



CREATING CRYSTAL REPORTS FOR TS.CENSUS – SQL

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Overview

The open database schema included with TS.Census presents an opportunity to create custom reports. These reports may be run outside of the TS.Census application or imported into the TS.Census database and shared through the TS.Census Manager.

At first glance, the TS.Census database may seem rather complicated. In fact, inventory data is stored in a relatively small subset of the tables and building reports is really quite straight forward.

This document provides a brief overview of the important tables, links and filtering techniques necessary to start building reports for the TS.Census database. It also covers special formatting required to allow your reports to be imported into the TS.Census Manager.

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1.2. NOTES ON CREATING REPORTS

The TS.Census database structure is completely documented in Appendix D of the *TS.Census User's Guide*. Over 60 tables are described in detail. In addition, the database schema is displayed graphically in a Visio 2000 document (Database Schema 2.2.vsd) in the Documentation folder on your implementation CD. This schema is also available from Tally Systems in poster form.

Our favored product for external report creation is Crystal Reports. It combines power and flexibility with a relatively easy interface.

1.2.1. Crystal Reports and the TS.Census Database

Here are a few hints we have discovered while creating custom reports for TS.Census using Crystal Reports. (We'll appreciate any interesting tidbits you come up with while building your own reports.)

- The most useful tables to look at are:

NC_User	Data from the User tab
NC_Workstation	Data from the Workstation tab
NC_CollServer	Information about Collection Servers
NC_CollDomain	Information about Collection Domains
NC_Component	Hardware and software component information
NC_Product	Material on component manufacturers and product names
NC_ProductCategory	Classification information
NC_Category	Classification information

Note: Extended Properties for components are available from the appropriate table (including NC_CPU, NC_BIOS, NC_Software, and NC_System). Link to NC_Component on ComponentOID.

- After adding tables to a Crystal report, Crystal tries to be clever and create links between fields in the tables. We've found that this process creates too many links, and may cloud many simple issues. We suggest that you delete all Crystal links and build your own. Appropriate links include fields such as:

CollServerOID	ID for Collection Servers
ComponentOID	ID for hardware and software components
ProductOID	ID for product descriptions
UserOID	The unique ID identifying each user
WorkstationOID	ID unique to each workstation

The table below lists a number of common links between tables that are regularly used in custom reports:

From (table name)	To (table name)	Linking Field(s)
NC_Workstation	NC_User	PrimaryUserOID → UserOID
NC_Workstation	NC_CollServer	CollServerOID
NC_Workstation	NC_CollDomain	DomainID → CollDomainID
NC_Workstation	NC_Component	WorkstationOID
NC_Component	NC_Product	ProductAlias → ProductOID
NC_Product	NC_ProductCategory	ProductCategoryOID
NC_ProductCategory	NC_Category	CategoryOID

1.2.2. Selecting and Filtering Data

In several cases, you'll find it useful to set some default filters or selection criteria in your reports so that you're report-specific selections will be starting with the proper data set.

- The NC_Workstation and NC_Component tables include a field named IsDeleted. IsDeleted is set to Null by default. Whenever a workstation or component record is deleted from the database, the IsDeleted value is set to the date/time when the deletion took place. Therefore, in order to report on current inventory records, you must set a filter to eliminate deleted records:

```
IsNull { NC_Workstation.IsDeleted }  
IsNull { NC_Component.IsDeleted }
```

- The NC_Workstation field InventoryType is very useful for distinguishing between the various types of workstation records available in a TS.Census database. The possible values for this field are as follows:

	Type	Description
0	Workstation	– completed TS.Census scans
1	Server	– a Novell server scanned through a TS.Census Manager
2	Stockroom	
3	Lost and Found	– contains components with a serial number or asset tag that are no longer associated with a workstation scan
4	Portable	– data created by a Portable Collector
5	NetCensus	– a record migrated from a NetCensus database or loaded directly from a NetCensus data file
6	Manually-Entered Workstation	
7	Not-yet-scanned	– the workstation has registered with the TS.Census database, but an initial scan has not completed
8	Unix workstation	

Unless you are specifically interested in missing components that have been moved into the Lost and Found record, you'll want to filter out the Lost and Found:

```
NC_Workstation.InventoryType <> 3
```

- When working with component reports, you'll need to filter on specific types of components using the ProductType field in the NC_Component table. (The ProductType field in the NC_Component and NC_Product tables mirrors the CategoryType field in the NC_Category table.) In addition, you may want to pull in some of the extended data fields from the auxiliary tables associated with each component type. Here is a list of the component types and their associated auxiliary tables.

