

Jet Reports Help

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Welcome to Jet Reports

Congratulations on using Jet Reports, which you can use to create any report, any way, right now. If you need help installing Jet Reports, see the Install and Setup Track under Startup and Settings. You can use the "Filter my help for:" drop-down list to see help specifically tailored to your database.

If you are new to using Jet Reports, you might want to follow the Jet Tutorial which will guide you on a tour through some of Jet's most useful features. If you have used Jet Reports before, please check out the What's New topic to see the great new additions we've made to the latest version. If you need support, you can post a support request on our support website by going to <http://www.jetreports.com> and clicking the Support tab.

Good luck and welcome to Jet Reports!

About Jet Reports

What is Jet Reports?

Jet Report is a Microsoft Excel Add-in that integrates Excel with any database that has an OLE or ODBC driver available so you can create reports with simple worksheet functions. Instead of printing a report and re-entering data into worksheets, you can enter formulas that read directly from your database and refresh the data right in Excel.

Jet Reports adds four functions to Excel: NL, NF, NP and GL. The NL allows you to retrieve any field from any record in any table. You can set up to ten filters to define which record(s) you want.

The NF Function is a shortcut. You can define which record you want with the NL function and then you can retrieve multiple fields from that record with the NF function. By using the NF function, you do not have to retype all the filters for each field you want to retrieve.

The NP function is a utility function which allows you to do certain tasks to speed up your reports or make them more convenient. You can use NP to create date filters, evaluate formulas or do array operations, among other things.

The GL function combines multiple NL functions to make General Ledger reporting even easier for Navision and Great Plains users. The GL function is not available in Jet Reports Universal.

Prerequisite Knowledge

To use Jet Reports you should have at least a basic understanding of both Microsoft Excel and your database (be it Navision, Great Plains, or some other database). You should also understand how to use worksheet formulas and have some experience building Excel worksheets.

Startup and Configuration

Installing Jet Reports

Quick Installation Guide

The following steps are covered in greater detail in the Installation Track.

1. Download the Jet Reports installer (*.exe) from the support section of <http://www.jetreports.com>.
2. Copy your Jet license file (*.jlf) from the email sent to you into the same folder where you downloaded the Jet Reports installation file.
3. Run the Jet Reports installation file you just downloaded.
4. The activation wizard should start upon completion of the installation.
 1. You must be an administrator in order to use the activation wizard. If you are not an administrator, you will have to manually activate Jet Reports.
5. If your name appears as a designer in the Jet Reports license file, check your user name in Excel to make sure it matches the Jet license file exactly. The Excel user name is found in Excel Options/Popular in Excel 2007 and Options/General in earlier versions.
6. Select Jet/Settings and select Browse next to the Jet license folder. Browse to the directory where your Jet license file is located and click OK.
7. If you are using Navision:
 1. Verify that your current Navision license file is present in your client directory and is named fin.flf.
 2. Verify that you have a version of C/Front installed that matches your Navision version.
8. If you are using Great Plains:
 1. If you want to use Jet Reports Friendly table/field Names or Jet Views, verify that a database administrator has run the "JetGPUUpdate.exe" utility in the Jet Reports\Great Plains folder.
9. If you are using any other database type (i.e. FoxPro, SQL Server, Oracle, etc):
 1. Determine if there is an OLE driver written specifically for your database and install it.
 2. If you are using a MS SQL Server based database, the OLE driver for MS SQL Server is already installed.
 3. If there are no OLE drivers available, locate and install an ODBC driver for your database.
10. When installing Jet Reports for the first time, you will need to configure a connection between Jet Reports and your database by selecting Jet/Data Sources.
 1. If you are using Navision, see the topic on Finding Navision Configuration Information.
 2. If you are using Great Plains, see the topic on Finding Great Plains Configuration Information.

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3. If you are using any other database type (i.e. FoxPro, SQL Server, Oracle, etc.), you will have to configure it manually. Open Excel, select Jet/Data Sources. Select File/New, type a name, and select Universal under Type. Select the Properties button. See Configuring the Data Link Properties for more information.
11. If you need to make any changes to your data source, in Excel click the Jet/Data Sources and make any changes. See the Data Sources topic for more information.
12. Check your Jet menu or ribbon in Excel and confirm that you have a designer or viewer menu as appropriate.
13. Browse through the new Jet Reports HTML Help system which is accessible in Excel from Jet/Help.
14. Enjoy using Jet Reports!

Prerequisites

All Users

The Microsoft .NET Framework 2.0 must be installed. This can be downloaded and installed via Microsoft Windows Update. If you don't have it installed, the Jet Reports installer will install it for you.

Navision Users

Before you can use Jet Reports with Navision, you must have the following software installed.

- Excel XP or later.
- The Navision Client with executable version 4.0 Service Pack 1 or later.
- Navision C/FRONT.
- Windows 2000 or later.

You must install a Navision client and we recommend Navision C/FRONT, which is included in the SDK. Ideally, you should install exactly the same version of C/FRONT as your Navision server and client. Since Navision often releases minor version changes, the best way to insure you have the same version is to use the same CD for C/FRONT that you used to install the rest of your Navision software.

A Navision License file that permits C/FRONT must be saved as FIN.FLF in the Navision Client program folder. This is the same folder in which you find Fin.EXE. You must copy the Navision License file to each workstation that will run Jet Reports. This is a requirement of C/FRONT, not the Navision Client so if you do not copy the license file to each machine, Jet Reports will not be able to connect to the database even if the Navision Client works perfectly.

If you want to use the drilldown feature of Jet Reports, you may need to update the drilldown forms as explained in Updating Navision Drilldown Forms. To use drilldown, both Jet Reports and the Navision client must connect to a database server. Both the

Navision and the SQL server options are supported. The drilldown feature is not compatible with local databases so if you try to use drilldown while connected to a local database, you may experience problems.

Review Navision Security

To use Jet Reports, a user must have cross company permissions to read the Company table, execute permission for C/FRONT and read permission for the tables the user is allowed to include in reports. Users with C/FRONT execute permission can see all fields in the tables to which they have been granted read permission. Field level security is not available when a user is granted both read permission on a table and execute permission for C/FRONT. It is very helpful to grant Jet Reports users the execute permission for Tools/Zoom so they can see all field values inside Navision.

Configuring Navision Security

If you do not have the appropriate permissions to read the Company table, you will receive the message, "You do not have permissions to read the company table in Navision..." when you try to test your connection in Jet Reports. To use Jet Reports, a user needs a role with no company defined that gives them read permission to the Company table. If a user does not have such a role assigned to them with no company defined, then you will need to create this role. The role must have read permission for both the Table and Table Data for the Company table. You must add this role with no Company defined for any user who needs to use Jet Reports. This will not grant any additional privileges to the user. In order to create this new role and assign it to users you must be a Super user.

Great Plains and Universal Users

Before you can use Jet Reports with a Universal Connector, you must have the following software installed.

- Excel XP or later.
- Windows 2000 or later.
- Microsoft Dynamics GP version 8 or later.
- The OLE or ODBC software for your database. Jet Reports will run faster using OLE drivers than ODBC drivers so we recommend that you search for an OLE driver even if you already have an ODBC driver installed. For database installations that use MS SQL Server (including Great Plains), your computer already has an OLE driver for MS SQL Server available.
- If you want to use Friendly Names or Jet Views in Great Plains, someone with database administrator privileges should run the "Jet GP Updater.exe" program located in the Jet Reports program folder. This operation is detailed in Installing Friendly Table/Field Names and Views in GP.

Review Great Plains Security

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To use Jet Reports with Great Plains, a user needs a login to the Great Plains database server with read permissions for both the company database(s) and the DYNAMICS database. Great Plains can be configured in a number of different ways. In some cases, a user's login to the Great Plains application may also be a valid login to the database server. In other cases, the application login may map to an entirely different database login or to a Windows login. Any Great Plains user who needs to use Jet Reports will need to be given a login or have permissions assigned to their Windows login for their GP database server that includes read information for both the company database(s) and the DYNAMICS database.

Installing Jet Reports

The Jet Reports installation files can be found in the Downloads area on <http://support.jetreports.com>.

Upgrading from Prior Versions of Jet Reports

Before installing Jet Reports, you should uninstall all previous Jet Reports version, including any beta versions (if applicable).

If you have already installed the current version of Jet Reports, but did not uninstall previous versions and encounter any problems, simply uninstall all versions (including the current version) and then reinstall the current version.

Silent installation

You can install Jet Reports with no user interaction at all. This feature is primarily useful when creating automated installation scripts. The command line syntax for a silent installation is as follows:

```
<Installer.exe> /L<LCID> /v /qn
```

Replace <Installer.exe> with the Jet Reports installation file. Replace <LCID> with the language code from the table of supported languages below. When the above command is executed, Jet Reports will be installed with no user interaction but not activated.

To silently activate Jet Reports for the current user, you can use the Activation Wizard with the -s command line option. The Activation Wizard is JetActivate.exe in the Jet Reports folder.

Languages	LCID
Danish	1030
Dutch	1043
English (United States)	1033

French (France)	1036
German	1031
Japanese	1041
Korean	1042
Slovenian	1060
Spanish	1034
Swedish	1053
Turkish	1055

Jet License Files

When you install Jet Reports, you will have to put your Jet license file in the Jet Reports program folder, or configure Jet Reports to use an alternate location. You can store your Jet License file in a different folder than the Jet program folder, such as a shared network folder, by updating the Jet License Path under Jet/Settings. If you have received your license by email, you should check the extension to make sure that it is .jlf. Some email programs will change the extension of ASCII files to .txt, which will break Jet Reports.

For Navision users, if your Navision license changes, you will also need a new Jet license.

Non-Navision Jet license files have the Jet Reports license number for a filename. The name should end in U and have a ".JLF" extension.

Manually Activating Jet Reports

Excel needs to be configured to recognize Jet Reports as an Add-In. Since Excel stores Add-In configuration by user, if multiple users use the same workstation or server, this step must be done for each user. There are two ways to activate Jet Reports. If you are an user with administrative privileges, you can use the Jet Activation Wizard. This wizard runs automatically after you install Jet or it can be run from the start menu. You can also use Excel to activate Jet Reports manually (especially in Excel 2000 where the automatic activation may not work or if you are a limited user).

To Activate Jet Reports manually do the following.

- Open Excel and go to the Excel Add-Ins (Excel Options/Add-Ins/Go in Excel 2007 or Tools/Add-Ins in earlier versions).
- Click the Browse button and browse to the Jet Reports folder.
- If you are using Excel 2007, double-click the JetReports.xlam file. In earlier Excel versions, double-click the JetReports.xla file.
- If prompted, click Yes to overwrite the file.

- Click OK. You should now see a Jet menu or ribbon.

Configuring Jet Reports

Application Settings

After installation, you must configure Jet Reports. From Excel, use the Jet/Settings menu. The Settings lists options that affect all of Jet Reports, regardless of the data source type.

Jet License File Path

By default, the Jet Reports license file is stored in the Jet Reports program folder. If you want to store the Jet license file somewhere else, you can enter the path in Jet License File Path. If you store the license files on a network shared drive, you wont need to copy Jet license files to each workstation. Navision users still need to copy the Fin.flf file as described in the Prerequisites.

Simulate Viewer Mode

Simulate Viewer Mode temporarily removes design privileges so that a report Designer can test reports before they are distributed to report Viewers.

User Interface Language

Setting the user interface language changes the language in which Jet Reports windows will be displayed. Only languages into which Jet Reports has been translated appear in the list.

Lookup Limits

The Lookup Sample Value Limit controls how many sample values are returned for lookups in the Jet Browser, the Jfx, the Wizards, and Report Options. The Lookup Record Scan Limit controls how many records are scanned in the Jet Browser, the Jfx, the Wizards, and Report Options.

Show Data Source in Toolbar

This enables or disables the Quickswitch feature on the toolbar which lets you see and change the default Data Source/Company on the Jet toolbar.

Auto Debug

When checked, after a report is run, Jet Reports automatically selects the first cell in your report worksheet that contains a #VALUE! and runs the debug function to attempt to give you an error message explaining the source of the #VALUE!. This feature is equivalent to the Jet/Debug menu option except that it happens automatically.

Preserve Page Breaks

When checked, Jet Reports will replicate manual page breaks occurring within a replicator region. This can degrade performance, so unless manual page breaks are necessary, it is recommended that this setting be left unchecked.

Data Source Settings

A data source is a connection to a database. You must define and configure at least one data source in order to use Jet Reports to connect to a database. Depending on the database you use, the settings that Jet needs to connect to it are different.

You use the Data Sources option to define one or more data sources. Use the File/New menu to add a new data source. Use the Edit/Delete menu to delete Data Sources.

When creating a new data source, use Type to specify whether you are connecting to a Navision, Universal, or Great Plains database. If your database was created by any program other than Navision or Great Plains, use the Universal type.

For all data sources, there are buttons next to the Data Sources drop down to set the currently selected data source to be the default data source or to test the connection to the database. Clicking the link next to the colored orb at the bottom of the form displays your Jet Reports license file. Note that this requires you to configure the data source correctly before it will work. The Test Connection button tests your database connection and informs you of your status as a Report Designer or Report Viewer. You should only select this button after you have finished setting up the data source.

Navision Data Sources Options

Each option for configuring a Navision Data Source is detailed below.

Tools Menu/Update Drilldown Forms

On the tools menu, select Update Drilldown Forms if you want to update your Navision drilldown forms. For more information on updating the drilldown forms, see the section Updating Navision Drilldown Forms. After selecting this menu option, you must click the Browse button and browse to your exported Navision object text file. Then you must click the Update button to update the forms.

