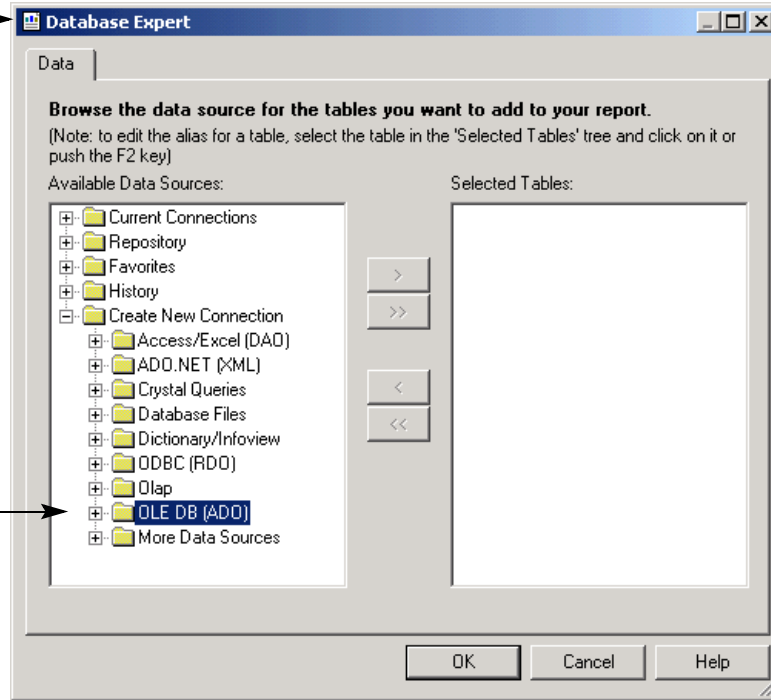
OR

From the File menu, click New.

- 3 In the Database Expert dialog, under Available Data Sources, click  next to Create New Connection, and then click  next to OLE DB (ADO).

The title and appearance of this dialog depends on whether you are working with a blank report or one of the wizards.

Use the OLE DB (ADO) data source to create custom reports.




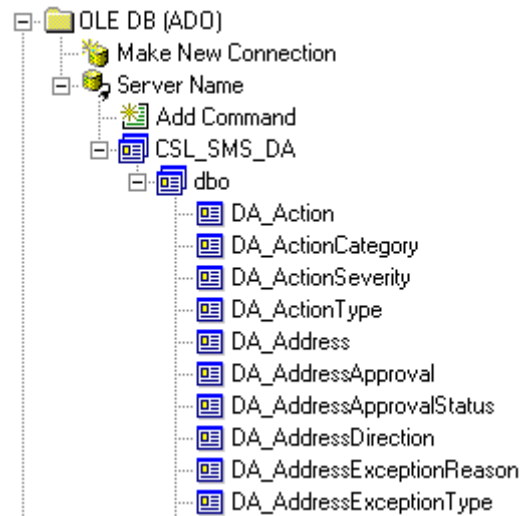
- 4 In the OLE DB (ADO) dialog, in the Provider list, select “Microsoft OLE DB Provider for SQL Server”. Click Next.
- 5 In the next OLE DB (ADO) dialog, in the Connection Information section, enter the following information:

Field	Note
Server	Enter the name of the server where the report writing database resides. This is specific to your district.
User ID	Enter the user ID of a user account that permits you to access the report writing database.
Password	Enter the password of a user account that permits you to access the report writing database.
Database	Enter the name of the report writing database, which always ends with “_DA”. A typical database name is CSL_SMS_DA.

- 6 Click Finish.



- 7 In the Database Expert dialog, in the Available Data Sources window, click  next to the database name.



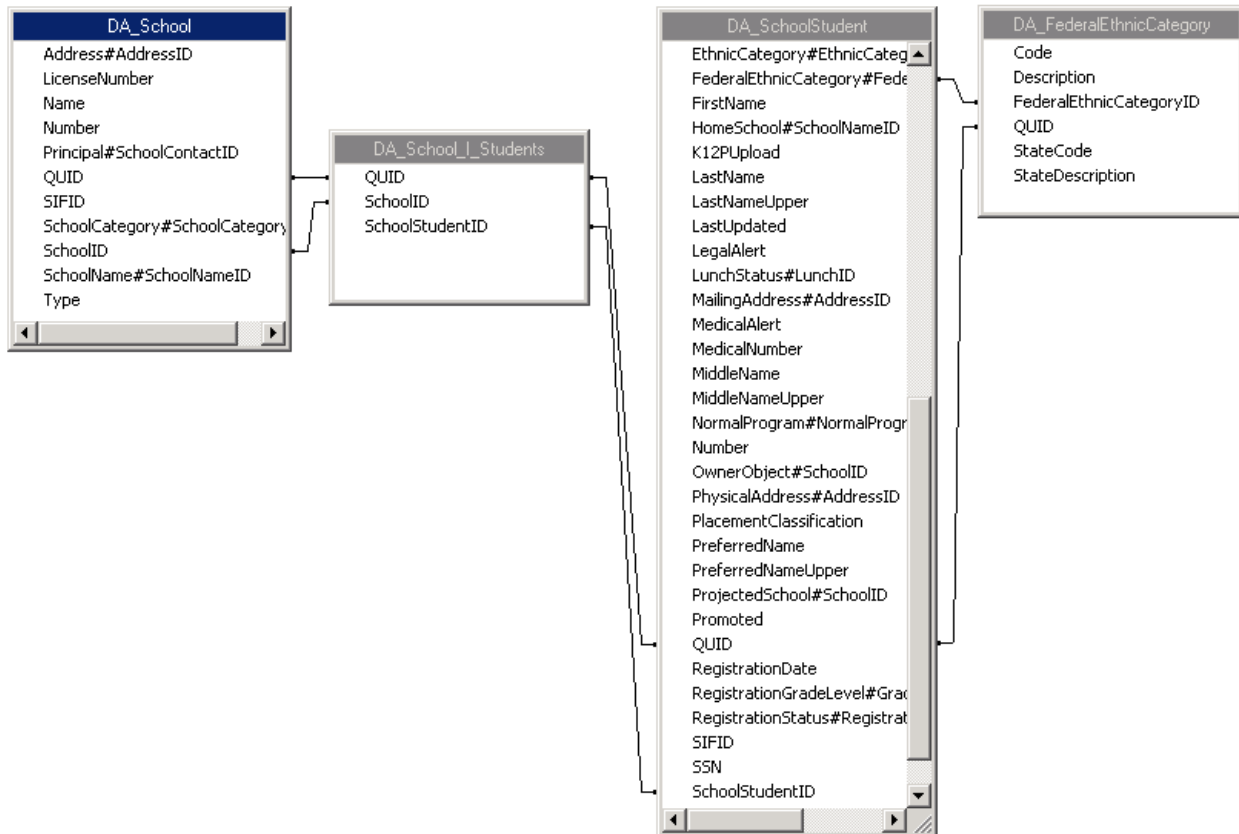
- 8 Double-click the views to add them to the Selected Tables list.
  - Add the root view of the report.
  - Add all main views with fields that are required for the report canvas.
  - Add all views that are required to link the main views, including intersection views.
  - Add any views that are required more than once as aliased views. To rename an aliased view, click the view in the Selected Tables list and press F2.

- 9 Click OK.

**Note**

The links that Crystal Reports creates automatically are usually more complex than most reports require. It is a good idea to get into the habit of clearing the existing links and setting up your own links as required.

- 10 On the Links tab, click Clear Links. Click OK to confirm.
- 11 Link the views by dragging the ID in one view to the corresponding ID in another view, depending on the type of information you want:
  - For one-to-many relationships, click and drag from the ID in the first view to the corresponding ID in the intersection view. Then, click and drag from the other ID in the intersection view to the corresponding ID in the second view.
  - For one-to-one relationships, click and drag from the reference ID in the first view to the corresponding ID in the second view.
  - For all views, click and drag to link all QUIDs.



- 12** Change the link types, if required:
  - Right click on the link and select Link Options from the menu.
  - In the Link Options dialog, select the appropriate join types and link types, as required. Remember that right outer joins are illegal.
  - Click OK.
- 13** Click OK.
- 14** On the Crystal Reports design page, from the File menu, click Save.
- 15** In the Save As dialog, navigate to the appropriate location, enter a name in the File name field, and click Save.



# REPORT BUILDING

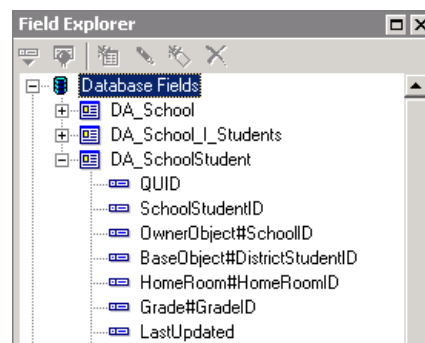
Once you have designed your report and set up a shell for it by linking the appropriate views, the rest of the process involves using the features available in Crystal Reports to build your report.

## Adding Fields and Sorting

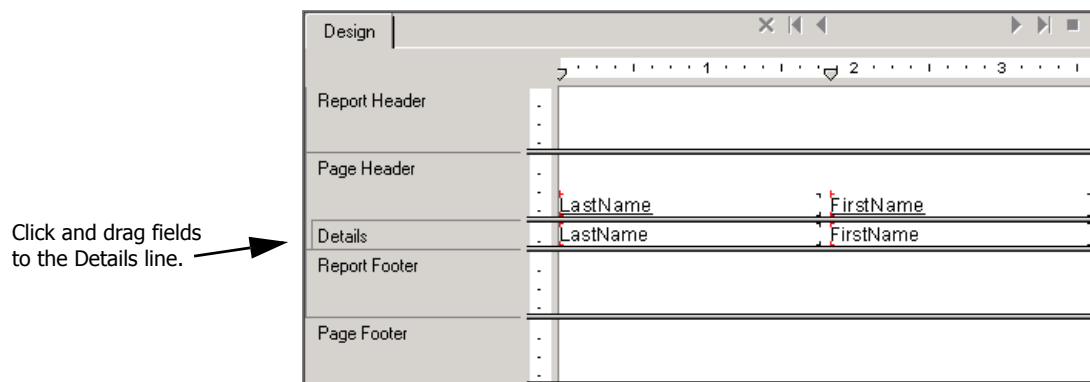
The first thing you should do when building your report is select the fields that you want to appear on the report canvas. You can select from any of the views you included in the linking step of the process.

### TO ADD FIELDS:

- 1 In the Field Explorer window, click  to expand Database Fields.  
(If Field Explorer is not open, click .)



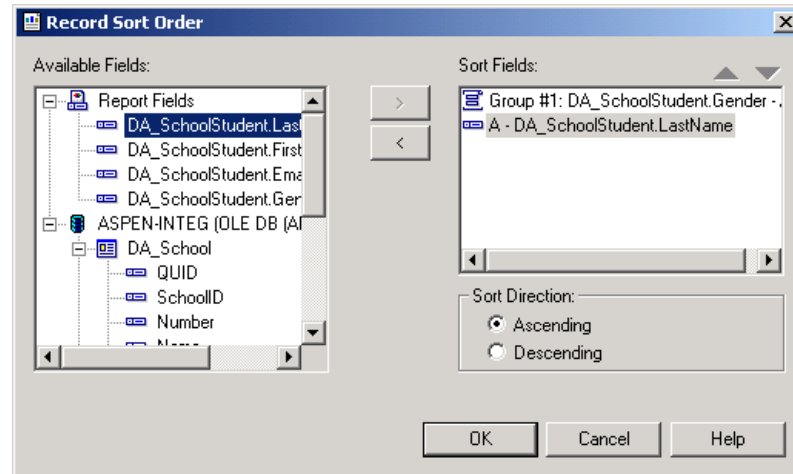
- 2 Click and drag the fields you want to include in the report from the Field Explorer to the Details line on the Design tab. A heading for the field is automatically added to the Page Header.



- 3 From the File menu, click Save.

**TO SORT DATA:**

- 1 From the Report menu, click Record Sort Expert.
- 2 In the Record Sort Order dialog, under Available Fields, double-click the fields that you want to sort data by. You can select from the Report Fields (those included on the report canvas) or open the views and select new fields.



- 3 Select a Sort Direction.
- 4 Click OK to return to the Design tab.
- 5 From the File menu, click Save.

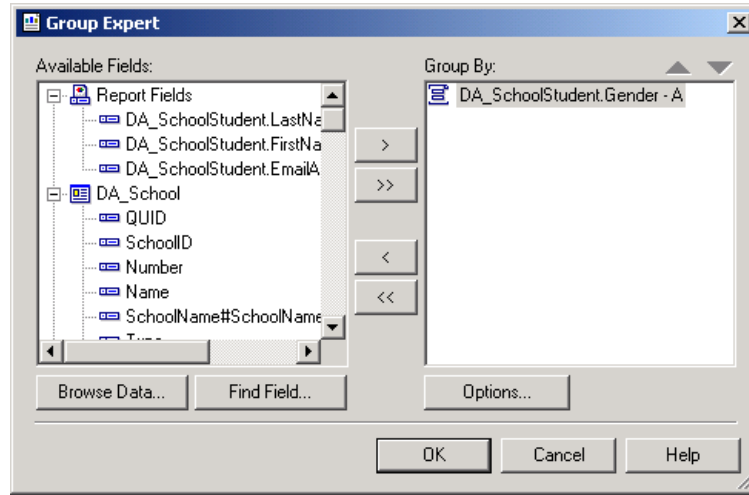
## Adding Groups and Summaries

Grouping data in a report allows you to summarize your data in meaningful ways. You can group and summarize by any field in any of the views included in your initial linking, regardless of whether you have included the field in the report canvas.