Type	Component Type	Auxiliary Table
1	BIOS	NC_BIOS
2	CPU	NC_CPU
3	CD/DVD Drive	NC_CDROM,
	NC_Disk, NC_LogicalDrive	
4	DMI	NC_DMI
5	Diskette Drive	NC_Floppy
6	Hard Disk	NC_Disk,
	NC_LogicalDrive	
7	Keyboard	NC_Keyboard
8	LAN Adapter	NC_LANAdapter
9	Memory Module	
	NC_MemoryModule	
10	Modem	NC_Modem
11	Monitor	NC_Monitor
12	Mouse	NC_Mouse
13	Network Driver	
	NC_NetworkDriver	
14	Operating System	
	NC_OperatingSystem	
15	Parallel Port	NC_ParallelPort
16	Partition	NC_Disk,
	NC_LogicalDrive	
17	Printer	NC_Printer
18	BUS Adapter	N/A
19	Serial Port	NC_SerialPort
20	Sound Card	N/A
21	Software	NC_Software
22	System	NC_System
23	System Board	
	NC_SystemBoard	
24	Video Adapter	
	NC_VideoAdapter	
25	Removable Media	NC_Disk,
	NC_LogicalDrive	
26	Other	N/A
29	Hot Fix	NC_HotFix
30	USB Port	N/A
31	Docking Station	N/A

- Appendix D in the *TS.Census User's Guide* includes other lists of categorizations that may be useful for selecting and filtering data.

1.2.3. Categories and Subcategories

Every product in a TS.Census inventory is organized into a Product/Component Type (see above), a category, and a subcategory. This provides an underlying structure with which reports can be organized. Unfortunately, the text names of the TS.Census categories and subcategories are not exactly stored in places that are immediately obvious.

- As noted earlier in this section, the NC_ProductCategory table links to NC_Product on ProductCategoryOID. In NC_ProductCategory you'll find the field ProductCategoryName, which contains the *subcategory* text.
- NC_ProductCategory links to NC_Category on CategoryOID. In NC_Category, the field CategoryName contains the text for the *category* name.

Here is a summary of where to go to find the different parts of the product categorization:

Categorization	Field Name in TS.Census Database (TableName.FieldName)
Product Type	NC_Category.CategoryType or NC_Product.ProductType
Category	NC_Category.CategoryName
Subcategory	NC_ProductCategory.ProductCategoryName

1.2.4.Creating Crystal Reports for Import into TS.Census 2.x

We noted above that we use Crystal Reports as our reporting tool of choice. The TS.Census Manager incorporates a Crystal Reports version 8.5 runtime engine, so any version of Crystal up through the 8.5 variants ought to work nicely. (You may not be able to use all of the features in Crystal Reports 9 and have them work in imported reports.)

Tally Systems provides sample templates to help you get started with creating custom reports that may be imported into the TS.Census Manager. The files `portrait.rpt` and `landscape.rpt` may be found in the `Bin\Reports` folder of any TS.Census Manager installation. These Crystal templates and more information on how to use them are described in the section “Creating a Custom Report” in the *TS.Census User’s Guide*.

TS.Census version 2.2 incorporates a feature that allows you to include a corporate logo in reports. What this means to the creator of custom reports is that certain new constraints must be followed in your Crystal reports, regardless of whether or not you want to include a logo. (See “Changing Report Header Page and Footer Page Options” in the *TS.Census User’s Guide* for information on how to replace the Tally Systems logo in reports.)

Reports to be used with the TS.Census 2.2 Manager must include the following sections:

- A Report Header section containing a “rule” of any size or color. The TS.Census report engine will insert the Tally Systems logo (or the current contents of `Logo.bmp` from the standard TS.Census report templates folder) into the report output just above this rule. The logo occupies a space about 0.5 inches high by 2 inches wide. Other design items may be included in the Report Header section, but should stay clear of this reserved logo area.
- A “Page Header a” section above any other Page Header sections. This section may be blank and suppressed. If not blank and/or suppressed, a Tally Systems logo (or the current contents of `Logo.bmp` from the standard TS.Census report templates folder) will be displayed in this section. So yes, you could end up with two logo insertions.