Navision Client Program Folder

If you have more than one version of Navision on your computer, you may need to specify the folder that contains the FIN.EXE program for the version of Navision that corresponds to the version of the database or server you are trying to access.

Language Module Folder and Language

These are detailed in Using a Navision Language Module.

Authentication

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Choose whether to use Windows or Database Server Authentication. Your choice here is dictated by how your Navision database is configured. If you are not sure, check with your IT staff or with your Navision Solution Center.

If you choose Database Server Authentication, you can enter a User ID and Password. If you leave either of these fields blank, the user will be prompted for database login credentials when they attempt to connect. Although the password is encrypted, the encrypted password could be used to gain access to Navision data through Jet Reports. Encrypted passwords are stored in exported options files and in the registry.

Server Type

User Server type to specify whether you are connecting to a Local Database File, a Navision Database Server, or a Microsoft SQL Server.

Server

Enter the name of the server in Server.

If you are unsure what to enter in these fields, you can look in Navision under File/Database/Information on the Database and Connection tabs. Note: You must be connected to your database in Navision before you can use File/Database/Information.

Database

If you are using a Microsoft SQL Server type, type the name of the database here.

If you are using a Local Database File type, click the "..." button and browse to the Navision database file you want to use.

Net Type

Enter the appropriate network protocol in Net Type.

If you are unsure what to enter in these fields, you can look in Navision under File/Database/Information on the Database and Connection tabs. Note: You must be connected to your database in Navision before you can use File/Database/Information.

Company

Enter the company name that you will use the most in Company. This will be the default company used by Jet Reports. Use the drop down to select the company name. Clicking the drop down opens a connection to the database.

Universal Data Sources Options

Once you have selected the Universal Data Source, most of the configuration options on the Data Sources screen will disappear. The majority of the configuration options are located under the Properties button.

Enable Friendly Names for this data source

Check the box if you want to use Friendly Names on your universal data source. More details on configuring and using friendly names are under the topic Installing Friendly Table/Field Names.

Friendly Name Group

If you choose to Use Friendly Names, you can actually create multiple named groups of friendly names. For example, if you need to support multiple languages, you could create a group of friendly names for each language you wanted to support. Those groups can be selected here. For information on creating friendly name groups, see Installing Friendly Table/Field Names.

Display Format

If you have chosen to use Friendly Names, you have the option to change the format in which Table and Field names are displayed. This option will only work correctly if you install the Friendly Table/Field name feature. There are four options for formatting the Table and Field names: Friendly, Physical, Friendly (Physical) and Physical (Friendly). For the Friendly and Friendly (Physical) options, Jet Reports will display the Friendly names and sort by Friendly Name. This can be useful if you are searching for a Friendly name. When you drag and drop a field onto Excel, Jet Reports will give you formulas and column headings based on the Friendly names. For the Physical and Physical (Friendly) options, Jet Reports will sort the names by Physical name so the tables will all be grouped together by category. When you drag and drop a field onto Excel, Jet Reports will give you formulas and column headings based on the Physical names.

Trim Trailing Spaces from Text Fields

Some databases may insert a certain number of spaces after values in text fields in order to achieve equal length strings in the text fields. This may prevent you from filtering correctly on those fields. You can select this option in order to trim off those spaces to make using these fields easier.

Table and Fields Names are Case-Sensitive Names

Some databases, such as Great Plains, are case sensitive with respect to field and table names queries. This means that if you enter Customerid in Jet Reports and the actual field name is CustomerID, some databases will give you an ambiguous error message. When the Case Sensitive Names option is turned on, Jet Reports will check the table and field names that you enter to make sure they have the correct case before querying the database. If you have entered Customerid and should have entered CustomerID, Jet

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Reports will direct you to your error. If you turn this option off, you may get ambiguous error messages if your database has case sensitive names.

Blank Filters Match Null Values

If you would like to treat null values and blank values equivalently in your database, check the Blank Filters Match Null Valeus option.

Great Plains Data Sources Options

Authentication

Choose whether to use Windows or Database Authentication. Your choice here is dictated by how your Great Plains database is configured. If you are not sure, check with your IT staff or with your Great Plains VAR.

If you choose Database Server Authentication, you can enter a User ID and Password. If you leave either of these fields blank, the user will be prompted for database login credentials when they attempt to connect. Although the password is encrypted, the encrypted password could be used to gain access to Great Plains data through Jet Reports. Encrypted passwords are stored in exported options files and in the registry.

Server

Enter the name of your Great Plains SQL Server here. You may need to contact your IT staff or Great Plains VAR to get this information.

Company

Enter the company name that you will use the most in Company. Use the drop down to select the company name. Clicking the company drop down opens a connection to the database.

Enable Friendly Names for this data source

Check the box if you want to use Friendly Names. More details on configuring and using friendly names are under the topic Installing Friendly Table/Field Names.

Friendly Name Group

If you choose to Enable Friendly Names, you can actually create multiple named groups of friendly names. For example, if you need to support multiple languages, you could create a group of friendly names for each language you wanted to support. Those groups can be selected here. For information on creating friendly name groups, see Installing Friendly Table/Field Names.

Display Format

If you have chosen to use Friendly Names, you have the option to change the format in which Table and Field names are displayed. This option will only work correctly if you install the Friendly Table/Field name feature. There are four options for formatting the Table and Field names: Friendly, Physical, Friendly (Physical) and Physical (Friendly). For the Friendly and Friendly (Physical) options, Jet Reports will display the Friendly names and sort by Friendly Name. This can be useful if you are searching for a Friendly name. When you drag and drop a field onto Excel, Jet Reports will give you formulas and column headings based on the Friendly names. For the Physical and Physical (Friendly) options, Jet Reports will sort the names by Physical name so the tables will all be grouped together by category. When you drag and drop a field onto Excel, Jet Reports will give you formulas and column headings based on the Physical names.

Trim Trailing Spaces from Text Fields

Some databases may insert a certain number of spaces after values in text fields in order to achieve equal length strings in the text fields. This may prevent you from filtering correctly on those fields. You can select this option in order to trim off those spaces to make using these fields easier.

Table and Fields Names are Case-Sensitive Names

Some databases, such as Great Plains, are case sensitive with respect to field and table names queries. This means that if you enter Customerid in Jet Reports and the actual field name is CustomerID, some databases will give you an ambiguous error message. When the Case Sensitive Names option is turned on, Jet Reports will check the table and field names that you enter to make sure they have the correct case before querying the database. If you have entered Customerid and should have entered CustomerID, Jet Reports will direct you to your error. If you turn this option off, you may get ambiguous error messages if your database has case sensitive names.

Blank Filters Match Null Values

If you would like to treat null values and blank values equivalently in your database, check the Blank Filters Match Null Valeus option.

Universal Data Link Properties

The Data Link Properties Window opens when you click the Properties button when configuring a Universal Data Source. You should click on the Provider tab at the top of the screen to start your configuration.

Provider Tab

The provider tab allows you to select the OLE DB Provider that matches your database.

There are many cases where you have several possible options for connecting to your database. One good example of having several valid connection options is MS Access. The Jet OLE DB Provider and the OLE DB Provider for ODBC Drivers will both allow

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direct connection to an Access database file such as Northwind.mdb. Likewise, there is an Oracle OLE DB Provider as well as an SQL OLE DB Provider, and both of those database types allow ODBC connections. In general, it is faster to use a direct OLE connection instead of ODBC. The OLE DB Provider for ODBC Drivers also requires that you separately configure an ODBC connection to your database.

Connection Tab

Once you have selected your data provider, (see previous topic) click the Next button or click on the Connection tab.

On the Connection tab, you can specify where your data is located and how to connect to it. The fields displayed on this tab depend upon the OLE DB Provider selected. For example, if you select the OLE DB Provider for Oracle, the Connection tab displays fields for the server name and login. If you select the OLE DB Provider for SQL Server, then the server name, type of authentication, and database must be furnished.

In most cases, once you have configured the Connection tab, you can click the Test Connection button to determine if Jet Reports can connect to your database. If your database connection works you will get the following message.

Advanced and All Tabs

Use the Advanced tab to view and set other initialization properties for your data. The Advanced tab is provider-specific and displays only the initialization properties required by the selected OLE DB provider. For more information about advanced initialization properties, refer to the documentation provided with each specific OLE DB provider.

Use the All tab to view and manually edit all OLE DB initialization properties available for your OLE DB provider. Properties can vary depending on the OLE DB provider you are using. For more information about the initialization properties, refer to the documentation provided with each specific OLE DB provider.

Setting up Northwind

The NorthWind database is a sample access database that comes with MS Office so it is used as an example in the Jet Reports Universal User Guide. By default in Office 2003, NorthWind is installed at C:\Program Files\Microsoft Office\Office11\Samples\NorthWind.mdb. If you have Office XP, substitute Office10 for Office11. If you have Office 2000, substitute Office9 for Office11. After you select the Microsoft Jet OLE DB Provider on the Provider tab of the Data Link Properties window, click Next to enter the path to the database. You will need to enter Admin as the User name and select the Blank password option. Click Test Connection and you should have access to NorthWind.

This topic is not relevant to Navision or Great Plains connectors.

Verifying Your Designer/Viewer Status

If you are only licensed as a Viewer in Jet Reports, the Jet/Design option will be grayed out and will not be usable. If you are licensed as a Designer, then the Jet/Design option will be available. If you should be licensed as a Designer and you do not get the Jet/Design option, there are two common problems.

If Jet Reports cannot find a valid Jet license file, you will not get the Jet/Design option. You should check that your Jet license file (.JLF) is in the Jet License File Path specified in Jet/Settings. If the path in the settings is empty, the default location is the Jet Reports program folder. You can test the integrity of your data source configuration by clicking the Test Connection button in Jet/Data Sources. You should receive a message that you are licensed as a Viewer or a Designer. If there is a connection problem or a problem with your Jet license, you will get an error message related to the cause of the problem.

If your user name in Excel does not match your name in the Jet Reports license file exactly, you will not get the Jet\Design option. To verify that your name is entered in Excel correctly, click hyperlink next to the colored orb at the bottom of Jet/Data Sources. If you scroll down, you should see a list of designer names. Your name here needs to match your Excel user name, which you can find in Excels Options/Popular (Excel 2007) or Excel Tools/Options/General (earlier versions of Excel).

Great Plains Installation Topics

Finding Great Plains Configuration Information

Server Name

Great Plains users need to know several pieces of information in order to configure their Jet Reports data source. First, they must know the Server name. To find this, first open the Great Plains application.

On the login screen, there is a Server listed. This is NOT the name of your Great Plains server. Copy this name down and then go to Start\Control Panel\Administrative Tools\Data Sources (ODBC). On the System DSN tab, you should see the same name that was listed in the Great Plains application.

Double-click on this data source to configure it. On the first screen, at the bottom, you should see a Server listed. This is the name of your actual GP server, which you need to enter into the Jet Reports options.

Jet Reports Help

Authentication

Next, you need to determine your login type and information. Great Plains can be configured in a number of different ways. In some cases, you can use the same username/password for Jet that you use to login to Great Plains. However, Great Plains is not always configured like this; in some cases the application login may map to an entirely different database login or to a Windows login. If your Great Plains application login doesn't work and if Windows authentication doesn't work, then you will probably have to ask your Great Plains database administrator for the login information to the database. You need read access for both the company and dynamics databases.

Company

Finally, you need the name of the Great Plains company to use in Jet Reports. In the Great Plains application, the screen after the login screen shows you the list of companies available. These are the same companies available in Jet Reports.

This topic is only applicable to Great Plains users.

Installing Friendly Table/Field Names and Views in GP

Friendly Names

If you are using Great Plains, you will quickly notice that the table and field names that are listed in the Browser window are somewhat cryptic. The Jet Reports Browser can display your table and field names in several easily readable formats, similar to the Smart List window in Great Plains. The friendly name feature requires three tables which you can automatically create and populate using the Jet GP Update utility. This utility will add the JETFPG, JETTMAP, and JETFMAP tables to your database and populate them with them with the Friendly Names provided by Great Plains. This utility is called "Jet GP Updater.exe" and can be found in the Jet Reports program folder. Before running this utility you need to have configured a "Great Plains" data source in Jet Reports and have your Great Plains application open.

Views

In Great Plains, you may have noticed that sometimes even with friendly names installed it is difficult to figure out what certain status field and type field values mean since they are often just lists of integers in the database. It is also difficult at times to figure out how certain tables are related for creating certain types of reports such as sales, purchasing, or general ledger reports. To solve both of these problems, Jet Reports has created Jet Views for some common report writing areas. These views can be installed by using the same Jet GP Update utility used to install friendly names. This utility adds SQL views to the GP company database with the prefix "Jet ". So the sales view is called "Jet Sales", the purchasing view is called "Jet Purchasing", etc. It also adds the Jet Date View and the

JET_DATE table which is required to use the Jet Date view. Jet Date allows you to easily pull any dates you need out of the database.

Running the Utility

1. Run the "Jet GP Update.exe" utility. You will see this message indicating the tables that will be added to your database.
2. Make sure you have the Great Plains application open and have logged in.
3. Choose the Jet Reports Great Plains data source for which you would like to add Friendly Names. See Data Sources for more information on configuring your GP data source.
4. Choose the Company for which you would like to add Friendly Names.
5. Choose whether to add Friendly Names, the Jet Date Table, Jet Views, or all three. Click "Run" and the utility will run.
6. Once the utility is finished, configure your Great Plains data source to use Friendly Names and look for the Jet Views and Jet Date Table in the Report Wizard and Jfx.

Navision

Friendly Names are not necessary in Navision.

Navision Installation Topics

Finding Navision Configuration Information

You can find Navision configuration information such as server type, server name, net type, and authentication type in the Navision client program. To do this, open the Navision client and go to File\Database\Information.