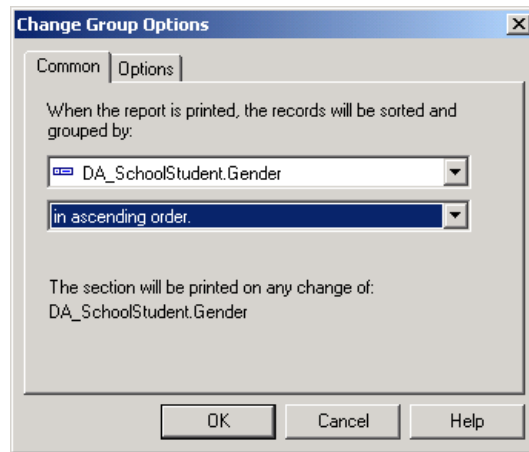
**TO GROUP DATA:**

- 1 From the Report menu, click Group Expert.
- 2 In the Group Expert dialog, under Available Fields, double-click the fields that you want to group data by. You can select from the Report Fields

(those included on the report canvas) or open the views and select new fields.

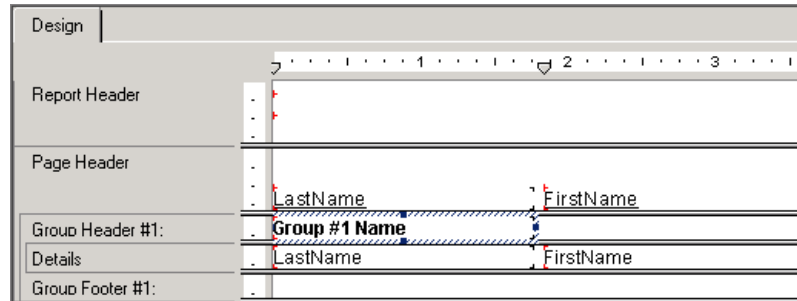


- 3 Click Options.
- 4 In the Change Group Options dialog, specify how you want the data grouped.



- 5 Click OK to return to the Group Expert dialog.

- 6 Click OK again to return to the Design tab. The group is added to the Group Header line.

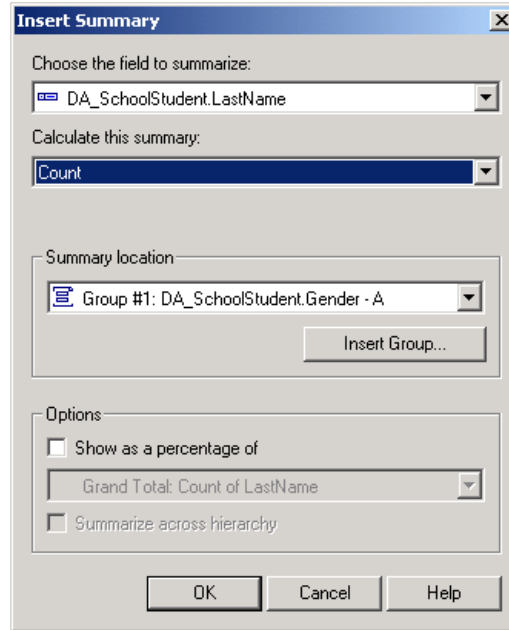


- 7 Enter the name of the group.
- 8 From the File menu, click Save.

**TO ADD A SUMMARY:**

- 1 From the Insert menu, click Summary.
- 2 In the Insert Summary dialog, specify the following:

Field	Description
Choose the field to summarize	Select the field to summarize from the dropdown. You can select any of the fields used in the report canvas or any other field in any view linked in the report.
Calculate this summary	Select the method used to calculate the summary from the dropdown.
Summary location	Select where you want the summary to appear in the report from the dropdown.



- 3 Click OK to return to the Design tab.
- 4 Enter the name of the summary.
- 5 From the File menu, click Save.

## Adding Filters

Most of the filters for reports created using the data access views are added when the report is uploaded to Chancery SMS. However, if you wish to include a filter that cannot be changed by users or a filter based on dynamic properties, you must set those particular filters when you create the report in Crystal Reports. All dynamic properties can be identified by the prefix D#.

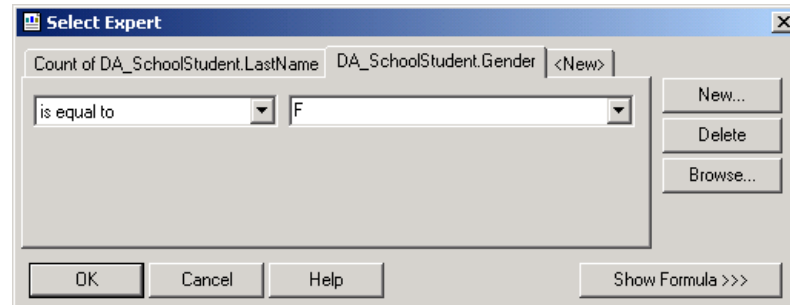
### Note

All dynamic properties can be identified by the prefix D#.

### TO ADD FILTERS:

- 1 From the Report menu, click Select Expert.
- 2 In the Select Expert dialog, there are tabs for filtering on any existing Summary fields. Do one of the following:
  - Click one of the existing tabs.
  - Click the <New> tab. In the Choose Field dialog, select the field to filter on and click OK to return to the Select Expert dialog.

- For the field to be filtered, select an operator from the first dropdown. If required, select or enter a value for the second dropdown.

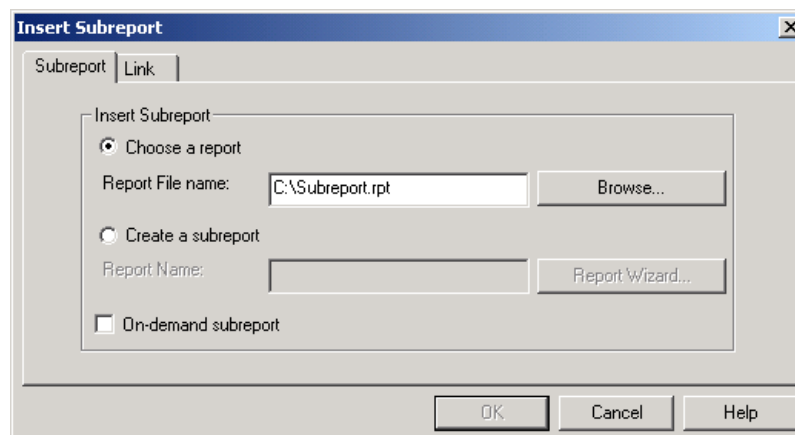


- Click OK again to return to the Design tab.
- From the File menu, click Save.

## Adding Subreports

If you want to include secondary information in a report, you can insert a subreport. However, keep in mind that subreports put extra strain on resources and can significantly affect system performance.

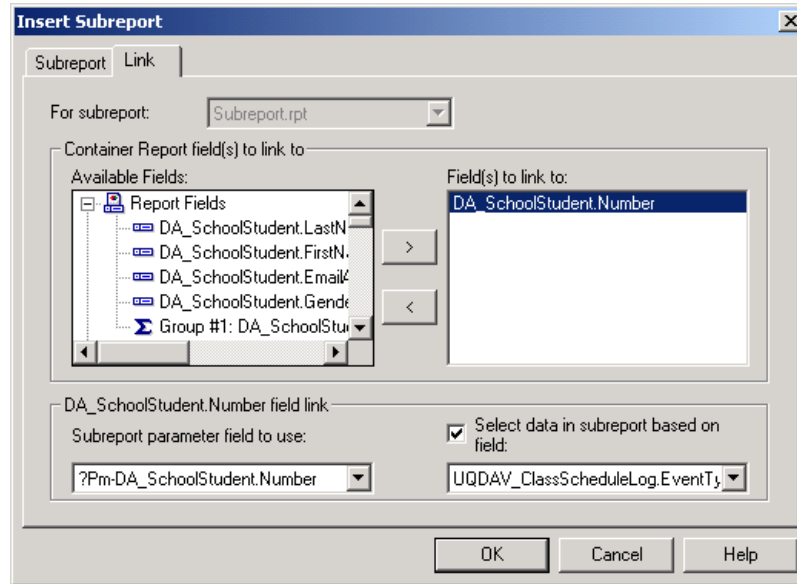
- Create the subreport using the same techniques you use to create the main report.
- In the main report, from the Insert menu, click Subreport.
- In the Insert Subreport dialog, select Choose a report. Click Browse, navigate to the subreport file, and click OK to specify the Report File name.



- Click the Link tab.




- 5 Select a field that the reports share. Use something that is unique to a record, such as a student ID number.

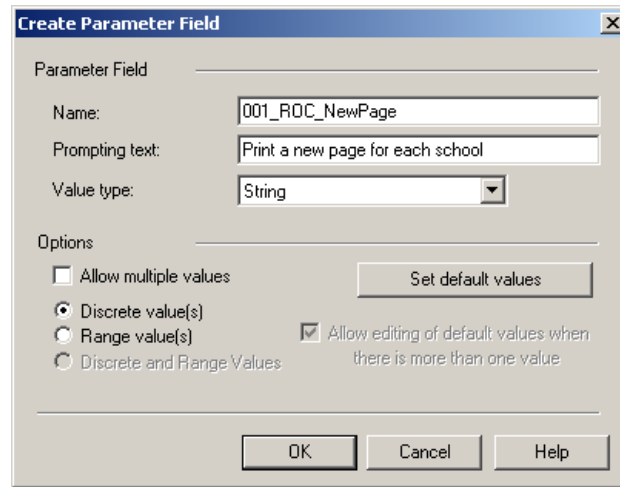


- 6 Click OK to return to the Design tab.
- 7 Click the cursor where you want to locate the subreport. Subreports are usually placed in the Report header or footer.
- 8 Change the name of the subreport, if required.
- 9 From the File menu, click Save.

## Adding Print Options

If you want to provide users with options to select at runtime, such as the ability to print a new page for each student, grade level, or school, or to add a legend to the bottom of the report, you can add parameters and formulas to your Crystal Report template that will display as print options in the Report Options dialog.

- 1 Create the appropriate groups, summaries, and sections needed in the report.
- 2 In the Field Explorer window, click Parameter Fields, and then click .

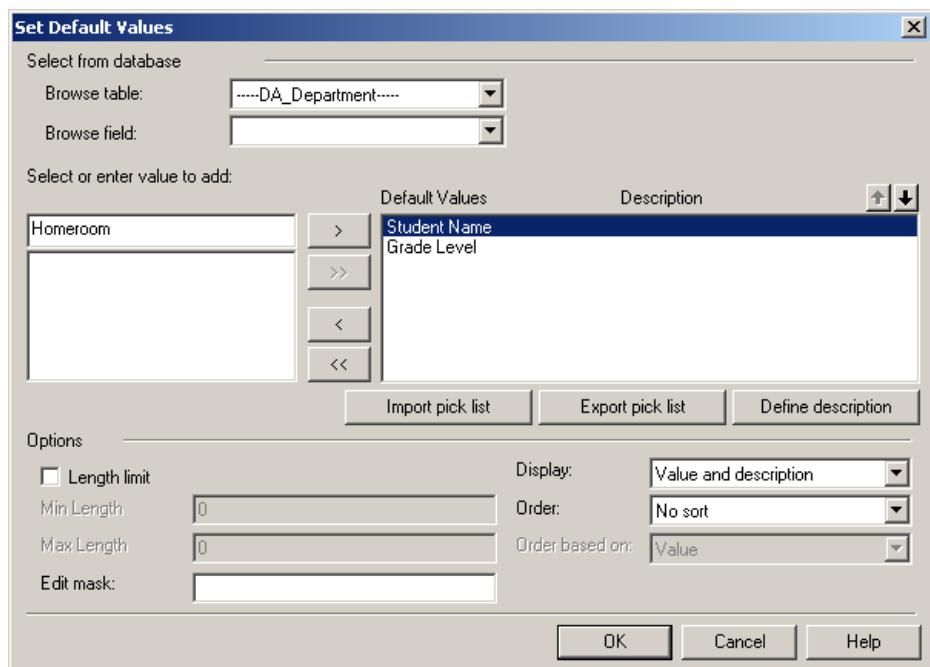



- 3 In the Create Parameter Field dialog, in the Name field, enter the name of the parameter. In order for the parameter to be rendered correctly when the report is uploaded to Chancery SMS, you must use the naming convention “###\_ROType\_Name”. The format is broken down as follows:

Field	Note
###	Enter a three-digit number for the print option. This number is used to determine the sequence in which the print options appear in the Report Options dialog.
ROType	<p>Enter the code that designates the report option type you want to use for the print option, which will determine how it will appear in the Report Options dialog. Select from the following:</p> <ul style="list-style-type: none"> <li>• ROC – checkbox. Use this to specify an option that is either on or off.</li> <li>• ROR – radio button. Use this to require users to select one of two or more related options.</li> <li>• ROV – list of values. Use this to require users to select one from a dropdown.</li> <li>• ROL – label. Use this to add text to the print options, such as a heading to group other options.</li> <li>• ROT – text box. Use this to require users to enter text values, such as names, for use in the report.</li> <li>• ROD – date. Use this to have users specify a single date for use in formulas in the report. This enables users to select today’s date or to specify a different date.</li> <li>• RODR – date range. Use this to have users specify a date range.</li> </ul>

Field	Note
Name	Enter a unique name for the parameter.