Note that the standard templates noted above include these features for your reference. Also, if you do not want any logo to be displayed anywhere, you may either delete the `Logo.bmp` file or save an empty file over the contents of `Logo.bmp`.

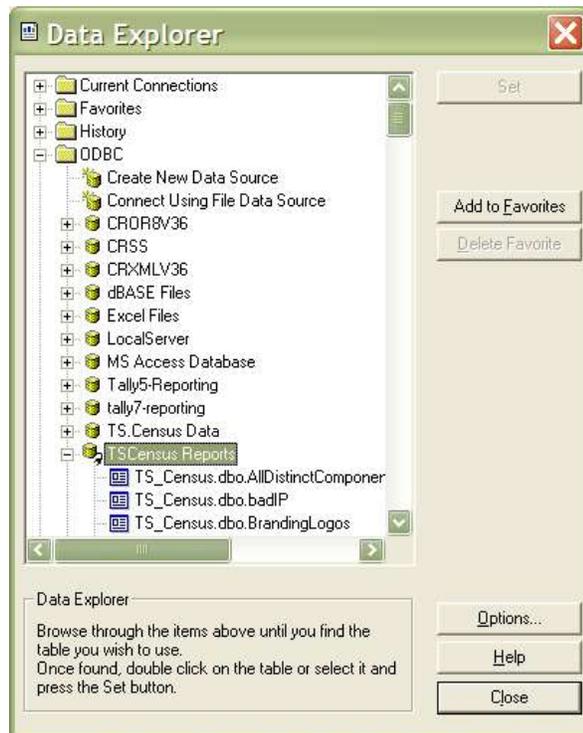
Finally, strictly speaking, reports to be imported may not use embedded subreports. Actually, you may use subreports, but only if you are using the default SQL ODBC DSN – TSCensus Reports – for all

Managers that will use the imported reports. Also, you must either create the report and subreports using the default DSN, or manually change the DSN to the default prior to import.

1.2.5.ODBC Data Source Names – SQL

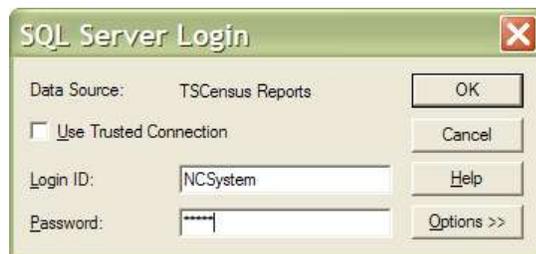
Crystal Reports requires ODBC access to the TS.Census database. If your workstation is used for TS.Census administration via the Manager application, the necessary System DSN (Data Source Name) has already been created during the Manager installation. When creating a Crystal report, you will be asked to “point” Crystal at the TS.Census database by way of a Data Explorer. (This process may also be required if you are opening an existing Tally Systems report template at your site for the first time.)

Figure 1 – ODBC Data Explorer: TSCensus Reports DSN for SQL



You may be asked to enter a login ID and password corresponding to an existing network user account. While you may use the TS.Census DBO user account, it may be preferable to create a separate account for purposes of reporting.

Figure 2 – SQL Database Login



If you do not have an existing ODBC DSN at your workstation, you will need to create one in order to access the TS.Census database with Crystal Reports. The process for creating a DSN varies for each operating system, but generally is accomplished through the use of a wizard provided through the Control Panel area. For example, in Windows 2000 Professional, the steps would be as follows:

1. Open the Administrative Tools Control Panel and then select Data Sources (ODBC). Existing DSNs are listed on the System DSN tab.
2. To add a new DSN, click on the Add button.
3. Select SQL Server from the list presented and click on Finish. This launches the DSN configuration wizard.
4. Select a name for your DSN and provide a description of the purpose for this DSN. Then select a SQL server from the list and click the Next button.
5. Select NT or SQL authentication (generally SQL authentication works best). Provide a login ID and password corresponding to an existing TS.Census SQL database account. (While you may use the TS.Census DBO user account, it is preferred that a separate SQL account be created for purposes of reporting.) Click Next.
6. At the top of the next dialog, click in the check box next to "Change the default database to:" and select your TS.Census database from the list provided. Click Next.
7. At the last dialog, no changes are required and you may click Finish. Your new DSN will then be created and configured and may be used from Crystal Reports.