If you are using a Navision server or local connection, you will find most of the information you need to configure Jet Reports on the Connection tab.

If the Connection is Local, then you want a Navision-Local data source in Jet Reports. If the Connection is Server, then you need a Navision-Server data source in Jet Reports. The Server Name and Net Type are also needed to configure your Jet Reports data source.

If you are using a Navision SQL Server, you will find most of the information you need to configure Jet Reports on the Database tab.

Jet Reports Help

To configure a Navision-SQL Server type data source in Jet Reports, you need the Server Name, Database Name, and Net Type.

In either Navision-Server or Navision-SQL Server, you need to know what type of authentication you use to access the database. The authentication is the security method used by Navision to determine the identity of the person connecting to the database. If you have to type a username/password in each time you open Navision, then you are using Database authentication. You will have to supply your Navision username/password to Jet Reports in order for it to connect to Navision. If you do not have to type in a username/password each time you open Navision, then you are using Windows authentication. Navision and Jet Reports will use your Windows login credentials to connect.

Microsoft Navision C/Front

Microsoft Navision C/Front is the interface that Jet Reports uses to communicate with Navision. C/Front is part of the Navision SDK, and can be installed from the Navision client CD from either the Devkit or SDK folder, depending on the version of Navision. It is recommended that C/Front be installed when using Jet Reports with Navision. The version of C/Front should match the version of the Navision client installed (the version of the executables). If you run multiple versions of Navision, you should install only one version of C/Front (see Multiple Concurrent Navision Versions).

Microsoft Navision C/Front is only applicable to Navision users.

Multiple Concurrent Navision Versions

Jet Reports can work with multiple versions of Navision on the same machine.

You should install one and only one version of C/Front. You should install the version of C/Front that matches your most recent version of Navision. It is very important to fill in the proper path in the Navision Client Folder in the Jet/Data Sources. Jet Reports chooses the version of C/Front based on the version in the Fin.exe file found in the Navision Client Folder.

One common way to use this feature is to change the Default Data Source depending on which version of Navision you want to use. You can also use the "DataSource=" feature of the NL function or fill in the Data Source field of the GL function. See Building a Report From Multiple Databases and the NL Function Reference for more information on DataSource=.

This topic is only relevant to Navision connectors.

Navision Language Modules

In Navision, you can enter table names, field names, and options in your language if you export a Navision Language Module from Navision and tell Jet Reports where to find it. The language module should have the same name as the three letter language code and an ".flm" extension. You can save the language module in the language folder beneath your Navision Client program folder. For example, for Danish, you might export your file to the following directory.

"C:\Program Files\Navision Attain\Client\DAN\DAN.FLM"

Jet Reports only needs the captions stored in the table objects. To export a Language Module, go into Navision and from the menu choose Tools/Object Designer.

From Object Designer, click the Table button and then select all tables by clicking the square in the top left corner of the Table list. You can also choose the menu option Edit/Select All.

After you have selected All Tables, choose Tools/Language Module/Export.

Enter the appropriate File Name, Language, and click OK.

Next, open Excel and go to Jet/Data Sources. If necessary, browse to the directory in which you saved the language module in Language Module Folder. Enter the three letter language code in Language.

Instead of placing all Language Modules in the language subfolder of the Navision Client Program Folder, you can place them in a common network folder and put the path to that folder in Language Module Folder.

Jet Reports will first look in the folder specified in the Language Module Folder for the language module file. If you don't specify a language module folder, it will look in the language subfolder of the Navision Client Folder. If an appropriate language module is not found, Jet Reports will use default Cronus captions if available.

This topic is only relevant for Navision users.

Navision License Files

To use Jet Reports with Navision, a Navision License file with the C/Front granule must be saved as Fin.FLF in the Navision Client folder. This is the same folder in which you find the Fin.EXE file. You must copy the Navision License file to each workstation that will run Jet Reports. This is a requirement of Microsoft Navision C/Front, which Jet Reports uses to connect to Navision. If you do not copy the Navision Fin.FLF license file to each machine, Jet Reports will not be able to connect to the database even if the Navision Client works correctly.

Navision license files are only applicable for Navision users.

Updating Navision Drilldown Forms

The drilldown forms in Jet Reports match the relationships between tables and drilldown forms for the objects in Navision. If a table does not have a drilldown form, drilldown for that table will not be available. The default drilldown forms will work for most default tables in Navision. However, if you have added tables or changed the default drilldown forms, you need to update the Jet Reports drilldown forms. Jet Reports stores the drilldown forms separately for each data source. If you have more than one data source you need to update each one.

In some cases, you might need to add a drilldown form and then update the corresponding table since not all tables in Navision have drilldown forms. After you are satisfied with all the drilldown form/table relationships in Navision, export the table definitions to a text file. You might not be able to export all tables to text due to license restrictions. You must export all the tables that you want to change. Every time you update drilldown forms, all previous changes you have imported are deleted. So each time you export tables in order to update drilldown forms, make sure to include all the tables that you need to drilldown into.

After the tables are exported, open Excel and go to Jet/Data Sources. Select Tools/Update Drilldown Forms, select the exported text file, and click Update.

In order to perform the operations described above, follow the following procedure.

In Navision:

1. Please note that due to the Navision granule needed to export objects as text, this will probably have to be done by a Navision provider. End users usually do not have the necessary granule in their Navision license.
2. Open Navision and select Tools/Object Designer.
3. Select the table for which you would like to update the drilldown form, and click Design.
4. Scroll to the bottom of the list of fields and select the first line that does not currently contain data.
5. Select View/Properties, then click on the Value field for the DrillDownFormID Property.
6. Click on the up arrow, and select the appropriate form.
7. Close the Properties window and the Table Designer, and select Yes when asked if you would like to save.
8. With the name of the updated table still selected, select File/Export.
9. In the Save as Type drop-down menu, select Text Format.
10. Save the file to the directory of your choice.

In Jet Reports:

1. Open Excel and go to Jet/Data Sources.

2. Go to Tools/Update Drilldown Forms..
3. Under Navision Object Text File, select the .txt file that you have just exported from Navision.
4. Click the Update button.
5. Click OK to close the Jet Data Sources.

You should now be able to drill down from your Jet Report.

This topic is only relevant for Navision connectors.

The Data View Creator

Introducing Data Views and the Data View Creator

The Data View Creator is a tool for advanced users to create and edit the data views that are available in the Jet Reports Report Builder tool. This utility can also be used to translate Data Views for use in non-English speaking locales. Currently, data views are only available for Dynamics NAV data sources.

Data Views

Each data view represents a collection of tables, filters, fields, and relationships that are pre-packaged so that an end user can quickly generate custom reports in the business area that the data view was designed for. Some example of business areas are Sales Document History, Cash receipts, and Purchase History by Item.

Data Views are composed of the following elements:

- Data View Name
- Description
- Category
- Base Table
 - Filters
- Fields
 - Captions
 - Sort Order
 - Relationships

Data View Name	This is the name of the data view that will be visible to the end user in the Report Builder. It must be unique within the category and should clearly identify the business area that the data view is designed for.
Description	This is the description that will appear next to the data view on the first screen in the Report Builder.
Category	Data views are contained in categories. Categories are like folders which can hold sub categories and/or data views.
Base Table	The base table defines the detail row of any report created with this

	data view. One detail row will appear on the report for every record in the base table.
Filters	Filter can be optionally added to the base table. For example. “Entry Type=Payment, Open=Yes” could limit customer entries to open payments.
Fields	Fields in the base table or related tables can be included or excluded from the data view. Fields can be sorted and optionally given specific captions for the data view. One example of the need for specific captions in Dynamics NAV is the “Source No.” field on the Item Ledger Entry table. In an “Item Sales” data view, the “Source No.” field could be expressed as “Customer No.”, whereas in an “Item Purchases” data view it might be expressed as “Vendor No.”. Limiting the use of captions is recommended as they must be manually translated if the data view is to be used in multiple languages.
Field Relationships	Some fields contain relationship to other tables. For example. “Sell-To Customer No.” in the Sales Order would relate to the “No.” field in the Customer table. Relationships are used for groupings and can also be navigated in the Report Builder by the user to include fields from related tables.

Configuring Tables in the Data View Creator

The Data View Creator can be found on the start menu (Start/All Programs/Jet Reports/Dynamics NAV/Data View Creator). When you open the Data View Creator for the first time, or when you choose a data source for the first time, you will be prompted to load table relationships. This process loads all the tables and fields from the database along with the default table and field relationships. If you choose not to load table relationships, you will not be able to create or edit data views for that data source.

Before creating data views, it is recommended that you configure tables. When you configure tables you can create relationships between tables that may not already exist as defaults in the database. You can also select a default set of fields for each table that will be included for that table when it is added to a data view. These default fields can also be given a default sort order. Selecting default fields and sorting them can significantly speed up the process of creating data views.

To open the table configuration tool, go to Tools/Table Configuration. You will see a list of tables on the left, a list of all fields for the selected table in the middle, and the default fields for that table on the right. After loading the table relationships for the first time, all fields in all tables will be set as default fields.

In order to select default fields, first select a table, and then check the boxes next to the fields you want to be defaults in the All Fields list. Checked fields will appear in the

Default Fields list. To remove default fields, simply uncheck them. Drag and drop fields within the Default Fields list in order to sort them in the order you want them to appear to the user of the Report Builder.

You can also use the Table Configuration screen to add relationships that do not exist by default in the database. Fields that have links to other tables appear in bold in both the All Fields and Default Fields lists.

To create a new link, right-click a non-bold field you wish to relate to another table and select Create/Edit Link.... The Table Link Editor window will appear. At the top you will see the table and field that you selected. You will also see a combo box with the foreign table. Use this combo box to select the table that you would like to relate this field to. You will then see a combo box with the foreign field. Use this combo box to select the field on the foreign table that directly corresponds to the field which you originally selected. If the relationship is defined by links between more than one set of fields, you can select additional relating fields from the drop down lists at the bottom of the window.

Existing relationships can be edited by right-clicking bold fields and selecting Create/Edit Link.... Relationships can be removed by right-clicking bold fields and selecting Remove Link.

Creating and Editing Categories

Categories function like folders into which you can put sub-categories or data views. Categories are displayed in a tree view on the left side of the main Data View Creator window. When a category is selected, data views contained in that category will be displayed in the right pane of the window.

To create a category, right-click in the category pane and select New. If you right-click on an existing category, a new sub-category will be created in that category. Otherwise a new category will be created at the base level. You can also create a sub-category by creating a new base category and dragging and dropping or cutting and pasting it into another base category. For example you could create a base category of Sales and a base category of By Salesperson. Dragging the By Salesperson category and dropping it into the Sales category will leave the Sales category as the base category with a sub-category of By Salesperson.

To rename a category, right-click on it and select Rename and type the new name. As with folders, a category cannot be named the same name as another category existing at the same level. To delete a category, right-click on it and select Delete. All sub-categories and data views in that category will also be deleted.

Creating and Editing Data Views

To create a new data view, select a category, then right-click in the Data Views pane and select New. The first step when creating a data view is to type a name for the data view

and select the base table. The name of the data view can be changed later, but the base table is a permanent part of the data view, so be careful when making your selection.

The second step in creating a data view will be to type a description of the data view. Users of the Report Builder will see this description when they are selecting a data view. This description should give them a good idea of what the data view contains. This is the first step that you will see when you edit an existing data view.

The next step in creating a data view is to select fields that will appear on the data view. The field browser control used to create the data view is the exact same field browser control that Report Builder users will use to select fields and groupings to appear on their reports. If you configured the tables on the data view, the default fields you selected will already be checked. Checked fields will be added to the data view and will appear in the Report Builder. If a field is bold, it is a linking field to another table. If you select a linking field and then click the arrow that appears next to it, it will navigate you to the linked table where you can check fields from that table. Navigate back by clicking one of the bread crumb buttons at the top of the field selection control. Also note that the fields that you see in the list are the actual fields as they appear in the database, not the captions. For example you may not find the ZIP Code field in the list but you will see a Post Code, and instead of State you will see County. If you are planning on adding any default filters to the data view, add the fields you want to filter in this step.

The next step in creating a data view is to add captions to the fields. This is the alternate name for a field that the Report Builder users will see. Select a table from the combo box at the top and you will see the fields you selected from that table in the grid below. If you leave captions blank, they will be retrieved from the database when the data view is selected in the Report Builder. For most fields, this is desirable since the captions retrieved from the database will be in the user's local language. For some fields, though, where the name may be incomplete or ambiguous, it is desirable to specify a different caption. If you are translating a data view, look for fields that have captions and translate the captions into the desired language.

The next step in creating a data view is to order fields. Select a table from the combo box at the top and you will see the fields you selected from that table below. Drag and drop fields or use the Move Up and Move Down buttons to put them in the order in which you wish users of the Report Builder to see them.

The final step in creating a data view is to add default filters. Default filters can only be added to the fields you selected in the base table.

Select Finish and the data view will be created and added to the selected category.

You can also edit, rename, or copy and paste data views by right-clicking on them in the Data Views pane of the main window of the Data View Creator.

Testing Data Views

After creating a data view, the next step is to test it. Open Excel, make sure the default data source is set to the one for which the data view was created, and click the Report Builder button. In the Report Builder, browse for your data view and select Next. Add fields and groupings from the data view to the report. Ask yourself if all the fields which you might need are present in the data view. If not, you may need to go back and add them to the data view in the Data View Creator. Add filters and subtotals and click the Finish button to create the report. Make sure that the report is created and runs as expected.

Importing and Exporting Categories and Data Views

After creating categories and data views, you will probably want to distribute them to other users or add them to a different data source. Exporting and importing categories and data views allow you to accomplish these tasks.