- 4 In the Prompting Text field, enter the display name for the parameter.
- 5 From the Value Type dropdown, select one of the following values, depending on what report option type you specified in the Parameter Name field:
  - Boolean – select this for checkboxes (ROC).
  - String – select this for radio buttons (ROR), lists of values (ROV), labels (ROL), and text boxes (ROT).
  - Date – select this for dates (ROD) and date ranges (RODR).
- 6 If applicable, click Set Default Values.

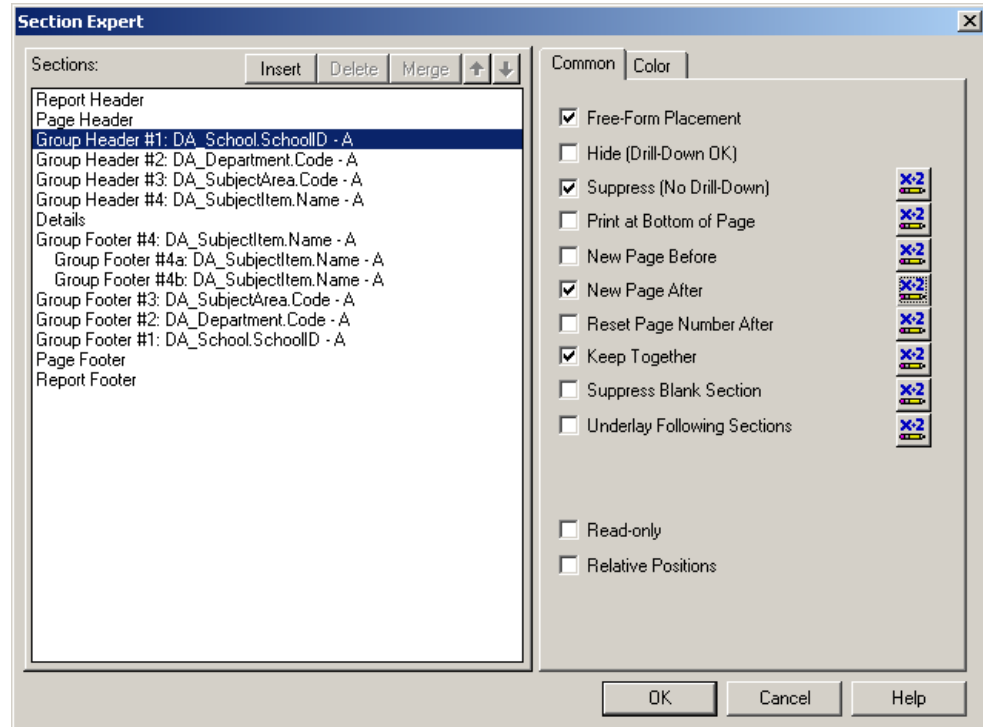



In the “Select or enter value to add” field, enter the values for the options available to users and click  to move it to the Default Values list (For Boolean parameters, the values are already defined). Use the up and down arrows to order the values; the highest value is the default selection for the parameter. Click OK.

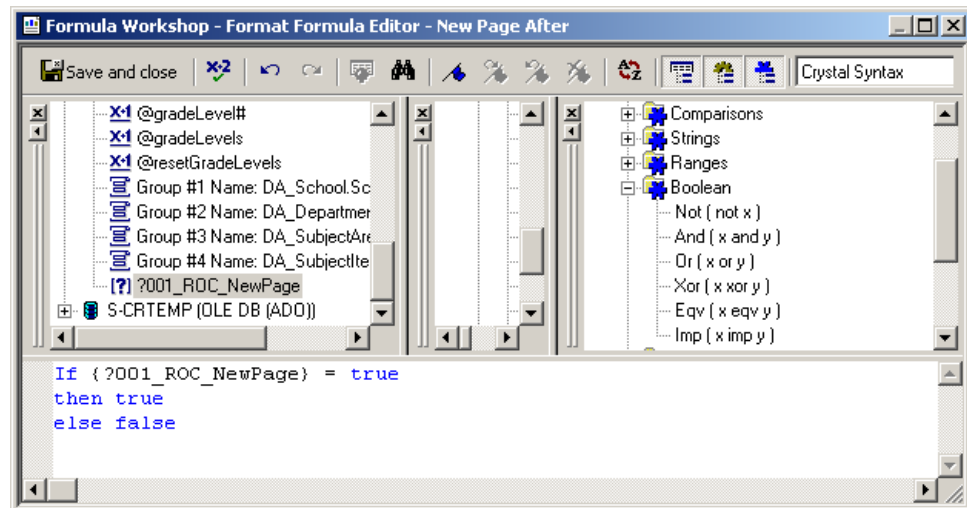
- 7 To save the parameter, click OK.

Once the parameter is saved, you can use it in any formula to create the required options. For example, the remaining steps outline how to use this process to print a new page for each new school in a report.

- 8 From the Report menu, click Section Expert.



- 9 In the Section Expert dialog, in the Sections list, click the section to which the parameter applies.
- 10 On the Common tab, select the type of option you want to apply based on the user's selection. Next to the option, click .



- 11 In the Formula Workshop dialog, in the left pane, expand the Report Fields tree to view the parameter field you created at the bottom of the list.

- 12 Double-click the parameter to add it to the formula and construct the rest of the formula as appropriate.
- 13 Click Save and close.
- 14 Click OK.



## Formatting

With many reports, you may want to do some basic formatting, such as:

- adding page numbers and dates
- changing date and time formats
- adding and formatting text
- moving, resizing, or deleting fields and text objects
- positioning elements on the page

### Adding Page Numbers, Dates, and Other Special Fields

Crystal Reports comes with a predefined set of special fields that you can use to add document information to your report, such as page numbers, dates, file author, report title, and page count.

- 1 In the Field Explorer window, click  to expand Special Fields.  
(If Field Explorer is not open, click .)
- 2 Click and drag the special field to the appropriate location on the Design tab. Special fields are usually added to the Page or Report Footers.
- 3 From the File menu, click Save.


### Changing Date and Time Formats

Date and time fields are inserted in a default format. If you wish to use an alternative format, you can change the field options.

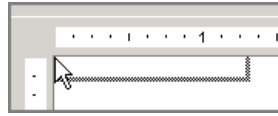
- 1 From the File menu, click Options.
- 2 In the Options dialog, click the Fields tab.
- 3 Click Date, Time, or Date and Time.
- 4 In the Format Editor dialog, click the tab for the format you want, click a Style, and then click OK.
- 5 Click OK again.
- 6 From the File menu, click Save.

## Adding Text

You may also want to add text objects to your report, such as a report title.

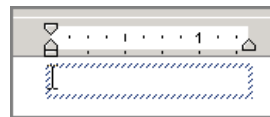
- 1 Click  to insert a text object.

An empty object frame appears in the upper left corner of the Design tab.

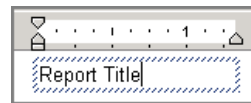


- 2 Position the text object where you want it to appear in the report, and click once.

The object frame is placed in the report and is selected for editing.



- 3 Enter the text.



- 4 From the File menu, click Save.

## Revising and Formatting Text Objects

Text objects in your report can be formatted any way you want. This is useful for distinguishing the headings for data from the data itself, or for making the report title more visible.

- 1 Do any of the following:


To	Do this
Revise the text	Double-click the text object and change the text.
Format part of the text	Double-click the text object and select part of the text. Right-click the text and choose Text Formatting. In the Text Format dialog, make the changes you want. Click OK.
Format all of the text in the object	Right-click the text object and choose Format Text. In the Format Editor dialog, make the changes you want. Click OK.

- 2 From the File menu, click Save.


## Moving, Resizing, or Deleting Fields and Text Objects

You may want to move, resize, or delete the fields and text objects you have added to your report.

- 1 Click the border of the field or text object. If you are currently editing the text, you must click outside the object before clicking the border.

The pointer changes to .

- 2 Do one of the following:

To	Do this
Move the object	Drag it to a new location.
Delete the object	Right-click on the object and choose Delete.
Resize the object.	Hover over the border until the pointer changes to  , and then drag the handle.

- 3 From the File menu, click Save.

## Positioning Elements on the Page

Margins, guidelines, and grids are available to assist you in positioning objects in your report.

- 1 Do any of the following:

To	Do this
Change margins of the page	In the margins of the report, right-click and choose Page Setup. In the Page Setup dialog, change the margins. Click OK.
Add guidelines, non-printing lines that you can use to align, move, and resize objects with precision	On the ruler, click the spot where you want a guideline.
Show grids, an underlying network of “lines” for aligning fields and graphics	In the margins of the report, right-click and choose Guidelines > Design.
Snap text to grid, automatically aligning any fields you insert or resize to the nearest grid	In the margins of the report, right-click and choose Snap to Grid.

- 2 From the File menu, click Save.





# UPLOADING REPORTS

All reports created using the data access views must be uploaded to Chancery SMS to be run. During this process, the report is validated against the reporting framework to ensure that the joins between views are valid.

Because of the flexibility of the reporting framework, you can share reports with other districts and schools by distributing the .rpt files and .sql scripts used to create them. In a similar fashion, Chancery SMS can send out newly developed reports without waiting for a new release. The upload process for all reports created using the data access views is the same, regardless of who created the report.

## Uploading Reports

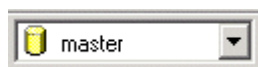
The process of manually uploading individual reports involves the following steps:

- Step 1: Run SQL Script, If Necessary
- Step 2: Upload Report File
- Step 3: Set Report Filters
- Step 4: Test Run the Report

### Step 1: Run SQL Script, If Necessary

If your report uses report extensibility to perform complex calculations, you must execute the SQL script provided prior to uploading the report to Chancery SMS. You must run the SQL scripts for both the main database and the report writing database (ending in \_DA).

- 1 On the Chancery SMS database server, from the Start menu, click Programs > Microsoft SQL Server > Query Analyzer.
- 2 In the Connect to SQL Server dialog, enter the Login Name and Password for the owner of the Chancery SMS database, and click OK to launch the SQL Query Analyzer.
- 3 In the database dropdown, select the Chancery SMS database. For example, select CSL\_SMS. The dropdown is typically set to Master.




- 4 From the File menu, click Open. Navigate to the SQL script that you need, and click Open.

- 5 Click the Execute Query button  to run the script on the main database.

A message displays to indicate that the script ran successfully.

```
The command(s) completed successfully.
```

- 6 In the database dropdown, select the Chancery SMS Data Access (DA) database. The name of this database matches the name of the main Chancery SMS database, but ends with the suffix “\_DA”. For example, if the main Chancery SMS is called CSL\_SMS, the Data Access database is called CSL\_SMS\_DA.
- 7 Click the Execute Query button  to run the script on the \_DA database.
- 8 Close SQL Query Analyzer.

## Step 2: Upload Report File

After running any required SQL scripts, you can upload the report files. Unlike in the previous step, you do not need to be on the machine running the Chancery SMS database. You upload reports using the Chancery SMS interface.

- 1 Log on to Chancery SMS.
- 2 On the control bar, under Admin, click District Setup or School Setup.
- 3 On the District Setup page, under Reports, click Customize Reports.

OR

On the School Setup page, under Customization, click Customize Reports.

### Note

The Customize Pre-4.2 Reports link is only for reports that connect directly to the tables or use the XML schema.

- 4 On the Customize Reports page, do one of the following:
  - If the report has already been added to the Report List, click the name of the report you want to upload.
  - If the report has not yet been added to the Report List, from the Actions menu, click Add Report.

- 5 On the Edit Report page, in the General area, enter or change the following information, as necessary:

Field	Note
Report Name	This is the name that displays in the report list.
Description	This is the description of the report that displays in the report list.

- 6 In the Category field, do one of the following to group reports together on the Customize Reports and Report List pages:
- Click Select and select an existing category from the dropdown.
  - Click New and enter the name of a new category.
- 7 In the Report Weight field, do one of the following to ensure that the report is sent to the appropriate server for processing:
- Click Light to have the report run by a Lightweight Report server. This type of server manages reports that do not require significant system resources.
  - Click Heavy to have the report run by a Report server. This type of server manages reports that require significant system resources.
- 8 In the Report File area, click Browse, navigate to the appropriate report file, and click Open.

If the report has been created using illegal joins (e.g., if the joins are not unidirectional, or if views are linked on the incorrect field), the report will not upload. You will receive a system message outlining the error in the report. If you receive an error message, you must fix the report in Crystal Reports and then attempt to upload the file again.

**Note**

Only the first error the system finds will display; any subsequent errors will display only after the first issue is resolved.

- If you want to change the default permissions for the report, in the Permissions area, identify the base roles and roles that can Edit or View the report.

Click **+** to view the roles in a base role.

Set the permissions for a base role.

Set the permissions for a role.

Base Role/Role	Access	Base Role Access
<input type="checkbox"/> Administrator	Edit	-
<input type="checkbox"/> School Admin	Edit	-
School Admin-307	Same as Role	Edit
<input type="checkbox"/> School Secretary	Same as Role	-
<input type="checkbox"/> Teacher	None	-
<input type="checkbox"/> Teacher w/ full Attend Permissions	View	-
<input type="checkbox"/> Teacher with DELETE access for REPORTS	Edit	-
<input type="checkbox"/> Teacher with DELETE access for REPORTS	None	-
<input type="checkbox"/> Teacher with EDIT access for REPORTS	None	-
<input type="checkbox"/> Teacher with NONE access for REPORTS	None	-
<input type="checkbox"/> Teacher with VIEW access for REPORTS	None	-

- Click OK.