Categories (and the data views in them) can be imported into the Data View Creator by selecting File/Import/Data View Categories... and browsing to the category file to import. Categories can be exported from the Data View Creator by selecting File/Export/Data View Categories..., selecting the categories to export, and typing a filename that you would like to export the categories to.

Data views can be imported into the Data View Creator by selecting File/Import/Data Views..., selecting a category into which to import the data views, and browsing to the file that you would like to import. Data views can be exported from the Data View Creator by selecting File/Export/Data Views..., selecting a category from which to export data views, selecting the data views to export, and typing a filename to export the data view to.

Both categories and data views can be imported into a particular Jet Reports data source without using the Data View Creator. In Excel, open the Jet Data Source Settings, select the desired data source and click File/Import/Data View Categories or File/Import/Data Views..., then follow the same steps outlined above to import either categories or data views.

Advanced Installation Topics

Visual FoxPro Prerequisites

To use Jet Reports with Visual FoxPro, you must install the Microsoft OLE DB Provider for Visual FoxPro. You must install the version of the OLE DB Provider that matches your version of Visual FoxPro. Then you must select this DB Provider on the Provider tab in the Properties of the Universal Data Source.

This topic is only applicable to Universal connectors.

Using Jet Reports with Citrix

If you want to use Jet Reports with Citrix, you will need to publish your entire desktop to have full use of all Jet Reports features. You will need to have Jet Reports, Excel and your data source all installed on the Citrix desktop. If you are using Jet Reports with Navision, Navision Client and C/Front have to be installed on the Citrix desktop as well. If you are using an OLE connector, you will need to have the OLE driver installed for your particular database. If you are using ODBC, you need to have a data source configured in your ODBC Data Source Administrator, as well as the connection to that data source configured in Jet Reports.

The Excel and Jet Reports settings are stored on a per-user basis. This means that each user will have to run "Activate" from the Start Menu to get access to Jet and enter their username and password. It also means that your database security will be maintained since each user's credentials are stored separately.

Installing Friendly Table/Field Names in a Universal Data Source

Universal Databases (Not Great Plains)

Jet Reports provides the ability to use Friendly Names if you are using a Universal Connector. Often times the field and table names defined in your database are not as intuitive as you might wish. Friendly Names gives you the ability to define your own names for the fields and tables in your database and then use them in Jet Reports. In order to use this functionality you will need to add three tables to your database: JETFPG, JETTMAP, and JETFMAP and then configure your Jet Reports data source to use Friendly Names.

JETFPG holds the Friendly Name Group. Groups give you the ability to have multiple Friendly Names for a single table or field. This would be useful for translating your tables and fields into multiple languages.

JETFPG table definition

Fields	FPG	JETNAME
Type	Integer	VarChar
Primary Key	Yes	Yes
Description	Number uniquely identifying the Friendly Name Group.	Name of the Friendly Name Group.

JETTMAP maps the existing table name to a Friendly Name and Group.

JETTMAP table definition

Fields	FPG	TFN	TPN
--------	-----	-----	-----

Type	Integer	VarChar	VarChar
Primary Key	Yes	Yes	No
Description	Number uniquely identifying the Friendly Name Group.	Friendly Name of the Table.	Table name as defined in the database. (Actual table name.)

JETFMAP maps the existing field name to the table it is on as well as the Friendly Name and Group.

JETFMAP table definition

Fields	FPG	TPN	FFN	FPN
Type	Integer	VarChar	VarChar	VarChar
Primary Key	Yes	Yes	Yes	No
Description	Number uniquely identifying the Friendly Name Group.	Table name as defined in the database. (Actual table name.)	Friendly Field Name.	Field Name as defined in the database. (Actual field name.)

Once these three tables have been added and populated with your desired Friendly Names you will be able to use either Friendly or Actual names in your Jet Reports.

Navision

Friendly Names are not necessary in Navision.

Creating Reports

Finding My Data

The Jet Browser

Introducing the Browser

The Jet Browser makes your reports easier and faster to design. It is a window into your database, allowing you to scroll through the tables and fields available, look at values for each field, or drilldown on the data. It also allows you to drag and drop fields onto your report to create several types of formulas automatically. By default, the Jet Browser will show you the table list for the default data source. You can scroll up and down through the list of tables and select any table to get a list of fields, then right-click a field and select Sample Values to get a list of sample values. If you drag one of the fields onto your report, the Jet Browser will put a formula on your report based on the setting you have selected.

Count

If you select the "Count" option and drag a table to Excel, an NL function that counts the records in that table will be created.

If you select the "Count" option and drag a field to Excel, an NL function that counts the unique values for that field will be created.

Sum

If you select the "Sum" option and drag a numeric field to Excel, an NL function that sums the values for that field will be created.

First

If you select the "First" option and drag a table to Excel, an NL function that lists the first record in the table will be created. The NL function itself will be hidden when the report is run. If you then drag fields to that same row or column, NF functions will be created for those fields.

If you select the "First" option and drag a field to an empty row and column, an NL function that lists the first unique value for that field (sorted by the values of the field) will be created.

Rows

Jet Reports Help

If you select the "Rows" option and drag a table to Excel, an NL function that lists all the records in the table down rows will be created. The NL function itself will be hidden when the report is run. If you then drag fields to that same row, NF functions will be created for those fields.

If you select the "Rows" option and drag a field to an empty row, an NL function that lists the unique values for that field down rows will be created.

If you select the "Rows" option and drag multiple fields into an empty row, an NL function that lists all the records in the table down rows will be created and NF functions for each selected field will be created in the same row.

Columns

If you select the "Columns" option and drag a table to Excel, an NL function that lists all the records in the table across columns will be created. The NL function itself will be hidden when the report is run. If you then drag fields to that same column, NF functions will be created for those fields.

If you select the "Columns" option and drag a field to an empty column, an NL function that lists the unique values for that field across columns will be created.

If you select the "Columns" option and drag multiple fields into an empty column, an NL function that lists all the records in the table across columns will be created and NF functions for each selected field will be created in the same column.

Sheets

If you select the "Sheets" option and drag a field to an empty column, an NL function that lists the unique values for that field as separate sheets will be created.

Finding Navision Data

Navision Zoom to Find a Table or Field Name

Jet Reports adds the Jet menu to Excel but makes no modification to Navision so if you are not already familiar with the structure of Navision, you can use the Navision tools that you already know.

First, find the information that you want to report on in Navision, and then open Zoom from the Tools menu. Navision will display the name of the table that information is in, as well as all the fields associated with that table.

This information is only relevant to Navision users.

Finding Great Plains and Universal Data

Databases with Multiple Schemas

Some databases such as Microsoft SQL Server and Oracle group objects such as tables and records by the owner (or group of owners) of the object. This logical grouping is called a schema and it can be used to restrict which tables a user can access. In many SQL Server databases, the DBO user is the owner of all database objects so "DBO" is the only schema name in the database. Oracle databases generally have a schema per user along with multiple administrative schemas.

Jet Reports will obtain the default schema for your user from your server and unless your database has multiple schemas, you will not need to override that default. If you do need to override the default schema, you can specify the schema with the Schema= keyword. The Schema= keyword goes in a Filter Field parameter of the NL function and the schema name goes in the following Filter parameter. For example, to access all records in a table named Customer that are owned by the SYSTEM user group, you would use the following NL function:

```
=NL("Rows","Customer",,"Schema=","SYSTEM")
```

This topic does not apply to Navision users.

Introducing Friendly Names for Great Plains and Universal Connectors

If you are using Jet Reports to connect to a Great Plains database, you may have noticed that the table and field names are somewhat cryptic. It is often hard to tell what kind of data they contain (i.e. Sales, Purchases, Customers, etc.). For this reason, Jet Reports supports Friendly Names for Great Plains databases, which are more descriptive table and field names that can be helpful in locating your data. Once friendly names are installed, you can configure the Great Plains data source to display the table and field names as you see fit.

Friendly names can be configured to display either the friendly name first or the physical name first. If the friendly name comes first, table and field names in the Jet Browser are in alphabetical order according to their friendly names. This can be easier to search through since the names are easier to read. If the physical name comes first, table and field names are in alphabetical order according to their physical name. This can be easier to search through if the tables are grouped by the type of data they contain (i.e. all of the physical table names related to the General Ledger begin with "GL").

The Jet Reports formulas have the ability to accept both friendly and physical table and field names. Regardless of which name format you decide to use, the outcome of the formulas is the same.

This information is only necessary with a Great Plains database.

SQL Views

If you are using SQL Views, it is possible to access these views as if they are standard tables in your database. You must keep in mind, however, that views do not contain a primary key so you must use a field cache rather than a record key in NL functions.

When an NL Function has an array of fields in the Field parameter, it returns a value called a field cache into the cell. This is a text value that identifies all the field values and their data types. If you use the NF function with the cell address containing a field cache as the first argument and one of the field names contained in it as the second argument, the NF function will return the value of the field. Field caches are required when the table does not have a primary key. Please see the section entitled Introducing the NF Function for more details.

Drilldown

Whenever you make a change to a worksheet, the drilldown button (to the right of cells with Jet formulas) is turned off. This is because displaying the drilldown button removes the ability to undo changes. To perform a drilldown when the drilldown button is not displayed, use the menu option Jet/Tools/Drilldown or the Drilldown button on the Jet toolbar or ribbon. After choosing Jet/Tools/Drilldown from the menu, the drilldown button will remain enabled until the next change is made to the worksheet.

You can put multiple NL , GL or NF functions in a cell, but only one is used for drilldown. If there are multiple functions in one cell, the function that Jet Reports will use for drilldown is unpredictable, so if you want a predictable drilldown, put only one NL, GL or NF function in each cell.

The value reached by the drilldown could be different from the value displayed in the cell if the database has changed since you last refreshed the workbook.

Drilling down from a formula with an NL function that contains "Rows", "Columns" or "Sheets" in the What argument may not return the expected result. These formulas return multiple values and the drilldown result will also return multiple values. If you click on the first result of an NL function and then drill down, you may expect to see only the first result; instead you will see all the results of the NL function, filtered the same as in the report. To see only the first result, you will either have to filter your drilldown results or drilldown on an NF function instead. Usually NL functions are in hidden rows or columns so this is generally not a problem.

Navision Drilldown

If you use array filters, you may not be able to drilldown on the cell. That is because Navision will not accept an array as a filter, so Jet Reports attempts to create a set of filters that will uniquely select exactly the same records as the array filter. This is often possible when there are only a few records selected, but if there are too many records, Jet Reports will report that drilldown is impossible.

The drilldown form displayed in Navision depends on the table in the function. Some tables contain values that are derived from other tables. For example, the Sales (\$) field in the Customer table is derived from the Cust. Ledger Entry table. If you want a drilldown that shows the records in the Ledger table, you need to use a sum formula on that table instead of using Sales (\$) from the Customer table.

If Navision is already open but you have minimized its window, you must manually switch to the Navision window to see the drilldown results. If the window is not minimized, Navision will automatically become the foreground application.

Universal and Great Plains Drilldown

The Universal/GP drilldown window has several special capabilities. You can sort the list of records returned by clicking on the column header of the column you want to sort by. Click once to sort ascending and again to sort descending.

Data columns can be hidden by right-clicking anywhere in the column and selecting "Hide Column". Multiple columns can be hidden or shown by right-clicking and selecting "Add/Remove Columns" and checking all columns that you want visible.

Data can be filtered for a particular value by clicking the drop down arrow below the column header and selecting the desired value for that column. Multiple filters can be set this way. Filters can be cleared by either selecting (All) in the drop down for each filter, by right-click and selecting "Clear Filters" to clear all filters, or by clicking "Clear Filters" in the bottom right of the window to clear all filters.

Retrieving My Data

Filtering Data

Blank Filters

Sometimes you want to filter an NL function based on the output of another NL function which could return a blank value. The NL function does not allow you to use blank filters, and you will get a #VALUE error message if you fill in a FilterField argument and leave the corresponding Filter argument blank.

In Navision, an example of this would be retrieving an Item Description based on the output of an NL that listed Item No.s from Sales Invoices. You could have Sales Invoices that do not have item numbers so the NL command would return a blank value. Assume that an NL function that lists item numbers is in cell C4. We want to filter an NL in D4 based on the contents of C4.

In this case, you can use two single quotes (') around the filter value. You could use the following formula.

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```
=NL(1,"Item","Description","No.", "'"&C4&'"')
```

Although this formula is a little hard to read, it is putting a single quote character (') on either side of the C4 reference. The & function is an Excel function that combines two strings of text into one so the result of this formula will be the value in cell C4 with a single quote character on either side of it. If C4 contains the Item No. of Shampoo1, the resulting filter will be Shampoo1. If C4 is blank, the result is (two single quotes), which is a valid Navision filter for blank fields.

An easier to read variation on the filter for blanks is "@@" in front of the value in C4. The function becomes the following.

```
=NL (1,"Item","Description","No.", "@@"&C4)
```

In Northwind, an example of this would be in the case of retrieving orders based on the output of an NL that listed postal codes from orders. You could have orders that did not have postal codes so the NL command could return a blank value. Assume that an NL function that lists postal codes is in cell C4. You want to filter an NL in D4 based on the contents of C4.

In this case, you can use two single quotes (') around the filter value. You could use the following formula.

```
=NL(1," Orders"," OrderID"," ShipPostalCode", "'"&C4&'"')
```

Although this formula is a little hard to read, it is putting a single quote character (') on either side of the C4 reference. The & function is an Excel function that combines two bits of text into one so the result of this formula will add a single quote character on either side of the value in cell C4. If C4 contains the Order ID Shampoo1, the resulting filter will be Shampoo1. If C4 is blank, the result is (two single quotes), which is a valid filter for blanks.

An easier to read variation on the filter for blanks is "@@" in front of the value in C4. The function becomes the following.

```
=NL(1," Orders"," OrderID"," ShipPostalCode", "@@"&C4)
```

Databases with Multiple Schemas

Some databases such as Microsoft SQL Server and Oracle group objects such as tables and records by the owner (or group of owners) of the object. This logical grouping is called a schema and it can be used to restrict which tables a user can access. In many SQL Server databases, the DBO user is the owner of all database objects so "DBO" is the only schema name in the database. Oracle databases generally have a schema per user along with multiple administrative schemas.

Jet Reports will obtain the default schema for your user from your server and unless your database has multiple schemas, you will not need to override that default. If you do need to override the default schema, you can specify the schema with the Schema= keyword. The Schema= keyword goes in a Filter Field parameter of the NL function and the schema name goes in the following Filter parameter. For example, to access all records in a table named Customer that are owned by the SYSTEM user group, you would use the following NL function:

```
=NL("Rows","Customer",,"Schema=","SYSTEM")
```

This topic does not apply to Navision users.

Date Filters

There are many times when you want to make your report easy for an end user to work with but need to use variable date ranges to retrieve the data for the report. An example of this is a report that lists the sales activity for the month, the year to date and the previous year. Instead of requiring the user to enter all of the date filters that the report needs, you can calculate the date ranges based on a single start date. The formulas for calculating various dates relative to a start date are detailed below in the Excel section.

Since Excel stores dates as numbers, it can be difficult to format a date range correctly to use as a filter. The NP("DateFilter") function provides an easy way to do this. Assuming that D4 contains the first of the month, the formula for calculating the filter for the whole month is listed below.

```
=NP("DateFilter",D4, Date(Year(D4), MONTH(D4)+1, 1)-1)
```

If D4 equaled 2/1/2003, the result of the above formula would be "2/1/2003..2/28/2003".

The formula for calculating the filter for the year to date for the month in cell D4 is listed below.

```
=NP("DateFilter", Date(Year(D4), 1, 1), Date(Year(D4), MONTH(D4)+1, 1)-1)
```

If D4 was "2/1/2000", the result of the formula above would be "2/1/2000..2/29/2000". Note that Excel will take care of leap years for you.

The formula for calculating the filter from the same month last year until the month in cell D4 is listed below.

```
=NP("DateFilter", Date(Year(D4)-1, Month(D4), 1), Date(Year(D4)-1, MONTH(D4)+1, 1)-1)
```

If D4 equaled 5/1/2004, the result of the above formula would be "5/1/2003..5/31/2003".

Excluding Closing Dates

You can exclude closing dates from your query when you are using date filters by putting <>C& in front of your date filter, which will then no longer include the closing dates. The example below is using the Cronus USA database, which has closing dates of 12/31/99, 12/31/00, and 12/31/01.

```
=NL ("Sum", "G/L Entry", "Amount", "Posting Date", "<>C&01/01/99..01/01/02")
```

This will, in effect, create the filter:

```
"01/01/99..01/01/02&<>C12/31/99&<>C12/31/00&<>C12/31/01".
```

This information is only relevant for Navision users.

Filtering Based on Data from Another Table

Sometimes you will want to filter one table based on data from a related table. Jet Reports has two mechanisms to help you do this, Link= and NL("Filter"). While both mechanisms return the same result, which one you should use depends on data being returned from each table. Link= will greatly increase performance when the records returned for the primary table is smaller than (or of equivalent size to) the records returned for the secondary table (i.e. the G/L Account table filtered by the G/L Entry table). Link= must also be used when there are multiple fields linking the 2 tables since NL("Filter") cannot return more than one field. NL("Filter") should be faster in situations where the number of records returned from primary table is much larger than the number of records returned from the secondary table (i.e. the Cust. Ledger Entry table filtered by the Customer table).

Universal Examples

Using Link=

In Northwind, the Order Subtotals table does not have the OrderDate in it, but the Orders table does. The OrderID is common to both tables, so if you wanted to list Order Subtotals based on an OrderDate, you could write an NL formula like the following.

```
=NL("Rows", "Order  
Subtotals", "Subtotal", "Link=", "Orders", "OrderID", "=OrderID", "OrderDate", "1/1/96..6/3  
0/96")
```

Note that the first argument after the "Link=" is the name of the secondary table. The successive arguments thereafter represent FilterField/Filter pairs that will be applied to this table (i.e. "OrderDate" and "OrderID" are fields in the Orders table, not the Order Subtotals table). Filter values with an equals sign ("=") pre-pended to them represent the linking fields from the primary table. In the above example, the NL function will examine the value of the OrderID field for each record in the Order Subtotals table and will only include the record if a corresponding record exists in the Orders table where the

"OrderDate" field is in the specified range and the "OrderID" fields are equivalent. Note that there can be multiple linking fields.

Using NL("Filter")

In Northwind, let's say you wanted a list of orders where the subtotal for the order was greater than 100. You would start out with an NL formula like the following.

```
=NL("Rows","Orders",,"OrderID",{List of OrderIDs with a subtotal greater than 100})
```

In the formula above, you need an NL formula which will replace the English description of the OrderID filter. You can use NL("Filter") to create the OrderID filter from the Order Subtotals table as shown in the formula below.

```
=NL("Filter","Order Subtotals","OrderID","Subtotal",>100")
```

Finally, you need to replace the English description in the first formula with the second formula as shown below.

```
=NL("Rows","Orders",,"OrderID",NL("Filter","Order Subtotals","OrderID","Subtotal",>100"))
```

There is one NL function inside another. The inner NL function returns a list of OrderIDs that Jet Reports can use as a filter for the Orders table.

Navision Examples

When performing cross-table filtering, you may not be able to drilldown on the cell. That is because Navision will not accept a list as a filter, so Jet Reports attempts to create a set of filters that will uniquely select the exact same records. This is often possible when there are only a few records selected. However, if there are too many records, Jet Reports will report that drilldown is not possible.

Using Link=

Lets say you would like to create a list of invoice numbers that contain item sales. You can list the invoice numbers from the Sales Invoice Header table, but need to use the Sales Invoice Line table to ensure that each invoice contains an item sale. Since all you would like to do is create a list of invoice numbers, you do not need a complete list of Sales Lines for each invoice. Rather, all you want to know is whether an entry containing an item sale exists. To do this, your formula would look something like the following:

```
=NL("Rows","Sales Invoice Header","No.,""Posting Date","7/1/05..7/31/05","Link=","Sales Invoice Line","Document No.,""=No.,""Type","Item")
```

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Note that the first argument after the "Link=" is the name of the secondary table. The successive arguments thereafter represent FilterField/Filter pairs that will be applied to this table (i.e. "Document No." and "Type" are fields in the Sales Invoice Line table, not the Sales Invoice Header). Filter values with an equals sign ("=") pre-pended to them represent the linking fields from the primary table. In the above example, the NL function will examine the value of the No. field for each record in the Sales Invoice Header table and will only include the record if a corresponding record exists in the Sales Invoice Line table where the "Type" field is "Item" and the "Document No." field is equivalent. Note that there can be multiple linking fields.

Using NL("Filter")

The Cust. Ledger Entry table is generally much larger than the Customer table since each Customer can have many ledger entries associated with them. The Cust. Ledger Entry does not have the customer name on it, but the Customer table does. The customer number is common to both tables, so if you wanted to list Cust. Ledger Entries based on the customer name, you would start out with an NL formula like the following:

```
=NL("Rows","Cust. Ledger Entry",,"Customer No.",{List of Customer No.'s with names starting with A.})
```

You need to replace the English description of the list in the formula above with an NL formula. The NL formula that generates customer numbers filtered by the customer name is below:

```
=NL("Filter","Customer","No.,""Name","A*")
```

Finally, you need to replace the English description in the first formula with the second formula as shown below:

```
=NL("Rows","Cust. Ledger Entry",,"Customer No.",NL("Filter","Customer","No.,""Name","A*"))
```

There is one NL function inside another. The inner NL function returns the customer number filter that is then used in the Cust. Ledger Entry table.

Linking to Other Tables

Link= gives users advanced filtering capabilities in Jet Reports. Link= is available for all connector types.

Simple Linking

The following formula will return the "Document No." field for each Sales Invoice Line in the system.

```
=NL("Rows","Sales Invoice Line","Document No.")
```

The following formula will return only sales invoice lines where the "Type" field is "Item".

```
=NL("Rows","Sales Invoice Line","Document No.,""Type","Item")
```

Link= can be used to filter on a field that is not on the Sales Invoice Line table (such as the "Posting Date" field on the Sales Invoice Header table) as follows:

```
=NL("Rows","Sales Invoice Line","Document No.,""Type","Item","Link=","Sales Invoice Header","No.,""=Document No.,""Posting Date","">1/1/2009")
```

Nested Linking

Link= statements can be combined to fulfill more complex filtering requirements. For example, assume that you would like to see the territories with sales during a given period.

A simple formula could be used if the territory is available on the table that contains the historical sales information and if you wanted the territory assignment at the time that the sale was made. If on the other hand, the territory is not available, or you want the currently assigned territory, you can do this by combining link= statements as follows:

```
=NL("Rows","Territory","Code","Link=","Customer","Territory Code",""=Code","Link=","Sales Invoice Header","Sell-to Customer No.,""=No.,""Posting Date","">1/1/2009")
```

In this example we linked the Territory to the Customer and the Customer to the Sales Invoice Header. Then we filtered by the "Posting Date" field to get territories with sales for a specific period.

Linking Multiple Tables

Link= statements can also be combined to handle situations where a single table is linked to multiple tables. For example, suppose we want to see sales invoices where the territory is "SouthEast" and the vendor is "30000". To do this we can link from the Sales Invoice Line table to the Customer table with the "Territory Code" field filtered for "SouthEast" and, in addition, link from the Sales Invoice Line table to the Item table with the "Vendor No." field filtered for "30000".

```
=NL("Rows","Sales Invoice Line",,"Type","Item","Link=Sales Invoice line","Customer","No.,""=Sell-to Customer No.,""Territory Code","SouthEast","Link=Sales Invoice Line","Item","No.,""=No.,""Vendor No.,""30000")
```

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Note that the Link= statements include the primary table (Sales Invoice Line) which indicates that links should restart from the primary table rather than linking in the nested fashion demonstrated in the previous section. It is possible to mix these models and have multiple links as well as nested link.

One other thing to note is that filters applied to the primary table like the filter on the "Type" field in this example should occur before any Link= statements.

NL(Link)

The NL function only allows 10 FilterField/Filter argument pairs. The NL(Link) function can be used to specify linked tables when more than 10 pairs are needed for a linking statement.

This example formula was used in the nested link section and links from the Territory table to the Customer table and then from the Customer table to the Sales Invoice Header table.

```
=NL("Rows","Territory","Code","Link=","Customer","Territory  
Code","=Code","Link=","Sales Invoice Header","Sell-to Customer No.,"=No.,"Posting  
Date",">1/1/2009")
```

This is example could be created using the NL(Link) function as follows:

	A	B	C
1	=NL("Rows","Territory","Code","Link=","B1)	=NL("Link","Customer",,"Territory Code","=Code","Link=","C1)	=NL("Link","Sales Invoice Header",,"Sell-to Customer No.,"=No.,"P Date",,">1/1/2009")
2			

Limiting the Number of Records in a Query

You can place a limit on the number of records that NL will return by entering "Limit=" in one of the FilterField parameters and entering a maximum number in the corresponding Filter parameter.

With Navision, the following example prints the Customers with the ten largest sales.

```
=NL("Rows","Customer","Name",,"-Sales ($)",,"*",,"Limit=","10)
```

With Northwind, the following example will print the OrderIDs of the ten largest orders.

```
=NL("Rows","Order Subtotals","OrderID","-Subtotal","*", "Limit=",10)
```

Limiting the Number of Scanned Records in a Query

ScanLimit= allows you limit the number of records scanned by Jet Reports when querying the database. This can be useful in areas like lookups where performance is important and a small scan of records will provide sufficient detail for lookups.

ScanLimit= is different than Limit= because ScanLimit= limits the number of records scanned during a query, whereas Limit= scans all records returned by the query, but limits the number of records returned by the formula. Thus ScanLimit= can significantly reduce the query time but at the expense of not necessarily returning all records matching the filters.

Neither Limit=, nor ScanLimit= affect NL(Count) or NL(Sum) functions.

ScanLimit= is applicable to Dynamics NAV data sources only.

Sorting

Normally, sorting is in ascending order based on the field values returned; however, you can override the normal sorting and sort in ascending order or descending order based on any field in the table you are using. If you want to sort ascending, put a "+" followed by the field name in the FilterField parameters. To sort descending, put a "-" followed by the field name in the FilterField parameters. The filtering properties of the FilterField remain intact so you can enter a filter in the Filter parameter. If you want to sort on a field without a filter, put a "*" in the corresponding filter since blank filters are not allowed.

With Northwind, the following NL function sorts by CompanyName while filtering for CompanyName starting with B.

```
=NL("Rows","Customers",,"+CompanyName","B*")
```

The following NL function sorts Invoice ProductIDs by CustomerID then by the Quantity, in reverse order.

```
=NL("Rows","Invoices","ProductID","+CustomerID","*", "-Quantity", "<>0")
```

With Navision, the following NL function sorts by Search Name while filtering for Search Names starting with B.

```
=NL("Rows","Customer",,"+Search Name","B*")
```

The following NL function sorts Customer Names by state (in ascending order) then by sales (in descending order) where sales cannot be 0.

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```
=NL("Rows","Customer","Name","+State","*","-Sales ($)",<>0")
```

Using Navision Keys to Optimize Sorting

Jet Reports can sort on any field but if you are sorting in ascending order, you can easily improve the performance of the report by adding a Navision key to the table that you are getting data from. To maximize performance, the key should have all of the fields you are sorting on in the same order as they appear in your NL function. If you do not know how to add a key in Navision, contact your Navision Solutions Center for assistance. If you are returning a field with the NL command, this field also needs to be included in the key to optimize speed.