### Step 3: Set Report Filters

The Report Filters page allows you to specify filters for your report. The options available on this page are dynamically generated from the views you selected when you created your report in Crystal Reports.

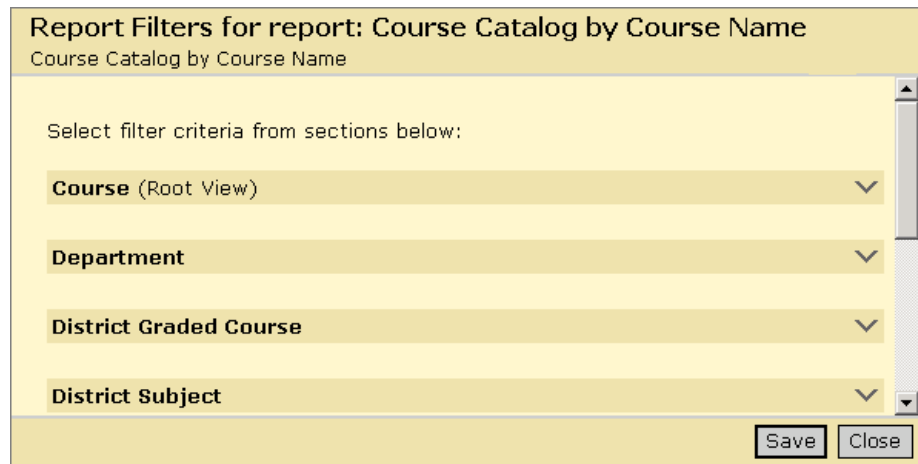
In each view, you can select up to five of the available fields to act as filters for your report. When users run the report, these filters appear on the Reporting Options page, where they can enter specific values for the default filters or add other filters as they choose.

**Note**

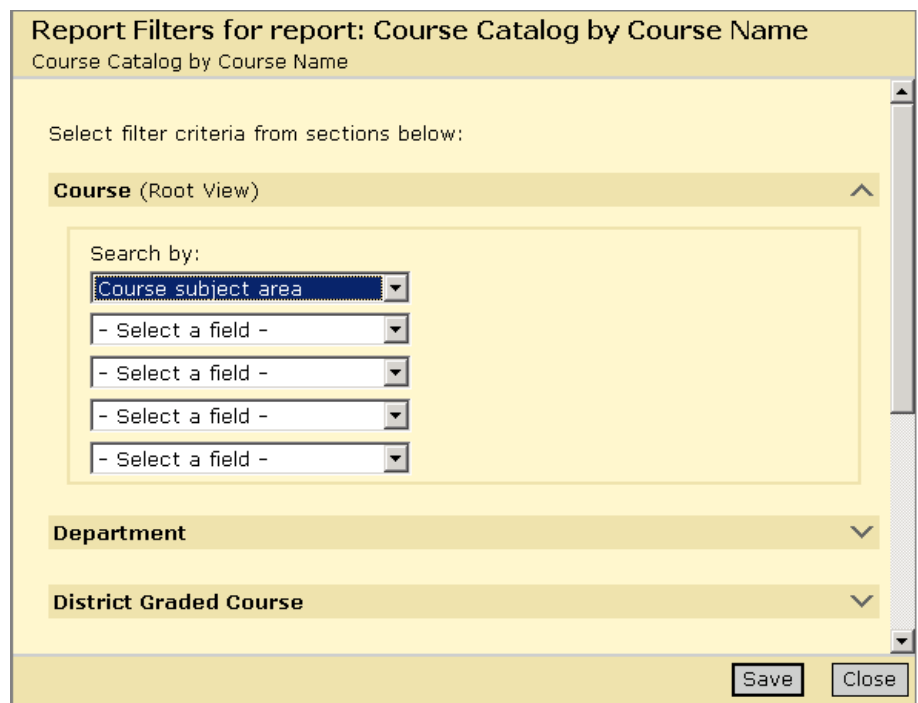
Remember that you cannot set filters on dynamic properties in Chancery SMS. If you require your report to filter on a dynamic property, as in the case of viewing only active students, you must have added this filter in Crystal Reports prior to uploading the report to Chancery SMS.

- On the Customize Reports page, select the checkbox next to the report.
- From the Actions menu, click Edit Filters.

The Report Filters dialog displays. By default, all of the panels are collapsed.



- 3 Expand the panels that contain the filters you need to set, and then select the filters from the dropdowns.



- 4 Click Save, and then click Close.

## Step 4: Test Run the Report

Once you have created a custom report using the new data access views, you should perform a test run of the report using various filters and user IDs to ensure that the appropriate data is returned.

When you run the report, all of the views that were used to create the report are available for filtering. If a field in a view was selected as a filter when the report was uploaded to Chancery SMS, the panel for that view is open, and the filter is displayed on the Basic tab. However, you are not required to use only the filters chosen at design time. If a filter already exists for a view, you can add more filters for that view on the Detail tab. You can also expand the panels for other views and add filters for them.

- 1 On the Customize Reports page, select the checkbox next to the report.
- 2 From the Actions menu, click Run Report.
- 3 In the Report Options dialog, in the Filters panel, perform one of the following:

To	Do this
Run the report as designed	Select an operator and a value for each Search by dropdown or leave the filters blank.
Add a filter	<ol style="list-style-type: none"> <li>1 If the view already has a filter, click the Detail tab. OR If the view does not already have a filter, expand the panel for the view.</li> <li>2 In one of the available dropdowns, select the appropriate filter, the operator, and the value.</li> <li>3 Click Add Criteria.</li> <li>4 Repeat as required.</li> </ol>

- 5 If you have permission to schedule reports, in the Scheduling Options panel, perform one of the following:

To	Do this
Run the report immediately	Select Run now.
Run the report once at a specific time	Select One time, and then enter the date and time for the scheduled task.
Run the report on a recurring schedule	Select Recurring, and then enter the start date, start time, and interval for the scheduled task.

- 6 In the Output Options panel, select the appropriate type of output from the available options:
  - Adobe Acrobat (\*.pdf)
  - Crystal Reports (\*.rpt)

- Microsoft Excel (\*.xls)
- Microsoft Word (\*.doc)
- Rich Text (\*.rtf)

**7** Click Run Report.

The Report Status dialog displays status information to indicate what stage the report is at as it is being generated. If you require, you can cancel the report while it is in the queue.

If the report was scheduled to run immediately, it is displayed in a browser in the specified format.

If the report was scheduled to run at a specific time, the task is sent to the Task Manager. Once the report has run, it can be downloaded by clicking the Reports links in the Scheduled Events panel on the home page.





# ADDENDUM: DATABASE TABLES

If desired, you can build your report by connecting directly to the tables in the Chancery SMS database. This type of report can be customized only by those with access to district setup.

## Database Tables

Reports that are created by connecting directly to tables in the database can include any available records in Chancery SMS.

## Naming Conventions

To build reports using a direct link to the tables, you should have a solid understanding of the naming conventions for the tables, fields, and keys in the database.

### Note

Table and field names are in ALL CAPS.

### TABLES

The names of the tables in the database are set up to convey as much information as possible in a limited amount of characters:

The first section indicates ownership. Most tables start with CSL\_ for Chancery Software Ltd. or CDM\_ for Custom Data Management.

The last section is a description of the data. Words are separated with underscores.



The second section indicates the type of data. Refer to the table below for further information.

The second section of the name indicates the kind of information the table contains, abbreviated for quick reference. It is important to note that, while all of the tables are available for reporting, not all of them are useful for reporting. Use the following table as a guide:

Abbreviation	Description	Used for Reporting?
ACT	Accounts (user and roles)	No
ADM	Administration	No
ASCII	ASCII import	No
BIN	Bins for report card	Yes

Abbreviation	Description	Used for Reporting?
CDM	Custom Data Management	No
CNT	Contacts	Yes
CRS	Courses	Yes
DIS	District-wide	Yes
DS	Directory Service	Yes
FAM	Family information	Yes
HOMEROOM	Homeroom	Yes
K12P	K12 Planet	No
RPT	Reports	No
SCH	Schools	Yes
SET	Setup lists	Yes
SMS	SMS School	Yes
STD	Student	Yes
STRING	Event logs	No
TCH	Teacher	Yes
TRANSCRIPT	Transcripts	Yes
TTBL	Timetable information	Yes
WKL	Working lists	No

**FIELDS**

Each table contains a collection of records, and each record is made up of a series of fields. A field contains a single piece of information. A field name is simply a description of the information it contains, abbreviated as required and with underscores to separate words. Examples include LAST\_NAME, GENDER, and STD\_NUMBER.

**PRIMARY KEYS**

Every table has a primary key, which is a field that uniquely identifies that table. These keys cannot be used as fields in your report.

The first section indicates that the field is a key.      The primary key always has the same name as the table.



**FOREIGN KEYS**

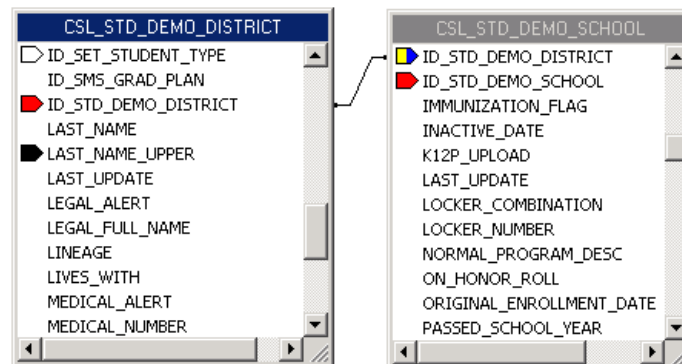
In addition to the primary key, tables can also contain foreign keys, which are links from other tables. Like the primary keys, foreign keys cannot be used as fields in your reports; they are for linking purposes only.

The foreign key has the same naming convention as the primary key, except that the name of the key is the name of the table to which it links. Foreign keys in the CSL\_STD\_DEMO\_DISTRICT table, for example, include the following:

- ID\_DIS\_ADDRESS (CSL\_DIS\_ADDRESS)
- ID\_SET\_GRADE\_LEVEL (CSL\_SET\_GRADE\_LEVEL)
- ID\_ADM\_ENROLLMENT\_STATUS (CSL\_ADM\_ENROLLMENT\_STATUS)

## Connections

The tables in the database are independent entities. In a report, you must first specify the relationships between the relevant tables so that the report knows what path to take when it extracts information from the database. These connections are always formed by linking the primary key of one table to one of the foreign keys of the other table. The link looks like this:



One important thing to keep in mind when creating these links is where data is stored. Consider the example in the diagram above. A student's demographic information is contained in the two tables CSL\_STD\_DEMO\_DISTRICT and CSL\_STD\_DEMO\_SCHOOL. To avoid replicating data, most of the fields are kept in the district table. That means that if you want to report on the student's demographic information at the school level, you have to create a connection between these tables in order for that student's name, birthdate, gender, etc. to be available in the report.

# Adding Custom Reports (Database Tables)

You can create a new report and add it to Chancery SMS for you or others to run.

Before you create a custom report, check the list of built-in and custom reports to see if an existing report meets your needs. It may be easier to customize an existing report than to create a new report.

## Step 1: Preparation

To create a custom database table report, you need:

- a user ID and password for the Chancery SMS database
- the name of the Chancery SMS database
- the name of the server that the Chancery SMS database is on

If you do not have this information, contact the district administrator.

## Step 2: Create the Report

- 1 Start a report and connect it to the database.
- 2 Select tables with the data you want.
- 3 Link the tables.
- 4 Add fields to the report.
- 5 Group information and add summaries.
- 6 Add filters.
- 7 Complete the formatting.
- 8 Save and close the report.

See “Creating Custom Reports (Database Tables)” on page 62.

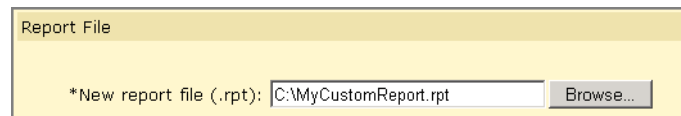
## Step 3: Add the Report to Chancery SMS

- 1 Log on as a district administrator.
- 2 On the control bar, under Admin, click District Setup.
- 3 On the District Setup page, under Reports, click “Customize Pre-4.2 Reports”.
- 4 On the Customize District Reports page, in the “To create a new report” section, click District Report List.

- 5 On the District Report List page, from the Actions menu, click Add Custom Report.
- 6 On the Edit Report page, in the General area, enter the following information:

Field	Note
Report Name	Enter the name of the report. This is the name that displays in the report list.
Description	Enter a description of the report for internal purposes.
Category	Select a category from the dropdown, or click New and enter a new category name. The category groups similar reports together, in the report list.

- 7 In the Report File area, click Browse, navigate to the report that you want to add, and click Open.



- 8 In the Permissions area, identify the base roles and roles who can Delete, Edit, or View the report.

Click  to view the roles in a base role.

Set the permissions for a base role.

Set the permissions for a role.

Base Role/Role	Access	Base Role Access
<input type="checkbox"/> Administrator	Edit	-
<input type="checkbox"/> School Admin	Edit	-
School Admin-307	Same as Role	Edit
<input type="checkbox"/> School Secretary	Same as Role	-
<input type="checkbox"/> Teacher	None	-
<input type="checkbox"/> Teacher w/ full Attend Permissions	View	-
<input type="checkbox"/> Teacher with DELETE access for REPORTS	Edit	-
<input type="checkbox"/> Teacher with EDIT access for REPORTS	None	-
<input type="checkbox"/> Teacher with NONE access for REPORTS	None	-
<input type="checkbox"/> Teacher with VIEW access for REPORTS	None	-

You can specify access for each base role or for the roles within it. Click  to display the roles in the base role.