Jet Reports Sorting vs. Navision Sorting

When possible, Jet Reports will allow Navision to perform all sorting. This is generally preferred because Navision uses keys to sort and is very fast as a result. If a key that matches the filters exactly is not found, however, Jet Reports will sort the resulting data list internally. The following examples illustrate the fields needed in a Navision key to guarantee that Jet results are sorted the same as Navision.

This NL sorts by state, then by Customer No.

```
=NL("Rows","Customer","No.,"+State","*","Sales ($)",<>0")
```

The key that will sort correctly needs to start as follows.

State, No.,

This can be followed by other fields. Since No. is the primary key, it is included automatically at the end of the key so a key of State would suffice.

In some situations, allowing Jet Reports to perform the sort may result in a sort order that seems inconsistent, especially in the case of Code fields. Code fields (i.e. "No." in the "Customer" table) can contain both numbers and letters, and they sort differently depending on whether you are using a native Navision Server or a Navision SQL Server (please see the Navision Help C/Side Reference Guide for details). Jet Report's internal sorting mechanism sorts Code fields the same as a native Navision Server.

Special Characters in a Filter

Characters such as |><=.)&@ are considered special characters by Jet Reports. If you need to include any of these characters as part of filter value then you need to precede the filter with "@@". The "@@" will pass the filter in as a literal string and be evaluated properly. If you have two periods in a filter string (i.e. "A.M."), the filter includes special characters and needs to be prefixed by "@@".

For example, if you need to filter by a customer named "John(Houston)" you will need to place the "@@" in front of "John(Houston)". The resulting formula would look like the following.

```
=NL("Rows","Customers","CustomerID","ContactName","@@John(Houston)")
```

```
=NL("Rows","Sales Invoice","No.,""Customer","@@John(Houston)")
```

Since the name John(Houston) would often be located in an adjacent cell, below is the equivalent formula using a cell reference.

```
=NL("Rows","Customers","CustomerID","ContactName","@"@"&C3)
```

```
=NL("Rows","Sales Invoice","No.,""Customer","@"@"&C3)
```

If you need to combine several filters together that all include special characters, you need to enclose each filter item in single quotes (') instead.

For example, if you need to filter by customers named "John A.M." or "Ben & Jerrys", you need to use the logical OR (a vertical bar |). If there are no special characters, your filter will look like the following.

```
=NL("Rows","Customers","CompanyName","CompanyName","John|Ben")
```

```
=NL("Rows","Customer","Name","Name","John|Ben")
```

Since you have two names that both contain special characters and you cannot use the @@ since you need the | to evaluate as a logical OR, you must use single quotes instead. The following formula shows the proper method of constructing the filter.

```
=NL("Rows","Customers","CustomerID","CompanyName","'John A.M|Ben & Jerrys'")
```

```
=NL("Rows","Sales Invoice","No.,""Customer","'John A.M|Ben & Jerrys'")
```

Again, these names could be coming from cell references, so the equivalent formula with cell references is below.

```
=NL("Rows","Customers","CustomerID","CompanyName","'"&C3&"|"'"&C4&"'")
```

```
=NL("Rows","Sales Invoice","No.,""Customer","'"&C3&"|"'"&C4&"'")
```

Wild Card Filters

The * and ? are wild card filters. Wild card filters cannot be used as part of a range filter in the Navision connector. This means that filters, such as "A*..C*" are not valid. Likewise, "<>A?..B?" is not valid. If you want to create a filter including everything

starting with A through C, the filter would simply be "A..CZ". If you want to create a filter that will exclude everything starting with A through C, you need to think of the filter as including everything except the things starting with A through C. When you think of the filter as including values, then D.. is the filter you would use. Note that "<>A*<>B*<>C*" would also work since no ranges are involved.

This topic applies only to the Navision connector.

Specifying More Than Ten Filters in the NL Function

Filters= allows you use a range to specify filters in NL formulas. This allows you to use more than 10 field/filter pairs, makes report design more obvious, and makes it easier to add filters to a report later.

The following formula contains several filters:

```
=NL("Rows","Sales Invoice Header",,"Sell-To Customer No.",,"10000",,"Salesperson Code",,"JH",,"Posting Date",,">1/1/2009")
```

This formula can be expressed as follows:

	A	B	C
1		Sell-To Customer No.	10000
2		Salesperson Code	JH
3		Posting Date	>1/1/2009
4			
5	=NL("Rows","Sales Invoice Header",,"Filters=",,\$B\$1:\$C\$3)		

Note that the range must contain field/filter pairs. The Report Builder utilizes Filters= and can be used to create examples.

Retrieving Navision Data

Navision Advanced Dimensions

If you have the Navision Advanced Dimensions granule, you can use a dimension code in the Field or FilterField arguments of the NL function with tables that have advanced dimensions. Jet Reports creates "virtual fields" for each of the dimension codes.

Since advanced dimensions are stored in secondary tables, this feature greatly simplifies writing reports with Advanced Dimensions. Because the data must be retrieved from two tables, using Advanced Dimensions might take longer than using fields that are in the same table.

Jet Reports will add virtual fields for dimension codes to custom tables if the custom tables are designed just like the standard tables using the same secondary tables to store advanced dimensions and the same field numbers and key structures.

Virtual fields for dimension codes will not be visible in the Jet Browser field lists.

If you have created an Advanced Dimension with the same name as a field in the table from which you are pulling data, Jet Reports will use the field in the table rather than the Advanced Dimension. An example of this occurs in the Cronus database that ships with Navision. In the Sales Line table (table 37) there is a field named Area (field 82). In the same database, there is an Advanced Dimension named Area. If you use "Area" in an NL or NF function that references the Sales Line table, Jet Reports will use the Area field from the Sales Line table rather than the Advanced Dimension named Area. The simplest fix for this problem is to rename the Advanced Dimension. If you do not want to rename the Advanced Dimension, you will have to pull the data out of the table that stores the Dimension Entries instead.

Advanced Dimensions are only available under Navision.

Navision Codes and No.'s with Special Characters

Characters used in Navision filters like "&", "|", and ".." should not be used as values in Code or No. fields. In addition, you should not use blank Codes or No.'s. Using blanks or special characters in your Code or No. fields will cause problems with reporting and filtering in both Navision and Jet Reports. Fortunately, it is rare to find blanks or special characters in Code or No. fields.

When field values contain filter characters like "&", you must put the field values in single quotes to use them in a filter. For example, if customer IDs have embedded "&"s you can filter on the customer ID as follows.

```
B2: =NL ("Rows","Customer","No.")
```

```
B3: =NL("Customer","Name","No.", ""&B2&"" )
```

Note the customer number is in a formula that surrounds it with single quotes: ""&B2&"". This causes Navision to consider any embedded special characters as part of the field value.

This information is only necessary for Navision users.

Retrieving Great Plains and Universal Data

Blank Spaces in Database Fields

Some databases, including Great Plains, store text data in fixed length fields. One example of a fixed length text field is the Customer Name in Great Plains. Great Plains defines this field as 25 characters and if you put a short name like Bob into the customer entry screen, Great Plains will store Bob in the database as Bob followed by 22 spaces. In Great Plains, and most other databases that store their text fields at a fixed length, the application interface will conceal the blank spaces from you. If you filter for "Bob", Great Plains will find the customer "Bob" even though there are 22 spaces after the name and you did not enter "Bob*" as the filter. Great Plains will also display this username as "Bob", trimming the trailing spaces so you never see them.

Jet Reports can provide an equivalent translation between text values and filters if you activate the "Trim trailing spaces from text fields" option under Jet/Data Sources. We recommend that Great Plains users activate this option. It may also be useful for other database types depending on how the database application represents empty space. This feature is not available when using ODBC drivers unless the Data Source is of type Great Plains. Please note that enabling this option may incur a slight performance hit to the run time of reports, depending on the size of the database and number of text values that are affected.

Navision users do not need to worry about Blank Spaces in their database fields.

Databases with Multiple Schemas

Some databases such as Microsoft SQL Server and Oracle group objects such as tables and records by the owner (or group of owners) of the object. This logical grouping is called a schema and it can be used to restrict which tables a user can access. In many SQL Server databases, the DBO user is the owner of all database objects so "DBO" is the only schema name in the database. Oracle databases generally have a schema per user along with multiple administrative schemas.

Jet Reports will obtain the default schema for your user from your server and unless your database has multiple schemas, you will not need to override that default. If you do need to override the default schema, you can specify the schema with the Schema= keyword. The Schema= keyword goes in a Filter Field parameter of the NL function and the schema name goes in the following Filter parameter. For example, to access all records in a table named Customer that are owned by the SYSTEM user group, you would use the following NL function:

```
=NL("Rows","Customer",,"Schema=","SYSTEM")
```

This topic does not apply to Navision users.

Fiscal Year Beginning Balances in the GP GL function

In Great Plains, Period 0 is a special period. It holds the fiscal year beginning balance. Normally you wouldn't specify it in either the start period or the end period of a GL function. Period zero balances are automatically included if you omit the start period.

Great Plains processes period zero balances differently for Open Years and Historical Years and for Balance Sheet Accounts and Income Statement Accounts. Jet Reports automatically deals with this complexity if you omit the start period when you want to include the beginning balance. Only one period zero balance is normally included in a returned value, but determining which period zero balance to include can be complex, and this is best left to Jet Reports.

If you specify a period zero in a start or end period, you override Jet Reports. Jet Reports only includes the period zero balances you specify in the start and/or end periods, even if this might not result in a valid beginning balance.

It may be necessary to specify period zero in the rare case where you have deleted balances for a historical year and need to return a beginning balance as of the first fiscal year with balances. To retrieve the beginning balance, use period zero as both the start period and end period. For example, if you deleted balances for fiscal year 2001 and you wanted to know the beginning balances as of the start of fiscal year 2002, you should put 2002/0 in both start period and end period.

This topic is only applicable to Great Plains users.

Jet GP Views

In Great Plains, you may have noticed that sometimes even with friendly names installed it is difficult to figure out what certain status field and type field values mean since they are often just lists of integers in the database. It is also difficult at times to figure out how certain tables are related for creating certain types of reports such as sales, purchasing, or general ledger reports. To solve both of these problems, Jet Reports has created Jet Views for some common report writing areas.

A Jet View combines multiple tables, bringing together important information for a particular area. Jet Views look like other tables in your database, and you can write functions and reports using them just like you would a table. The following is a full description of each Jet View, including the GP tables and fields that each view gets its information from.

Name: Jet Customer Master

Description: There is one row for each customer in Great Plains company being viewed. This view also includes address information, salesperson information and customer

Jet Reports Help

balance. This view is good for customer informational reporting such as lists, labels, etc. and is a good jumping off point for other reports organized by customer.

Technical: RM00101 – Customer Master

RM00102 – Address Master (Link = Customer Number and Address Code) Address 1, Address 2, Address 3, City, State, Zip Code, Country, Country Code, Phone 1, Phone 2, Phone 3, Fax, Location Code, UPS Zone

RM00301 – Salesperson Info (Link = Salesperson ID) Salesperson First Name, Salesperson Last Name, Commission Code, Commission Percentage

RM00103 – Customer Details (Link = Customer No.) Customer Balance

Name: Jet Customer Open Transactions

Description: There is one row for each entry in the customer open transactions file in the Great Plains company being viewed. This view is good for customer transaction reporting such as aging and open transactions lists.

Technical: RM20101 – Customer Transactions (only non-void transactions)

RM40401 – Customer Document Type (Link = Document Type) Document Type

RM00101 – Customer (Link = Customer Number) Customer Name, Customer Class, Customer Status (Active/Inactive), Customer Territory, Customer Salesperson, Customer Contact, Customer Phone 1, Customer Credit Limit Amount, Customer Payment Terms, Customer Balance Type (Open/Bal Fwd)

RM00103 – Customer Details (Link = Customer No.) Customer Balance

Name: Jet Customer Open Application

Description: There is one row for each entry in the applied transactions file in the Great Plains company being viewed.

This view allows you to see the transactions that are applied to a transaction that you already have. An example of this can be found in the sample A/R aging report which uses this view linked into the Jet Customer Open Transactions view.

Technical: RM20201 – Applied Transactions

RM40401 – Customer Document Type (Link = Applied to Doc Type) Applied To Doc Type

Name: Jet Customer Period Balance

Description: There is one row for each Customer Record and Fiscal Period. This view allows you to see balance for a particular customer for a particular period in the Great Plains company being viewed.

Technical: RM20101 – Customer Number, Period Balance

SY40100 – Year Filter, Period ID, Period Start, and Period End

Name: Jet Date

Description: There is one row for each Day, Week, Month, Quarter, and Year between 1/1/1900 and 12/31/2100. This view allows you to see dates of different types(date, week, month, quarter, year). It also allows for the easy creation of date filters for reports.

Technical: JET_DATE – Period Start, Period End, Period Type, Period No, Period Name

Name: Jet Fiscal Period

Description: There is one row for each fiscal period for each Series in the Great Plains company being viewed. This view allows you to see the start and end date of each period for the fiscal year, the number of periods in the fiscal year, the period name and whether or not the fiscal period is closed for the series.

Technical: SY40101 – Fiscal Year (Link = Fiscal Year), Start Date, End Date, Number of Periods, Is Historical Year.

Name: Jet GL Account

Description: There is one row for each GL Account in the Great Plains company being viewed. This view allows you to see the account number, it's category, it's description, the individual segments for the account, and their descriptions, the posting type, and whether or not it's active.