- 9 Click OK.

## Step 4: Test Run the Report in Chancery SMS

Once you have created a custom report, you should perform a test run of the report using various filters and user IDs to ensure that the appropriate data is returned. For district reports, there are two ways to run the report: in Crystal Reports and in Chancery SMS.

**Note**

If the report is being used solely at the district level by only a few users, you may prefer to leave the report in Crystal Reports. Some of the more complex features in Crystal Reports, such as parameters, do not transfer into Chancery SMS.

Custom reports you are creating for use by a larger number of users should be uploaded to and run in Chancery SMS.

- 1 In the control bar, under District, click Reports.
- 2 On the District Reports page, click the name of the report.

- 3 In the Report Options dialog, in the Database Connection section, enter the following information:

Field	Note
Server	Enter the name of the server where the database resides. This is specific to your district.
User ID	Enter the user ID of a user account that permits you to access the database.
Password	Enter the password of a user account that permits you to access the database.
Database	Enter the name of the database. A typical database name is CSL_SMS.

- 4 Click Preview.

When the report is ready, it generates in PDF format in a Web browser window.

- 5 Print or save the report, and then close the browser window.

## Modifying Custom Reports (Database Tables)

If you have an existing report built directly on the database tables in Chancery SMS that requires some slight modification, you can customize the existing report, rather than create a new one.

When you customize this type of report, you can add or delete fields, change the order of columns, create groups and summaries, add formatting – all of the same features you use when creating a report from scratch.

To customize an existing report, you download the report, modify it using Crystal Reports, and then add the revised report back into Chancery SMS.

You can repeatedly modify an existing report. For example, after you add a modified report to Chancery SMS, you can download it and modify it further.

Later, if you want to remove the modified report, you can revert to the original report. For more general information about Crystal Reports, see “Working with Crystal Reports” on page 62.

### Note

You must always customize an existing report by downloading and modifying it. You cannot create a new report and add it to Chancery SMS in place of an existing report.

### Step 1: Download the Report

- 1 In the control bar, under Admin, click District Setup.
- 2 On the District Setup page, under Reports, click “Customize Pre-4.2 Reports”.
- 3 On the Customize District Reports page, in the “To modify a built-in report” section, click District Report List.
- 4 On the District Report List page, select the report. From the Actions menu, click Edit Custom Report.

OR

Click the report name.

- 5 On the Edit Report page, in the Report File section, click Download next to the report file.

### Note

If the built-in report has already been customized, there will be two files from which to choose, the original built-in report and the customized version. Ensure that you select the correct version for your purposes.

- 6 In the File Download dialog, click Save.

- 7 In the Save As dialog, navigate to the folder where you want to save the file, and then click Save.

If the Download Complete dialog displays, wait until it says “Download Complete,” and then click Close.

## Step 2: Customize the Report

- 1 Open the report in Crystal Reports.
- 2 Modify the report.

See “Modifying Custom Reports (Database Tables)” on page 68.

## Step 3: Add the Modified Report to Chancery SMS

Now that you have modified the report, add it to Chancery SMS so that it will be used in place of the original report.

- 1 In the control bar, under Admin, click District Setup.
- 2 On the District Setup page, under Reports, click “Customize Pre-4.2 Reports”.
- 3 On the Customize District Reports page, in the “To modify a built-in report” section, click District Report List.
- 4 On the District Report List page, select the report. From the Actions menu, click Edit Custom Report.

OR

Click the report name.

- 5 On the Edit Report page, in the Report File area, click Browse, navigate to the customized report, and click Open.

To edit a built-in report, download the report file from the server. Use Crystal Reports™ to edit the report file, then upload the updated report file.

Built in report file:


New report file (.rpt):   ← Click Browse to navigate to modified report file.

Use report file:  Built-in  Custom

Click Custom so that Chancery SMS uses the modified report, not the original one. (Use report file appears only after you browse to a file.)

- 6 Ensure that “Use report file” is set to Custom so that Chancery SMS uses your customized report, rather than the original report.



- 7 In the Permissions Area, you can specify permissions for base roles or roles. Click  to display the roles in the base role.
- 8 Click OK.

## Reverting to an Original Report

If you have modified a built-in report and added it to Chancery SMS, you can later choose to stop using the modified report and return to using the original report.

When you revert to the original report, the modified report remains on the Chancery SMS database server unless you remove it. The modified report is not used in Chancery SMS, but it is available for later use.

- 1 In the control bar, under Admin, click District Setup.
- 2 On the District Setup page, under Reports, click “Customize Pre-4.2 Reports”.
- 3 On the Customize District Reports page, in the “To modify a built-in report” section, click District Report List.
- 4 On the District Report List page, select the report. From the Actions menu, click Edit Custom Report.

OR

Click the report name.

- 5 On the Edit Report page, under Report File, set “Use report file” to Built-In rather than Custom.
- 6 To remove the modified report from the Chancery SMS database server so that it cannot be used again, click Clear.

To edit a built-in report, download the report file from the server. Use Crystal Reports™ to edit the report file, then upload the updated report file.

Built in report file:

Current custom report file:

Last modified Mar 21, 2003 1:04 PM by Norman Parker

New report file (.rpt):

Use report file:  Built-in  Custom

Click Built-in so that Chancery SMS uses the original report.

To delete the modified report for the Chancery SMS database server, click Clear.

- 7 Click OK.

## Modifying the Permissions of a Report

- 1 In the control bar, under Admin, click District Setup.
- 2 On the District Setup page, under Reports, click “Customize Pre-4.2 Reports”.
- 3 On the Customize District Reports page, in the “To modify a built-in report” section, click District Report List.
- 4 On the District Report List page, select the report. From the Actions menu, click Edit Custom Report.

OR

Click the report name.

- 5 On the Edit Report page, in the Permissions area, identify the base roles and roles that can Delete, Edit, or View the report.

Click **+** to view the roles in a base role.

Set the permissions for a base role.

Set the permissions for a role.

Base Role/Role	Access	Base Role Access
<input type="checkbox"/> Administrator	Edit	-
<input type="checkbox"/> School Admin	Edit	-
<input type="checkbox"/> School Admin-307	Same as Role	Edit
<input type="checkbox"/> School Secretary	Same as Role	-
<input type="checkbox"/> Teacher	None	-
<input type="checkbox"/> Teacher w/ full Attend Permissions	View	-
<input type="checkbox"/> Teacher with DELETE access for REPORTS	Edit	-
<input type="checkbox"/> Teacher with DELETE access for REPORTS	None	-
<input type="checkbox"/> Teacher with EDIT access for REPORTS	None	-
<input type="checkbox"/> Teacher with NONE access for REPORTS	None	-
<input type="checkbox"/> Teacher with VIEW access for REPORTS	None	-

You can specify access for each base role or for the roles within it. Click **+** to display the roles in the base role.

- 6 Click OK.

## Deleting Custom Reports

You can delete custom reports from Chancery SMS, assuming that your user account has Delete permissions for that report.

Deleting a report means that it's no longer available for users to run, and it is no longer on the Chancery SMS database server. However, if the .rpt file is still available, the report can be restored.

- 1 In the control bar, under Admin, click District Setup.
- 2 On the District Setup page, under Reports, click “Customize Pre-4.2 Reports”.

- 3 On the Customize District Reports page, in the “To modify a built-in report” section, click District Report List.
- 4 On the District Report List page, select the report. From the Actions menu, click Delete Custom Report.

## Running Database Table Reports at the School Level

Certain data that schools may need to view (such as CDM data) cannot be accessed in a school-level report. To resolve this situation, there are two options: running the report at the district level, or providing district-level access to school users.

### OPTION 1: RUN THE REPORT AT THE DISTRICT LEVEL

- 1 Create the report in Crystal Reports by linking directly to the tables. See “Creating Custom Reports (Database Tables)” on page 62.
- 2 When a school requires this information, run the report in Crystal Reports, setting a filter to reflect the specific school.
- 3 Forward the report to the school.

### OPTION 2: SET UP SCHOOL USERS WITH DISTRICT ACCESS TO REPORTS

- 1 Create a role within the base district role specific to each school in the district that you want to be able to run district-level reports. Limit the scope of each role to a single school. Remove all permissions for the roles. See “Controlling User Access” in the District Administration Guide.
- 2 Assign the new roles to the appropriate school users. See “Controlling User Access” in the District Administration Guide.
- 3 Create the report in Crystal Reports by linking directly to the tables. Create one version for each school, and add a filter to each to limit the results to that particular school. See “Creating Custom Reports (Database Tables)” on page 62.
- 4 Upload each report to Chancery SMS. Assign view-only permission to the role that matches the version of the report. See “Adding Custom Reports (Database Tables)” on page 54.
- 5 Provide the user account information and the logon information for the database to the school users.

## Working with Crystal Reports

With Crystal Reports, you can create many types of reports with varying levels of complexity.

Rather than repeating all of the information that is available in the Crystal Reports Online Help, this section summarizes how to create and modify a custom report based on the database tables.

For more information, consider taking a Chancery training course on reporting. Call us toll free at 1-800-999-9931 or see the Training area of our Support web site at <http://support.chancery.com> for an up-to-date list of scheduled courses.

### Creating Custom Reports (Database Tables)

You can create district reports in Crystal Reports in different ways. Start by using the Standard Report Wizard so that you become familiar with the steps involved in creating a new report. Later, you can also choose to create a blank report and add all of the fields manually, or you can use one of the other wizards.

#### Note

Do not use the OLAP Wizard, which is suited to a different kind of database.

To illustrate the process, the following steps outline how to use the Standard Report Wizard to create a sample report that:

- lists the students in the district, and provides the following details about each one: first name, last name, student number, and enrollment status.
- groups students by school.
- provides summaries of the total number of students in each school and the total number of students in the district.
- filters records to show only students who have a registration status of Registered.

The sample report looks like this:

District Registered Students By School			
4/4/2003			
<u>LAST_NAME</u>	<u>FIRST_NAME</u>	<u>STD_NUMBER</u>	<u>ENROLLMENT_STA</u>
<b>Alpha Secondary School</b>		<b>69</b>	
Stephens	Joey	001008	Not Enrolled
Jones	Sam	001020	Enrolled in Single Sc
Farquhar	Robert	001024	Not Enrolled
Jones	Sam	001025	Not Enrolled

### Step 1: Start a Report and Connect It to the Data

- 1 Start Crystal Reports 9.
- 2 In the Welcome to Crystal Reports dialog, click “Using the Report Wizard”, and then click OK.

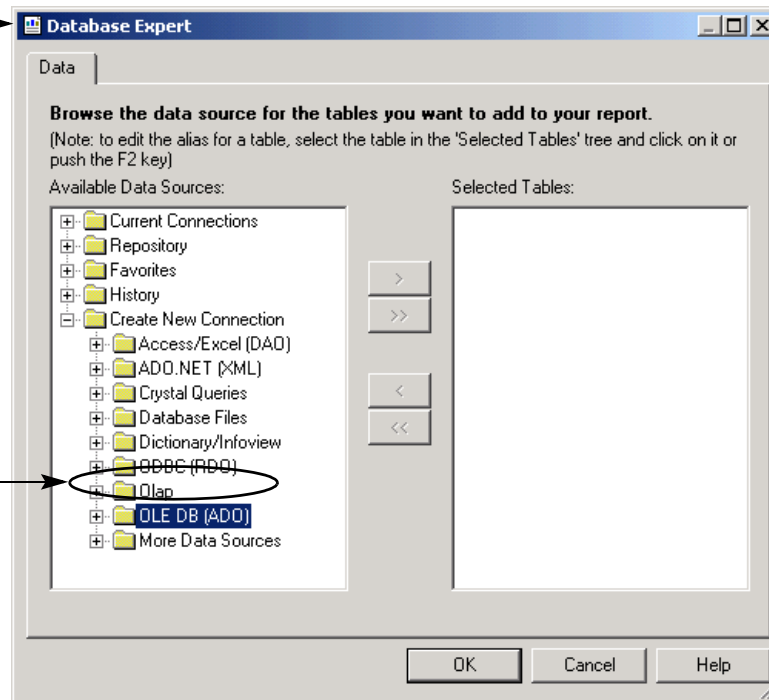
OR

From the File menu, click New.

- 3 In the Crystal Reports Gallery dialog, in the Choose a Wizard list, select Standard, and click OK.
- 4 In the Standard Report Creation Wizard dialog, under Available Data Sources, click **+** next to Create New Connection, and then click **+** next to OLE DB (ADO).

The title and appearance of this dialog depends on whether you are working with a blank report or one of the wizards.

Use the OLE DB (ADO) data source to create custom reports using the database tables.



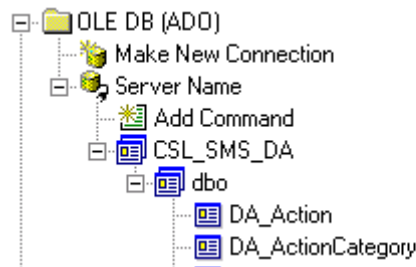
- 5 In the OLE DB (ADO) dialog, in the Provider list, select “Microsoft OLE DB Provider for SQL Server”. Click Next.
- 6 In the next OLE DB (ADO) dialog, in the Connection Information section, enter the following information:

Field	Note
Server	Enter the name of the server where the database resides. This is specific to your district.