Technical: GL00100 – Account Description, Posting Type, Active

GL00105 – Account Index (Link = Account Index), Account Number, Segments

GL00102 – Category Number(Link = Category Number), Category Description

Name: Jet GL Transactions

Description: There is one row for each GL Transaction in the Great Plains company being viewed. This view allows you to see the transaction date, description, account, credit amount, debit amount, transaction amount, period, document date, vendor, account category, and account description for each transaction.

Jet Reports Help

Technical: GL20000 – Transaction Description, Transaction Date, Account Index (Link = Account Index), Credit Amount, Transaction Amount, Debit Amount, Period ID, Document Date, Vendor Name

GL30000 - Transaction Description, Transaction Date, Account Index (Link = Account Index), Credit Amount, Transaction Amount, Debit Amount, Period ID, Document Date, Vendor Name

GL00105 – Account Number, Segments

GL00102 – Category Number(Link = Category Number), Category Description

GL00100 – Account Description, Posting Type

Name: Jet Item All Locations

Description: There is one row for each Item in the Great Plains company being viewed. The quantities reflect the total of all locations. This view allows you to see the Item Number, Description, Type, Cost, Weight, Class, Class Description, Valuation Method, Unit of Measure, Price Level, Price Group, Price Method, Country of Origin, Quantity on Hand, Quantity Committed, Quantity Sold, Quantity Returned, Quantity On Order, and Quantity Back Ordered.

Technical: IV00102 – Item Number, Item Description, Item Type, Standard Cost, Current Cost, Shipping Weight, Drop Ship Index, Class Code, Lot Type, Valuation Method, Unit of Measure Schedule, Warranty Days, Price Level, Item Code, Price Group, Price Method, Purchasing Unit Of Measure, and Selling Unit Of Measure.

IV00102 – (Link = Item Number) Quantity Committed, Quantity Sold, Quantity Returned, Quantity On Order, and Quantity Back Ordered.

IV40800 – (Link = Price Level) Price Level Description

IV40900 – (Link = Price Group) Price Group Description

IV40400 – (Link = Class Code) Class Description

IV40201 – (Link = Unit of Measure Schedule) Unit Of Measure Schedule Desc, Base Unit of Measure

Name: Jet Item by Location

Description: There is one row for each Item in the Great Plains company being viewed for each location. This view allows you to see the Item Number, Description, Type, Cost, Weight, Class, Class Description, Valuation Method, Unit of Measure, Price Level, Price

Group, Price Method, Country of Origin, Quantity on Hand, Quantity Committed, Quantity Sold, Quantity Returned, Quantity On Order, and Quantity Back Ordered.

Technical: IV00102 – Item Number, Item Description, Item Type, Standard Cost, Current Cost, Shipping Weight, Drop Ship Index, Class Code, Lot Type, Valuation Method, Unit of Measure Schedule, Warranty Days, Price Level, Item Code, Price Group, Price Method, Purchasing Unit Of Measure, and Selling Unit Of Measure.

IV00102 – (Link = Item Number) Quantity Committed, Quantity Sold, Quantity Returned, Quantity On Order, and Quantity Back Ordered.

IV40800 – (Link = Price Level) Pricel Level Description

IV40900 – (Link = Price Group) Price Group Description

IV40400 – (Link = Class Code) Class Description

IV40201 – (Link = Unit of Measure Schedule) Unit Of Measure Schedule Desc, Base Unit of Measure

Name: Jet Payroll Transactions

Description: There is one row for each payroll transaction in the Great Plains company being viewed. This view allows you to see the check number, date, department, payroll code, document type, amount, employee name, and employee number for each payroll transaction.

Technical: UPR30300 – Check Date, Check Number, Department, Payroll Code, Transaction Beginning Date, Transaction Ending Date, Pay Rate, Transaction Amount, Pay Advance, State, Local Tax, Workers Comp, Shift Code, Days Worked, Taxable Wages, Weeks Worked, and Employee Class.

UPR00100 – (Link =Employee Number) Employee Number, Employee Last Name, Employee First Name, Employee Middle Name, Social Security Number, Birth Date, Gender, Job Title, Location ID, Vacation Available, Sick Time Available, and Marital Status

Name: Jet Project Accounting

Description: There is one row for each Customer, Contract, Project, and Cost Category in the Great Plains company being viewed. This view allows you to see the Customer number, Contract, Project, forecasted profit, forecasted quantity, forecasted cost, actual revenue, actual costs, actual quantities, and actual billings for each Cost Category.

Technical: PA01301 – Cost Category ID, Forecast Quantity, Forecast Total Cost, Forecast Profit, and Forecast Profit Amount.

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PA33302 – (Link = Project Number) Posted Revenue, Posted Cost, Posted Quantity, and Posted Billings

PA01201 – (Link = Cost Category) Project Number

PA01111 – (Link = Customer Number) Customer Number, Contract Number

Name: Jet Purchase Detail

Description: There is one row for each purchase line in the Great Plains company being viewed. This view allows you to see the unit cost, extended cost, item number, item description, document date, PO status, PO number, vendor number and quantity for each PO line. Both posted and open PO's are available.

Technical: POP30100 – PO Number, PO Status, PO Type, Confirm With, Document Date, Promised Date, Promised Ship Date, Required Date, Requisition Date, Shipping Method, Vendor Number, Vendor Name, Minimum Order, Vendor Address Code, Vendor Company ID, Primary bill-to Address Code, Primary Ship-to Address Code, Vendor Company Name, Vendor Contact, Address 1, Address 2, Address 3, City, State, Zip Code, Country Code, Country, Phone 1, Phone 2, Phone 3, Fax, Payment Terms ID, Discount Date, Due Date, Created Date, Buyer ID, and POP Contract Number.

POP10100 – PO Number, PO Status, PO Type, Confirm With, Document Date, Promised Date, Promised Ship Date, Required Date, Requisition Date, Shipping Method, Vendor Number, Vendor Name, Minimum Order, Vendor Address Code, Vendor Company ID, Primary bill-to Address Code, Primary Ship-to Address Code, Vendor Company Name, Vendor Contact, Address 1, Address 2, Address 3, City, State, Zip Code, Country Code, Country, Phone 1, Phone 2, Phone 3, Fax, Payment Terms ID, Discount Date, Due Date, Created Date, Buyer ID, and POP Contract Number.

POP30110 – (Link = PO Number) PO Line Status, Line Item Number, Line Item Description, Line Quantity Ordered, Vendor Line Item Number, Vendor Line Item Description, Location Code, Unit of Measure, Unit Cost, Extended Cost, Item Required Date, Item Requested Date, Release By Date, Released Date, Line Number, and Release.

POP30110 – (Link = PO Number) PO Line Status, Line Item Number, Line Item Description, Line Quantity Ordered, Vendor Line Item Number, Vendor Line Item Description, Location Code, Unit of Measure, Unit Cost, Extended Cost, Item Required Date, Item Requested Date, Release By Date, Released Date, Line Number, and Release.

POP10110 – (Link = PO Number) PO Line Status, Line Item Number, Line Item Description, Line Quantity Ordered, Vendor Line Item Number, Vendor Line Item Description, Location Code, Unit of Measure, Unit Cost, Extended Cost, Item Required Date, Item Requested Date, Release By Date, Released Date, Line Number, and Release.

Name: Jet Purchase Header

Description: There is one row for each PO in the Great Plains company being viewed. This view allows you to see the PO document information including PO document totals. It shows document date, shipping method, subtotal, freight amount, miscellaneous charges, tax amount, vendor number, vendor name, and discount amounts. Both posted and open PO's are available.

Technical: POP30100 – PO Number, PO Status, PO Type, Confirm With, Document Date, Promised Date, Promised Ship Date, Required Date, Requisition Date, Shipping Method, Remaining Subtotal, Subtotal, Freight Amount, Misc Charges Amount, Tax Amount, Vendor Number, Vendor Name, Minimum Order, Vendor Address Code, Vendor Company ID, Primary Bill-to Address Code, Primary Ship-to Address Code, Vendor Company Name, Vendor Contact, Address 1, Address 2, Address 3, City, State, Zip Code, Country Code, Country, Phone 1, Phone 2, Phone 3, Fax, Payment Terms ID, Discount Dollar Amt, Discount Percent Amt, Discount Amt Available, Discount Date, Due Date, Created Date, Buyer ID, Freight Tax Amt, Misc Tax Amount, and POP Contract Number.

POP10100 – PO Number, PO Status, PO Type, Confirm With, Document Date, Promised Date, Promised Ship Date, Required Date, Requisition Date, Shipping Method, Remaining Subtotal, Subtotal, Freight Amount, Misc Charges Amount, Tax Amount, Vendor Number, Vendor Name, Minimum Order, Vendor Address Code, Vendor Company ID, Primary Bill-to Address Code, Primary Ship-to Address Code, Vendor Company Name, Vendor Contact, Address 1, Address 2, Address 3, City, State, Zip Code, Country Code, Country, Phone 1, Phone 2, Phone 3, Fax, Payment Terms ID, Discount Dollar Amt, Discount Percent Amt, Discount Amt Available, Discount Date, Due Date, Created Date, Buyer ID, Freight Tax Amt, Misc Tax Amount, and POP Contract Number.

Name: Jet Sales Detail

Description: There is one row for each sales line in the Great Plains company being viewed. This view allows you to see the line item numbers and descriptions, unit cost, unit price, extended price, remaining price, and quantities for each sales line. Both the posted and open sales lines are included.

Technical: SOP30200 – Document Type, Document Number, Posting Date, Document Date, Order Date, Invoice Date, Document Back Order Date, Document Fulfillment Date, Document Actual Ship Date, Due Date, Location Code, Customer Number, Customer Name, Customer PO Number, Contact Person, Ship to Name, Address 1, Address 2, Address 3, City, State, Zip Code, Country Code, Country Name, Phone 1, Phone 2, Phone 3, Fax, Shipment Method, Document Status, Void Status, Currency ID, Salesperson ID, Sales Territory, UPS Zone, and Document Payment Amount Received.

SOP10100 – Document Type, Document Number, Posting Date, Document Date, Order Date, Invoice Date, Document Back Order Date, Document Fulfillment Date, Document Actual Ship Date, Due Date, Location Code, Customer Number, Customer Name,

Jet Reports Help

Customer PO Number, Contact Person, Ship to Name, Address 1, Address 2, Address 3, City, State, Zip Code, Country Code, Country Name, Phone 1, Phone 2, Phone 3, Fax, Shipment Method, Document Status, Void Status, Currency ID, Salesperson ID, Sales Territory, UPS Zone, and Document Payment Amount Received.

SOP30300 – (Link = Document Number) Line Item Number, Line Item Description, Unit of Measure, Unit Cost, Unit Price, Unit Extended Price, Unit Remaining Price, Unit Quantity, Unit Qty Damaged, Unit Qty Returned, Unit Qty on Hand, Unit Qty Ordered, Unit Qty Received, and Unit Qty on Invoice.

SOP10200 – (Link = Document Number) Line Item Number, Line Item Description, Unit of Measure, Unit Cost, Unit Price, Unit Extended Price, Unit Remaining Price, Unit Quantity, Unit Qty Damaged, Unit Qty Returned, Unit Qty on Hand, Unit Qty Ordered, Unit Qty Received, and Unit Qty on Invoice.

Name: Jet Sales Detail

Description: There is one row for each sales order in the Great Plains company being viewed. This view allows you to see the customer, document amount, document status, and document date for sales documents. Both the posted and open sales documents are included.

Technical: SOP30200 – Document Type, Document Type Description, Document Number, Posting Date, Document Date, Order Date, Invoice Date, Document Back Order Date, Document Fulfillment Date, Document Actual Ship Date, Due Date, Location Code, Customer Number, Customer Name, Customer PO Number, Contact Person, Ship to Name, Address 1, Address 2, Address 3, City, State, Zip Code, Country Code, Country Name, Phone 1, Phone 2, Phone 3, Fax, Shipment Method, Document Status, Void Status, Currency ID, Salesperson ID, Sales Territory, UPS Zone, and Document Payment Amount Received, Commission Amount, Discount Available Amount, Document Amount, and Subtotal.

SOP10100 – Document Type, Document Type Description, Document Number, Posting Date, Document Date, Order Date, Invoice Date, Document Back Order Date, Document Fulfillment Date, Document Actual Ship Date, Due Date, Location Code, Customer Number, Customer Name, Customer PO Number, Contact Person, Ship to Name, Address 1, Address 2, Address 3, City, State, Zip Code, Country Code, Country Name, Phone 1, Phone 2, Phone 3, Fax, Shipment Method, Document Status, Void Status, Currency ID, Salesperson ID, Sales Territory, UPS Zone, and Document Payment Amount Received, Commission Amount, Discount Available Amount, Document Amount, and Subtotal.

Name: Jet Vendor Open Application

Description: There is one row for each apply-from document in the Great Plains company being viewed. This view allows you to see the amount applied, remaining

amount, the vendor, the document type, the document number, and the due date for each open payable document.

Technical: PM10200 – Applied To Doc Number, Voucher Number, Applied Amount, Applied From Doc Number, Applied From Doc Date, and Vendor Number.

PM40102 – (Link = Applied To Doc Type) Applied To Doc Type and Applied From Doc Type.

PM30300 – Applied To Doc Number, Voucher Number, Applied Amount, Applied From Doc Number, Applied From Doc Date, and Vendor Number.

Name: Jet Vendor Open Transactions

Description: There is one row for each open payable document and the amount applied in the Great Plains company being viewed. This view allows you to see the amount applied, remaining amount, the vendor, the document type, the document number, and the due date for each open payable document.