Field	Note
User ID	Enter the user ID of a user account that permits you to access the database.
Password	Enter the password of a user account that permits you to access the database.
Database	Enter the name of the database. A typical database name is CSL_SMS.

**7** Click Finish.

The Available Data Sources list now shows the database to which you are connected.



**Step 2: Select Tables with the Data You Want**

- 1** Click  next to the database name.
- 2** Click  next to Tables.
- 3** Double-click the tables you want to use for the report.

For the sample report, select the following tables:

CSL_ADM_ENROLLMENT_STATUS
CSL_SET_REGISTRATION_STATUS
CSL_SET_SCHOOL_NAME
CSL_STD_DEMO_DISTRICT
CSL_STD_DEMO_SCHOOL

**4** Click Next.

The dialog displays a Links tab that shows a diagram of the tables you chose and the fields they share.

**Step 3: Link the Tables**

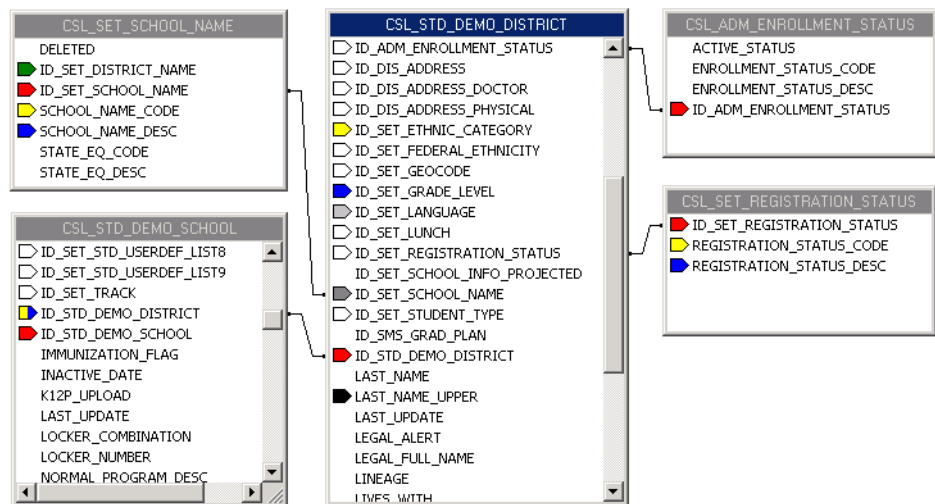
**Note**

The links that Crystal Reports creates automatically are usually more complex than most reports require. It is a good idea to get into the habit of clearing the existing links and setting up your own links as required.

- 1 Click Clear Links.
- 2 Arrange the tables so that you can work with them more easily:
  - Resize the dialog so that you can see all of the tables.
  - Resize each table so that you can see all of the fields in it.
- 3 Link the tables by dragging a field in one table to the field of the same name in another table, depending on the type of information you want.

For the sample report, ensure the following links exist:

Drag this field	To this field
ID_STD_DEMO_DISTRICT field in CSL_STD_DEMO_DISTRICT table	The same field in CSL_STD_DEMO_SCHOOL table
ID_SET_REGISTRATION_STATUS field in CSL_STD_DEMO_DISTRICT table	The same field in CSL_SET_REGISTRATION_STATUS table
ID_SET_SCHOOL_NAME field in CSL_STD_DEMO_DISTRICT table	The same field in CSL_SET_SCHOOL_NAME table
ID_ADM_ENROLLMENT_STATUS field in CSL_STD_DEMO_DISTRICT table	The same field in CSL_ADM_ENROLLMENT_STATUS table



- 4 Click Next.

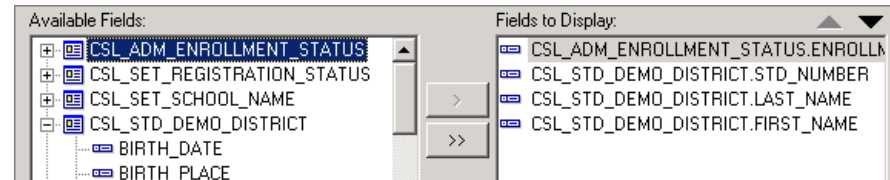
#### Step 4: Add Fields to the Report

- 1 On the Fields page, under Available Fields, expand the tables, and double-click the fields that you want displayed on the report.

Under Fields To Display, the fields are shown in alphabetical order in the format `TableName.FieldName`.

For the sample report, double-click the following fields:

From this table	Double-click this field
CSL_ADM_ENROLLMENT_STATUS	ENROLLMENT_STATUS_DESC
CSL_STD_DEMO_DISTRICT	STD_NUMBER
CSL_STD_DEMO_DISTRICT	LAST_NAME
CSL_STD_DEMO_DISTRICT	FIRST_NAME

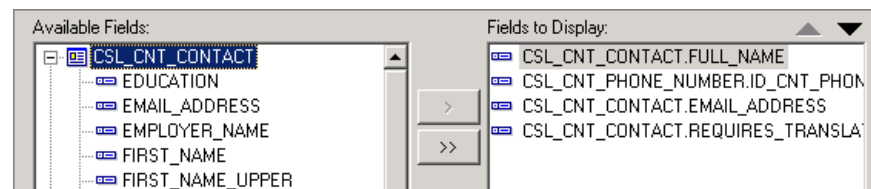


- Under Fields To Display, change the order of the fields by clicking a field, and then clicking the arrows to move it up or down.

In the final report, items in the Fields to Display list are displayed as columns from left to right. The higher an item is in the Fields to Display list, the further left it appears in the final report.

For the sample report, re-order the fields as follows:

CSL_STD_DEMO_DISTRICT.LAST_NAME
CSL_STD_DEMO_DISTRICT.FIRST_NAME
CSL_STD_DEMO_DISTRICT.STD_NUMBER
CSL_ADM_ENROLLMENT_STATUS.ENROLLMENT_STATUS_DESC



- Click Next.

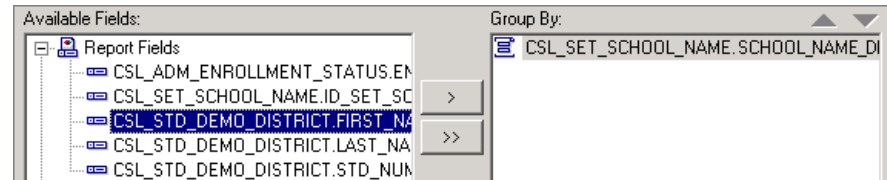
## Step 5: Group Information and Add Summaries

Grouping data in a report allows you to summarize your data in meaningful ways.

- On the Grouping page, under Available Fields, under Report Fields, double-click the fields that you want to group data by.





For the sample report, in the CSL\_SET\_SCHOOL\_NAME table, double-click SCHOOL\_NAME\_DESC.



- 2 Click Next.
- 3 On the Summaries page, under Available Fields, double-click any fields you want to summarize.

For the sample report, double-click CSL\_STD\_DEMO\_DISTRICT.STD\_NUMBER.

- 4 Under Summarized Fields, for each summary indicated by , click the summary, and then select the summary type from the dropdown under Summarized Fields.

For the sample report, click the summary indicated by . In the dropdown under Summarized Fields, select Count.

- 5 Click Next.
- 6 On the Group Sorting page, sort items as required. For the sample report, do not use this feature. Click Next.
- 7 On the Chart page, add a chart if required. For the sample report, do not use this feature. Click Next.

## Step 6: Add Filters

Use data filtering to isolate the results of the report to include only the information you're interested in returning. You specify the selection criteria on the Record Selection page.

- 1 On the Record Selection page, under Available Fields, double-click a field that you want to filter data on.

For the sample report, in the CSL\_SET\_REGISTRATION\_STATUS table, double-click the REGISTRATION\_STATUS\_DESC field.

- 2 In the dropdowns under the Filter Fields area, select a comparison method, and then select a value.

For the sample report, select Is Equal To. In the dropdown displayed under Is Equal To, select Registered.

- 3 Click Finished.

A preview of the report is displayed.

## Step 7: Complete the Formatting

- 1 Click the Design tab.

Report Header				
Page Header	Print Date			
	SCHOOL_NAM	LAST_N	FIRST_N	STD_NU
Group Header #1: CSL_SET_SCHOOL_NAMI	Group #1 Name			
Details	SCHOOL_NAME_DESC	LAST_NAME	FIRST_NAME	STD_NUMBER
Group Footer #1: CSL_SET_SCHOOL_NAMI	Group #1 Name			TRICT.STD_NUMBER
Report Footer	Grand Total:			TRICT.STD_NUMBER
Page Footer				






- 2 Format the report by:
  - adding special fields, such as print date
  - adding text objects, such as a title
  - formatting text in fields and text objects
  - moving, resizing, or deleting fields and text objects

For more information, see “Formatting” on page 39.
- 3 From the File menu, clear “Save Data with Report”.
- 4 Save and close the report.

## Modifying Custom Reports (Database Tables)

- 1 Start Crystal Reports 9.
- 2 In the Welcome to Crystal Reports dialog, click “Open an Existing Report”, and then click OK.  
  
OR  
  
From the File menu, click Open.
- 3 In the Open dialog, navigate to the report that you want to modify, and click Open.

**4** Do any of the following:

To	Do this
Add a table	<ol style="list-style-type: none"> <li><b>1</b> Click the Database Expert.</li> <li><b>2</b> Under Available Data Sources, click  next to Create New Connection, and then click  next to OLE DB (ADO).</li> <li><b>3</b> In the OLE DB (ADO) dialog, in the Provider list, click “Microsoft OLE DB Provider for SQL Server”. Leave Data Link File cleared. Click Next.</li> <li><b>4</b> On the Connection Information page, complete the fields, and then click Finish.</li> <li><b>5</b> Under OLE DB (ADO), under the server name, click  next to the database name.</li> <li><b>6</b> Click  next to Tables.</li> <li><b>7</b> Under Available Data Sources, double-click the appropriate tables.</li> <li><b>8</b> Click Next.</li> <li><b>9</b> On the Link page, ensure the appropriate links exist. If the links are incorrect or missing, click Clear Links, and create the links by dragging a field from one table to the corresponding field in the other table.</li> <li><b>10</b> Click Next.</li> </ol>
Add a field	<ol style="list-style-type: none"> <li><b>1</b> In the Field Explorer window, click  next to Tables.</li> <li><b>2</b> Click and drag the appropriate fields to the Design window.</li> </ol>
Group information and add summaries	<ol style="list-style-type: none"> <li><b>1</b> From the Report menu, click Group Expert.</li> <li><b>2</b> On the Group Expert page, under Available Fields, double-click the appropriate field.</li> <li><b>3</b> Click OK.</li> </ol>
Add Summaries	<ol style="list-style-type: none"> <li><b>1</b> From the Insert menu, click Summary.</li> <li><b>2</b> On the Insert Summary page, in the “Choose the field to summarize” field, select the appropriate field.</li> <li><b>3</b> In the Calculate this summary field, select the summary type.</li> <li><b>4</b> In the Summary location field, select the location for the summary.</li> <li><b>5</b> Click OK.</li> </ol>
Add filters	<ol style="list-style-type: none"> <li><b>1</b> From the Report menu, click Select Expert.</li> <li><b>2</b> On the Select Expert page, under Available Fields, in the appropriate table, double-click the appropriate field.</li> <li><b>3</b> Select an operator from the dropdown under the Filter Fields area, click the operator.</li> <li><b>4</b> In the associated field, enter or select a value.</li> <li><b>5</b> Click OK.</li> </ol>
Change the formatting	See “Formatting” on page 39.

**5** Save and close the report.



## ADDENDUM: XML SCHEMA

Previously, the XML Schema was used to create most custom reports at the school-level. The XML Schema is based on the logical model of the database.

This method is still supported, though the data access method is recommended. This type of report can be customized only by those with access to school setup.

### XML Schema

The major limitation of the XML schema is that it contains only a subset of the information in the Chancery SMS database. Although there are almost 600 tables in the database, there are fewer than 100 tables in the XML Schema available for use in reporting.

### Naming Conventions

The XML Schema has its own unique naming convention for its components.

#### TABLES

Tables in the XML Schema are the equivalent of schemas in the logical model. The table names are simple descriptions of the type of information they contain, and are formatted in upper and lower case, without punctuation (with a few exceptions). Examples include ContactPhone, PeriodAttendance, and SchoolStudent. This information is based on the naming convention of the schema in the metadata.

Tables may also have sub-tables that encapsulate complicated joins.

#### FIELDS

Each table has its own collection of fields, based on properties in the logical model, which can be from a single table in the database or from a group of tables, depending on how the metadata is set up. Fields are named the same way as the tables. Examples include Name, DisabilityCode, and EmailAddress.

For fields that have sub-tables in the background, periods are used to separate items, as in the case of MailingAddress.Area.Description.

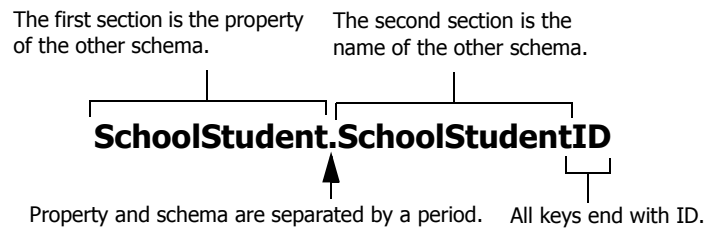
**PRIMARY KEYS**

As with the database tables, each table in the XML schema has a primary key that uniquely identifies each of its records.



**FOREIGN KEYS**

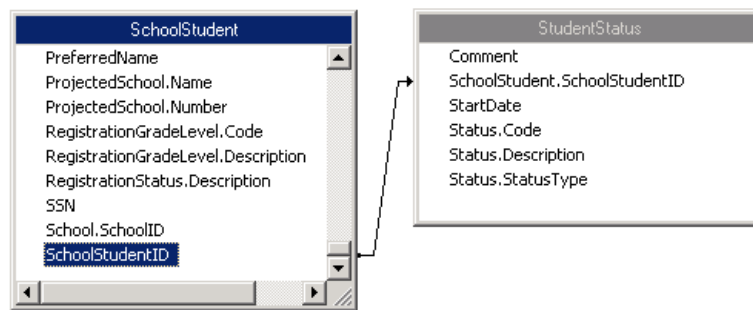
Tables can also contain foreign keys that link them to other tables. A foreign key is the primary key in another table. These relate to reference properties in the logical schema.



None of these keys can be used as fields in your reports.

**Connections**

To create a report, you need to connect the tables together. As with the database tables, these connections are always formed by linking the primary key of one table to one of the foreign keys of the other table. The link looks like this:



## Adding Custom Reports (XML Schema)

You can create a new report and add it to Chancery SMS using the Data Access Views. This is the method that you should use to create all new reports.

### Step 1: Preparation

To create a custom school report using the XML schema, you must install the dynamic-link library (DLL) required by Crystal Reports, if you have not already done so. You must also download the latest version of the schema from Chancery SMS.

#### Note

You do not need these files to run reports. Only people who are actually customizing reports using the XML schema need these files.

#### TO INSTALL THE CRYSTAL REPORTS DLL:

- 1 Visit the Chancery support web site at <http://support.chancery.com>.
- 2 Search for “Crystal Reports Update”.
- 3 In the search results, click the Crystal Reports Update for Chancery SMS link that matches the version of Chancery SMS that you are using.
- 4 On the KnowledgeBase Article page, under Download Files, click Update for Crystal Reports v9.0, and save the file to your computer.
- 5 Decompress the file using a third-party tool, such as WinZip.

For instructions on using WinZip, see KBase item 9075, “Utilities for expanding compressed files” on the Chancery support web site.

- 6 Copy the `crdb_adoplus.dll` file to the following folder:  
C:\Program Files\Common Files\Crystal Decisions\2.0\bin

#### TO DOWNLOAD THE XML SCHEMA:

- 1 In the control bar, under Admin, click School Setup.
- 2 On the School Setup page, under Reports, click “Customize Pre-4.2 School Reports”.
- 3 On the Customize School Reports page, In the “To create a new report” section, under Step 1, click Download schema.
- 4 In the Save As dialog, navigate to the folder where you want to save the file, and then click Save.
- 5 If the Download Complete dialog displays, wait until it says “Download Complete,” and then click Close.

## Step 2: Create the Report

- 1 Start a report and connect it to the XML Schema.
- 2 Select tables with the data you want.
- 3 Link the tables.
- 4 Add fields to the report.
- 5 Group information and add summaries.
- 6 Add filters.
- 7 Complete the formatting.
- 8 Save and close the report.

See “Creating Custom Reports (XML Schema)” on page 80.

## Step 3: Add the Report to Chancery SMS

- 1 Log on as a school administrator.
- 2 On the control bar, under Admin, click School Setup.
- 3 On the School Setup page, under Reports, click “Customize Pre-4.2 Reports”.
- 4 On the Customize School Reports page, in the “To create a new report” section, click School Report List.
- 5 On the School Report List page, from the Actions menu, click Add Custom Report.
- 6 On the Edit Report page, in the General area, specify the following information:

Field	Note
Report Name	Enter the name of the report. This is the name that displays in the report list.
Description	Enter a description of the report for internal purposes.
Category	Select a category from the dropdown, or click New and enter a new category name. The category groups similar reports together, in the report list.


- 7 In the Report File area, click Browse, navigate to the report that you want to add, and click Open.

Report File

\*New report file (.rpt):

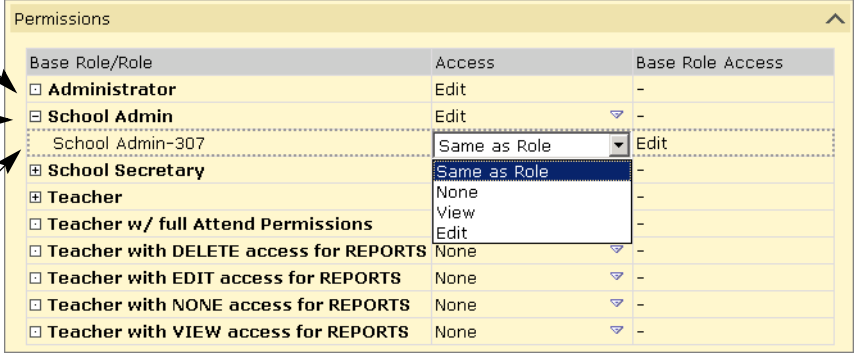


- In the Permissions area, identify the base roles and roles that can Delete, Edit, or View the report.


Click  to view the roles in a base role.

Set the permissions for a base role.

Set the permissions for a role.



Base Role/Role	Access	Base Role Access
<input type="checkbox"/> Administrator	Edit	-
<input type="checkbox"/> School Admin	Edit	-
<input type="checkbox"/> School Admin-307	Same as Role	Edit
<input type="checkbox"/> School Secretary	Same as Role	-
<input type="checkbox"/> Teacher	None	-
<input type="checkbox"/> Teacher w/ full Attend Permissions	View	-
<input type="checkbox"/> Teacher with DELETE access for REPORTS	None	-
<input type="checkbox"/> Teacher with EDIT access for REPORTS	None	-
<input type="checkbox"/> Teacher with NONE access for REPORTS	None	-
<input type="checkbox"/> Teacher with VIEW access for REPORTS	None	-

You can specify access for each base role or for the roles within it. Click  to display the roles in the base role.

- Click OK.

## Step 4: Test Run the Report in Chancery SMS

Once you have created a custom report, you should perform a test run of the report using various filters and user IDs to ensure that the appropriate data is returned. All school reports are run in Chancery SMS.

- In the control bar, under School, click Reports.
- On the School Reports page, click the name of the report.
- Click Preview.

When the report is ready, it generates in PDF format in a Web browser window.

- Print or save the report, and then close the browser window.

## Modifying Custom Reports (XML Schema)

To customize any reports that you have already created using the XML Schema, download the report, modify it using Crystal Reports, and then add the revised report back into Chancery SMS.

You can repeatedly modify a report. For example, after you add a modified report to Chancery SMS, you can download it and modify it further.

Later, if you want to remove the modified report, you can revert to the original report. For more general information about Crystal Reports, see “Working with Crystal Reports” on page 79.

**Note**

You must always customize an existing report by downloading and modifying it. You cannot create a new report and add it to Chancery SMS in place of a built-in report.

**Step 1: Download the Report**

- 1 In the control bar, under Admin, click School Setup.
- 2 On the School Setup page, under Reports, click “Customize Pre-4.2 School Reports”.
- 3 On the Customize School Reports page, in the “To create a new report” section, under Step 1, click Download schema.
- 4 In the Save As dialog, navigate to the folder where you want to save the file, and then click Save.
- 5 If the Download Complete dialog displays, wait until it says “Download Complete,” and then click Close.
- 6 Under Step 3, click School Report List.
- 7 On the School Report List page, select the report. From the Actions menu, click Edit Custom Report.

OR

Click the report name.

- 8 On the Edit Report page, in the Report File section, click Download next to the report file.

**Note**

If the built-in report has already been customized, there will be two files from which to choose, the original built-in report and the customized version. Ensure that you select the correct version for your purposes.

- 9 In the File Download dialog, click Save.
- 10 In the Save As dialog, navigate to the folder where you want to save the file, and then click Save.
- 11 If the Download Complete dialog displays, wait until it says “Download Complete,” and then click Close.

**Step 2: Customize the Report**

- 1 Open the report in Crystal Reports.
- 2 Modify the report.

See “Modifying Custom School Reports (XML Schema)” on page 85.

### Step 3: Add the Modified Report to Chancery SMS

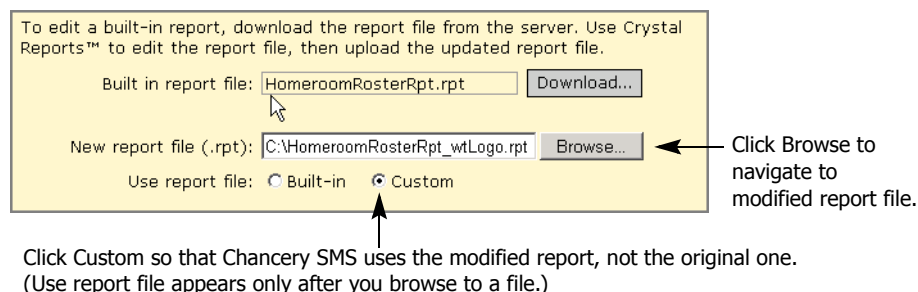
Now that you have modified the report, add it to Chancery SMS so that it will be used in place of the original report.

- 1 In the control bar, under Admin, click School Setup.
- 2 On the School Setup page, under Reports, click “Customize Pre-4.2 School Reports”.
- 3 On the Customize District Reports page, in the “To modify a built-in report” section, click School Report List.
- 4 On the School Report List page, select the report. From the Actions menu, click Edit Custom Report.

OR

Click the report name.

- 5 On the Edit Report page, in the Report File area, click Browse, navigate to the customized report, and click Open.



- 6 Ensure that “Use report file” is set to Custom so that Chancery SMS uses your customized report, rather than the original report.
- 7 In the Permissions Area, you can specify permissions for the base roles or roles. Click **+** to display the roles in the base role.
- 8 Click OK.

## Reverting to an Original Report

If you have modified a report using the XML Schema and added it to Chancery SMS, you can later choose to stop using the modified report and start using the original report again.

When you revert to the original report, the modified report remains on the Chancery SMS database server unless you remove it. The modified report is not used in Chancery SMS, but it is available for later use.

- 1 In the control bar, under Admin, click School Setup.
- 2 On the School Setup page, under Reports, click “Customize Pre-4.2 School Reports”.
- 3 On the Customize District Reports page, in the “To modify a built-in report” section, click School Report List.
- 4 On the School Report List page, select the report. From the Actions menu, click Edit Custom Report.

OR

Click the report name.

- 5 On the Edit Report page, under Report File, set “Use report file” to Built-In rather than Custom.
- 6 To remove the modified report from the Chancery SMS database server so that it cannot be used again, click Clear.

To edit a built-in report, download the report file from the server. Use Crystal Reports™ to edit the report file, then upload the updated report file.

Built in report file:

Current custom report file:

Last modified Mar 21, 2003 1:04 PM by Norman Parker

New report file (.rpt):

Use report file:  Built-in  Custom

Click Built-in so that Chancery SMS uses the original report.

To delete the modified report for the Chancery SMS database server, click Clear.

- 7 Click OK.

## Modifying the Permissions of a Report

- 1 In the control bar, under Admin, click School Setup.
- 2 On the School Setup page, under Reports, click “Customize Pre-4.2 School Reports”.
- 3 On the Customize District Reports page, in the “To modify a built-in report” section, click School Report List.
- 4 On the School Report List page, select the report. From the Actions menu, click Edit Custom Report.

OR

Click the report name.

- 5 On the Edit Report page, in the Permissions area, identify the base roles and roles that can Delete, Edit, or View the report.

Click **+** to view the roles in a base role.

Set the permissions for a base role.

Set the permissions for a role.

Base Role/Role	Access	Base Role Access
<input type="checkbox"/> Administrator	Edit	-
<input type="checkbox"/> School Admin	Edit	-
School Admin-307	Same as Role	Edit
<input type="checkbox"/> School Secretary	Same as Role	-
<input type="checkbox"/> Teacher	None	-
<input type="checkbox"/> Teacher w/ full Attend Permissions	View	-
<input type="checkbox"/> Teacher with DELETE access for REPORTS	None	-
<input type="checkbox"/> Teacher with EDIT access for REPORTS	None	-
<input type="checkbox"/> Teacher with NONE access for REPORTS	None	-
<input type="checkbox"/> Teacher with VIEW access for REPORTS	None	-

You can specify access for each base role or for the roles within it. Click **+** to display the roles in the base role.

- 6 Click OK.

## Deleting Custom Reports

You can delete custom reports from Chancery SMS, assuming that your user account has Delete permissions for that report.

Deleting a report means that it's no longer available for users to run, and it is no longer on the Chancery SMS database server.

- 1 In the control bar, under Admin, click School Setup.
- 2 On the School Setup page, under Reports, click "Customize Pre-4.2 School Reports".
- 3 On the Customize District Reports page, in the "To modify a built-in report" section, click School Report List.
- 4 On the School Report List page, select the report. From the Actions menu, click Delete Custom Report.

## Working with Crystal Reports

With Crystal Reports, you can create many types of reports with varying levels of complexity.

Rather than repeating all of the information that is available in the Crystal Reports Online Help, this section summarizes how to create and modify a school report using the XML Schema.

For more information, consider taking a Chancery training course on reporting. Call us toll free at 1-800-999-9931 or see the Training area of our Support web site at <http://support.chancery.com> for an up-to-date list of scheduled courses.

## Creating Custom Reports (XML Schema)

The recommended method for creating new reports is using the data access views. However, the XML Schema is still supported, if you prefer.

You can create custom reports in Crystal Reports in different ways. Start by using the Standard Report Wizard so that you get familiar with the steps involved in creating a new report. Later, you can also choose to create a blank report and add all of the fields manually, or you can use one of the other wizards.



### Note

Do not use the OLAP Wizard, which is suited to a different kind of database.

To illustrate the process, the following steps outline how to use the Standard Report Wizard to create a sample report that:

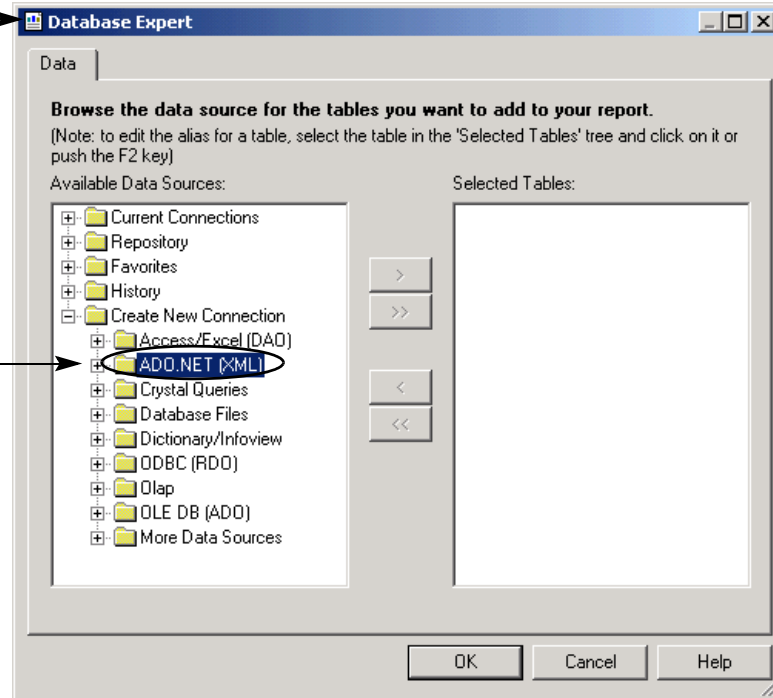
- lists all students in a school
- provides the following details about each one: last name, first name, birthdate, and gender
- groups the students based on gender

### Step 1: Start a Report and Connect It to the XML Schema

- 1 Start Crystal Reports 9.
- 2 In the Welcome to Crystal Reports dialog, click “Using the Report Wizard”, and then click OK.  
  
OR  
  
From the File menu, click New.
- 3 In the Crystal Reports Gallery dialog, under Choose a Wizard list, select Standard, and click OK.
- 4 In the Standard Report Creation Wizard dialog, under Available Data Sources, click  next to Create New Connection, and then click  next to ADO.NET (XML).

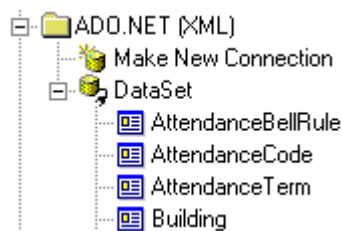
The title and appearance of this dialog depends on whether you are working with a blank report or one of the wizards.

Use the ADO.NET (XML) data source to create custom reports using the XML Schema.



- 5 In the ADO.NET (XML) dialog, click the browse button to the right of the XML File Path field.
- 6 In the Open dialog, navigate to the location of the XML Schema file you downloaded. Select the file and click Open.
- 7 Click Finish.

The Available Data Sources list now shows the database to which you are connected.



## Step 2: Select Tables with the Data You Want

- 1 Double-click the tables you want to use for the report.

For the sample report, select the following tables:

School
SchoolStudent

**2** Click Next.

The dialog displays a Links tab that shows a diagram of the tables you chose and the fields they share.

**Step 3: Link the Views**

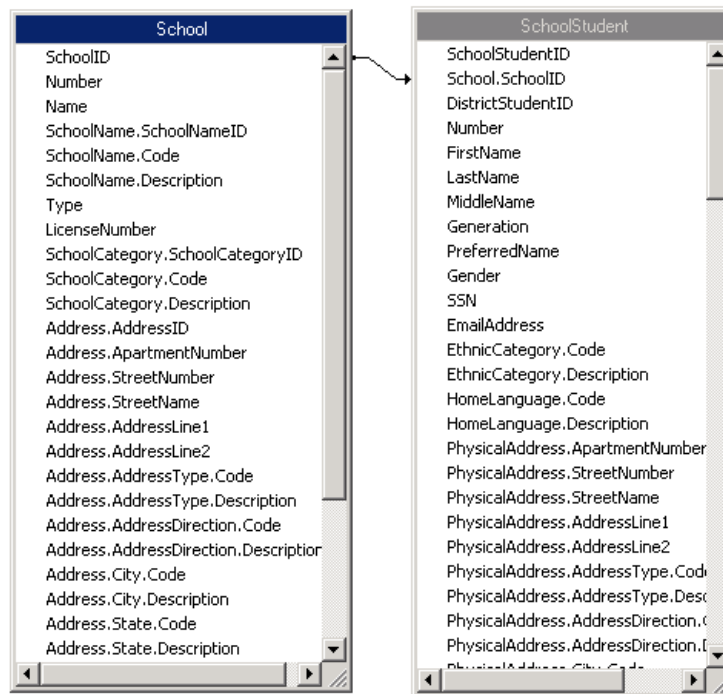
**Note**

The links that Crystal Reports creates automatically are usually more complex than most reports require. It is a good idea to get into the habit of clearing the existing links and setting up your own links as required.

- 1** Click Clear Links. Click OK to confirm.
- 2** Arrange the tables so that you can work with them more easily:
  - Resize the dialog so that you can see all of the tables.
  - Resize each table so that you can see all of the fields in it.
- 3** Link the tables by dragging a field in one table to the field of the same name in another table, depending on the type of information you want.

For the sample report, ensure the following links exist:

Drag this field	To this field
SchoolID in School	School.SchoolID in SchoolStudents



**4** Click Next.



## Step 4: Add Fields to the Report

- 1 On the Fields page, under Available Fields, expand the tables, and double-click the fields that you want displayed on the report.

Under Fields To Display, the fields are shown in alphabetical order in the format `TableName.FieldName`.

For the sample report, from the SchoolStudent table, double-click the following fields:

- BirthDate
- FirstName
- Gender
- LastName

- 2 Under Fields To Display, change the order of the fields by clicking a field and then clicking the arrows to move it up or down.

In the final report, items in the Fields to Display list are displayed as columns from left to right. The higher an item is in the Fields to Display list, the further left it appears in the final report.

For the sample report, re-order the fields as follows:

SchoolStudent.LastName
SchoolStudent.FirstName
SchoolStudent.BirthDate
SchoolStudent.Gender



- 3 Click Next.


## Step 5: Group Information and Add Summaries

Grouping data in a report allows you to summarize your data in meaningful ways.

- 1 On the Grouping page, under Available Fields, under Report Fields, double-click the fields that you want to group data by.

For the sample report, in the SchoolStudent table, double-click Gender.



- 2 Click Next.
- 3 On the Summaries page, under Available Fields, double-click any fields you want to summarize. Under Summarized Fields, for each summary indicated by , click the summary, and then select the summary type from the dropdown under Summarized Fields. For the sample report, do not use this feature.
- 4 Click Next.
- 5 On the Group Sorting page, sort items as required. For the sample report, do not use this feature.
- 6 Click Next.
- 7 On the Chart page, add a chart if required. For the sample report, do not use this feature.
- 8 Click Next.

### Step 6: Add Filters

- 1 On the Record Selection page, under Available Fields, double-click a field that you want to filter data on. In the dropdowns under the Filter Fields area, select a comparison method, and then select a value (if required). For the sample report, do not use this feature.
- 2 Click Finished.

### Step 7: Complete the Formatting

- 1 Click the Design tab.

Report Header	
Page Header	Print Date
	Description      LastName      FirstName      BirthDate      Gender
Group Header #1: DA_FederalEthnicCategory	Group #1 Name
Details	Description      LastName      FirstName      BirthDate      Gender
Group Footer #1: DA_FederalEthnicCategory	FederalEthnicCategory.Description      Group #1 Name
Report Footer	Grand Total:      FederalEthnicCategory.Description
Page Footer	Page Number







- 2** Format the report by:
    - adding special fields, such as print date
    - adding text objects, such as a title
    - formatting text in fields and text objects
    - moving, resizing, or deleting fields and text objects
- For more information, see “Formatting” on page 39.
- 3** Save and close the report.

## **Modifying Custom School Reports (XML Schema)**

If you have already created a custom report that you now wish to customize further, you must first download the XML schema from the Customize School Reports page in Chancery SMS.

- 1** Start Crystal Reports 9.
- 2** In the Welcome to Crystal Reports dialog, click “Open an Existing Report”, and then click OK.  
  
OR  
  
From the File menu, click Open.
- 3** In the Open dialog, navigate to the report that you want to modify, and click Open.

**4** Do any of the following:

To	Do this
Add a view	<ol style="list-style-type: none"> <li><b>1</b> Click the Database Expert.</li> <li><b>2</b> Under Available Data Sources, click  next to Create New Connection, and then click  next to ADO.NET (XML). If ADO.NET (XML) is not listed, the Crystal Reports DLL is not installed. See “Step 1: Preparation” on page 73.</li> <li><b>3</b> In the ADO.NET (XML) dialog, click the browse  button, navigate to the XML file you downloaded and select it. Leave Use Visual Studio Data Class cleared. Click Finish.</li> <li><b>4</b> Under ADO.NET (XML), under the server name, click  next to the database name.</li> <li><b>5</b> Click  next to Tables.</li> <li><b>6</b> Under Available Data Sources, double-click the appropriate tables.</li> <li><b>7</b> Click Next.</li> <li><b>8</b> On the Link page, ensure the appropriate links exist. If the links are incorrect or missing, click Clear Links, and create the links by dragging a field from one table to the corresponding field in the other table.</li> <li><b>9</b> Click Next.</li> </ol>
Add a field	<ol style="list-style-type: none"> <li><b>1</b> In the Field Explorer window, click  next to Database Fields and open the appropriate table.</li> <li><b>2</b> Click and drag the appropriate fields to the Design window.</li> </ol>
Group information and add summaries	<ol style="list-style-type: none"> <li><b>1</b> From the Report menu, click Group Expert.</li> <li><b>2</b> On the Group Expert page, under Available Fields, double-click the appropriate field.</li> <li><b>3</b> Click OK.</li> </ol>
Add Summaries	<ol style="list-style-type: none"> <li><b>1</b> From the Insert menu, click Summary.</li> <li><b>2</b> On the Insert Summary page, in the “Choose the field to summarize” field, select the appropriate field.</li> <li><b>3</b> In the Calculate this summary field, select the summary type.</li> <li><b>4</b> In the Summary location field, select the location for the summary.</li> <li><b>5</b> Click OK.</li> </ol>
Add Filters	<ol style="list-style-type: none"> <li><b>1</b> From the Report menu, click Select Expert.</li> <li><b>2</b> On the Select Expert page, under Available Fields, in the appropriate table, double-click the appropriate field.</li> <li><b>3</b> Select an operator from the dropdown under the Filter Fields area, click the operator.</li> <li><b>4</b> In the associated field, enter or select a value.</li> <li><b>5</b> Click OK.</li> </ol>
Change the formatting	See “Formatting” on page 39.

**5** Save and close the report.

# INDEX

## A

aliased views 23

## B

base object IDs 11

## C

Chancery SMS filters 15, 46

Clear Links 27

connecting 25

connections 23

    aliased views 23

    directional links 23

    intersection views 23

    QUIDs 25

    reference IDs 23

Crystal report filters 16

## D

Data Access Layer 7

Data Access View Generator 8

data ownership 14

database

    logical model 6

    physical model 6

database models 5

database tables 54

date formats 39

deleting items 41

directional links 23

documentation, included 2

dynamic properties 9

dynamic properties filters 16

dynamic reference IDs 10

## F

fields

    adding to reports 29

    sorting 29

filters 15

    adding to reports 33

    Chancery SMS filters 15, 46

    Crystal Reports filters 16

    dynamic properties 16

    role-level security 15

## G

getting training 3

grids 41

groups

    adding to reports 30

## I

inner joins 21

intersection views 9, 23

## J

joins 21

    inner 21

    left outer 22

    link types 22

    right outer 22

## L

left outer joins 22

link types 22

## M

Mac School compatibility 5

Macintosh, customizing reports 5

margins 41

metadata 6

moving items 41

## O

object hierarchy 14

OLE DB (ADO) 25

owner object IDs 11

## P

page numbers

    adding to reports 39

permissions 1

prerequisites 1

providing feedback 3

## Q

Query ID connections 25

Query IDs 11

QUID connections 25

QUIDs 11

## R

reference IDs 10, 23

report building help 17

report building rules 16

report extensibility 18, 43

report mapping 13

    data ownership 14

    object hierarchy 14

    root view 13

- report validation 21, 45
- reporting framework 7
- resizing items 41
- right outer joins 22
- role-level security 15
- root schema 13
- root view 13
- rules 16

## **S**

- snap to grid 41
- software updates 4
- special fields 39
- subreports
  - adding to reports 34
- summaries
  - adding to reports 30
- support web site 4

## **T**

- technical support 4
- text objects
  - adding to reports 40
  - formatting 40
  - revising 40
- time formats 39

## **U**

- uploading reports 43, 44

## **V**

- validating reports 21, 45
- views 8

## **W**

- Win School compatibility 5

## **X**

- XML schema 71