Technical: PM20000 – Document Number, Document Date, Due Date, Discount Date, Amount, Remaining Amount, Vendor Balance, Discount %, Discount Available, Discount Taken, Purchases Amount, Freight Amount, Misc Amount, Tax Amount, Trade Discount Amount, Write Off Amount, PO Number, Shipping Method, Currency ID, Payment Type, Apply Withholding, Batch Number, Batch Source, and Voucher Number.

PM40102 – (Link = Document Type) Document Type Type.

PM00200 – (Link = Vendor Number) Vendor Number, Vendor Name, and Vendor Class.

Name: Jet Vendor Period Balance

Description: There is one row for each period in the fiscal calendar of the Great Plains company being viewed. This view allows you to see the balance for a vendor as of a particular period.

Technical: PM20000 – Vendor Number, Period Balance.

SY40100 – (Link = Period End, Period Start, Year Filter) Year Filter, Period ID, Period Start, and Period End.

Name: Jet Vendor Master

Description: There is one row for each vendor and each period in the fiscal year in the Great Plains company being viewed. This view allows you to see information about each individual vendor. Such as: Vendor Number, Vendor Name, Address, Class, Contact, Phone, Fax, Shipping Method, Payment Terms, Amount Billed, and Amount Paid.

Jet Reports Help

Technical: PM00100 – (Link = Vendor Class ID) Class Description, and Vendor Class ID.

PM00200 – Vendor Number, Vendor Name, Primary Address Code, Purchase Address Code, Ship From Address Code, Remit To Address Code, Class Description, Contact, Address 1, Address 2, Address 3, City State, Zip Code, Country, Phone 1, Phone 2, Phone 3, Fax, UPS Zone, Shipping Method, Status, Currency ID, Minimum Order, Payment Terms ID, Min Payment Percent, Min Payment Amount, Max Invoice Amount, Comment 1, Comment 2, Credit Limit Amount, Discount Grace Period, Due Date Grace Period, and Country Code.

PM00202 – (Link = Vendor Number) Period Filter, Year Filter, Amount Billed, Amount Paid, and Number of Invoices.

SQL=

SQL= is a power feature for the Universal Connector to allow absolutely any data to be retrieved from any database. This feature is intended for advanced users only. This section is not intended to teach you SQL, but only to show you how to use the SQL= feature.

SQL= allows you to use SQL queries directly in the NL function while having Jet Reports' user-friendly filtering capabilities. This allows you to create rows, columns or sheets from SQL queries and to use cell references for user editable filters that will be converted into SQL filters and placed in your SQL query. This function allows you to do complicated SQL Joins that are not possible using the current Jet Reports Universal connector. It also allows you to make the SQL server do the work of sorting the resulting data.

SQL= Example

Please note that the table/field names and date ranges in this example will work with Great Plains 8.0.

In Great Plains, many tables store a G/L account index instead of the actual G/L account number. Users want to sort by the G/L account number. In SQL, you could join two tables to produce this result. The SQL statement might be something like the following.

```
"SELECT ACTNUMST, IVIVINDX  
  
FROM IV30300 LEFT JOIN GL00105 ON IVIVINDX = ACTINDX  
  
WHERE DOCDATE BETWEEN '2004-01-20' AND '2004-01-31'  
  
ORDER BY ACTNUMST, IVIVINDX"
```

This query returns a list of G/L account numbers and the G/L account index for accounts to which inventory have been expensed during the last 11 days of January, 2004, sorted by the G/L account number. The corresponding SQL= statement is as follows.

```
"SQL=SELECT DISTINCT ACTNUMST, IVIVINDX FROM IV30300 LEFT JOIN
GL00105 ON IVIVINDX = ACTINDX WHERE %Filter1% ORDER BY %Sort%"
```

Notice that %Filter1% will be replaced by Jet Reports filters in the NL function. You must put "ORDER BY %Sort%" if any of your NL function filters does a sort that you want to affect the SQL statement. You can put this statement in a separate cell, say C5, and use a cell reference as the NL table parameter . The "SQL" "What" parameter is used to illustrate the resulting SQL query. You can put "Rows" as the "What" argument to return the actual rows.

```
=NL("SQL", $C$5, "ACTNUMST", "1S=DOCDATE", C18, "+1S=ACTNUMST", "*", "+1S
=IVIVINDX", "*")
```

Note that even though there are multiple filter fields/filters, you only need a single %Filter1% replacement string since there is only one WHERE clause. If you had Sub queries or Joins that had additional Where clauses, you would need to use multiple %FilterX% replacement strings if the fields and filters did not match in the two tables.

SQL= is not available for a Navision connector.

Introducing Filter Lookup

When using the Jet Insert Function wizard, Report Wizard or Report Options with Database Lookup, you may be presented with a filter lookup window.

You will see a list of data values from your database. This list contains the first 100 unique values from the first 1000 records in the table (these limits can be changed in Jet/Settings). You can simply click on a value in the list and click OK or double click a value and this value will be inserted as your filter.

The second way to create a filter is with the Current Filter text box at the bottom of the window. You can click a value in the list and click the Insert Selected Value button to insert it into the Current Filter box. You can also click on any of the Insert Filter Operator buttons to insert that particular operator. You can also type in the Current Filter box manually. Once you have successfully created the desired filter, click OK and it will be inserted into your filter.

Introducing the NL Function

Jet Reports adds the NL worksheet function to Excel. This function retrieves data from your database based on the function parameters that you set.

Jet Reports Help

With Navision, the following example of an NL Formula retrieves the balance of customer "10000".

```
=NL("Customer","Balance","No.,"10000")
```

The formula tells Jet Reports to return the Balance field in the Customer table for the record that has a customer No. of "10000".

With Northwind, the following example of an NL Formula retrieves the phone number for a customer with the CustomerID "ALFKI".

```
=NL("Customers","Phone","CustomerID","ALFKI")
```

The formula tells Jet Reports to return the Phone field in the Customers table for the record that has a CustomerID of "ALFKI".

In this example, the first parameter is not used, so you enter a comma to move to the second parameter, which is the table name. The third parameter is the field to return. The fourth is a filter field, and the last parameter is the filter value. The easiest way to get this formula is to use the Jet Browser to drag the "Phone" field out of the "Customers" table with the Browser's Return option set to "First". You now have an NL formula without the filters. You can add the filters using the Jet Function Wizard (Jfx).

Since only one record in the table matches the filter set, Jet Reports knows exactly what to return. What do you think the following formula would return?

```
=NL("Customers","ContactName","Region","CA")
```

```
=NL("Customer","Balance","State","CA")
```

Since you might have more than one customer in the state of California, Jet Reports will return the name of the first customer it finds in California. If you omit the first parameter, NL always returns the field of the first record it finds that matches the filters. Returning the first record is usually used when the filters specify exactly one record.

More Northwind Examples

How would you get the Sum of the Quantities for all Invoices for customers in London?
Here is the formula.

```
=NL("Sum","Invoices","Quantity","City","London")
```

This formula will find all Invoices that have a City of London and return the Sum of their Quantities. If you only wanted quantities for Invoices in London for the product named "Sir Rodneys Scones", you could use:

=NL("Sum","Invoices","Quantity","City","London","ProductName", "Sir Rodney's Scones")

Can you guess how to write the formula for the Sum of all Quantities greater than 5?

=NL("Sum","Invoices","Quantity","Quantity",>5")

You can specify up to ten filters. If you wanted the sum of the Invoice Quantities for the product named "Sir Rodney's Scones" with Quantity greater than 5 in London, you could use:

=NL("Sum","Invoices","Quantity","City","London","ProductName","Sir Rodney's Scones", "Quantity",>5")

If you wanted to know how many Invoices had Quantities greater than 5 in London you could use:

=NL("Count","Invoices","Quantity","City","London","Quantity",>5")

More Navision Examples

How would you get the sum of the balances for all customers in Georgia? Here is the formula.

=NL("Sum","Customer","Balance","State","GA")

This formula will find all customers in Georgia and return the sum of their balances. If you only wanted customers in Atlanta, you could use:

=NL("Sum","Customer","Balance","City","Atlanta")

Can you guess how to write the formula for the sum of all positive balances?

=NL("Sum","Customer","Balance","Balance",>0")

You can specify up to ten filters. If you wanted the sum of the balances of all customers with positive balances in Atlanta, GA, you could use:

=NL("Sum","Customer","Balance","Balance",>0,"City","Atlanta","State","GA")

If you wanted to know how many customers had positive balances in Atlanta, GA you could use

=NL("Count","Customer","Balance","Balance",>0,"City","Atlanta","State","GA")

Jet Reports Help

The first three parameters of the NL function specify what to retrieve, the table, and the field. The fourth, fifth and following parameters specify the filters. For each filter, you include two parameters, the filter field and the filter value.

If the first parameter, the "what" parameter, is blank, Jet retrieves the first record that matches the filters. You can also use "Sum" to sum up values in a field or "Count" to count records in a table.

Introducing the NF Function

The NL function works great if you want a single field from a record, but if you want to retrieve more than one field from the same record, retyping all the filters for each field can be tedious.

Navision Cronus Example

With Navision, the following report lists Employee numbers along with their First Name, Last Name and State.

The employee No. uniquely identifies each employee, so you can make a list of No.s, then use it as a filter to get the names and states for each employee. Sample output of the report is listed below.

The NF function is a shortcut that will return the value of a field in a record. One or more NF functions can be used with a single NL function that has the NL field parameter left blank. The report listed above can be created with much less typing by using this method. The simpler version of the report is shown below.

As you can see, the second version requires much less typing. The output of the new report is shown below.

The new column does not contain information that you want to see on the report so you can hide this column (see Automatic Hidden Columns and Rows below).

If you drag and drop fields from the Jet Browser with the Rows option selected, Jet Reports will create the appropriate NL and NF formulas for you.

Access Northwind Example

With Northwind, the following report lists CustomerIDs with their City and Phone.

The CustomerID uniquely identifies each customer, so you make a list of CustomerIDs, then use it as a filter to get the City and Phone for each customer. A sample of the output of this report is listed below.

The NF function is a shortcut that will return the value of a field in a record. One or more NF functions can be used with a single NL function that has the NL field parameter left blank. The report listed above can be created with much less typing by using this method. The simpler version of the report is shown below.

As you can see, the second version requires much less typing. The list of fields in the NL function is enclosed in brackets { } and must include all of the fields you want to use in the NF functions. The first parameter of the NF function has a cell reference to the NL command, and the second parameter is the name of the field in which you are interested. Note that this type of NL function returns what is called a record key, which will be discussed later. A sample of the output of the report is listed below.

As you can see, the first column does not contain information that you want to see on the report so you can hide this column (see Automatic Hidden Columns, Sheets and Rows below).

Since you are working in the Customers table, you can make this report even easier. The CustomerID field uniquely identifies each record in the Customers table so it is called the primary key for that table. Since the Customers table has a primary key, you can just leave the Field parameter blank and Jet Reports will take care of the rest. The same report is pictured below with the shorter NL command.

If there is no primary key in the table, Jet Reports will give an error message if you leave the Field parameter of the NL blank so you can try leaving the Field blank, then fill in a list of field names if necessary. If you drag and drop fields from the Jet Browser, Jet Reports will check the table for a primary key and create the appropriate formulas.

Introducing the GL Function

Jet Reports Help

Reports based on the G/L are easy with the GL function. Now the GL function is available on both Navision and Great Plains databases.

Navision Cronus Examples

To retrieve the balance of G/L account 44100, you would type the following.

```
=GL("Balance","44100")
```

If you wanted to know the net change of account 44100 between 1/1/2002 and 1/31/2002, you would type the following.

```
=GL("Balance","44100","1/1/02","1/31/02")
```

With Navision, you can filter on three dimensions for G/L Balances. One of these dimensions is called Business Unit. The other two are Department and Project in Navision versions prior to 3.0. With Navision version 3.0 and later, the names of the dimensions can be changed, but they are generally called Global Dimension 1 and Global Dimension 2. For the balance of account "40100" with Global Dimension 1 of "USA", Global Dim 2 of "COPPER", and Business Unit of "US MINING" you can use the following function.

```
=GL("Balance","40100",,,,"USA","COPPER",,,,"US MINING")
```

Great Plains Fabrikam Examples

To retrieve the balance of G/L account 000-1100-00, you would type the following.

```
=GL("Balance","000-1100-00")
```

If you wanted to know the net change of account 000-1100-00 for the 1st quarter of 2002, you could type the following.

```
=GL("Balance","000-1100-00","2002/1","2002/3")
```

With Great Plains, you can filter on the account number as a whole or you can filter on the individual segments of the account number. So you could also create the last GL function to find the 2002 1st quarter net change for account 000-1100-00 like the following.

```
=GL("Balance",,"2002/1","2002/3",,"000","1100","00")
```

Note that while some numbers such as 2002 and the start period and end period do not need quotes, "000" and "00" must be quoted so that Excel does not interpret them as numbers and change them to single zeros.

The GL Formula has many parameters so the Jet Function wizard (Jfx) is a convenient tool for entering the GL Function.

The GL function is not available in Jet Reports Universal.

Introducing the Classic Report Wizard

You can easily create an entire report from a single table in your database using the Report Wizard, accessible from the Classic Wizard button on the toolbar and ribbon or the selection on the Jet menu.

The first step is to select the table and data source. You have the option of using your default data source, which will not explicitly define a data source in your functions, or selecting a data source. Clicking the drop down arrow will give you a list with all the tables in your database.

On the next screen, you can select fields which you want in your report and drag and drop to put them in the desired order they will appear on the report.

The next screen allows you to Group (subtotal) your data by a specific field you selected.

The next screen allows you to sort your data by a field or fields in ascending or descending order.

If you have numeric fields in your report, the next screen allows you to create totals for these fields.

The next screen allows you to set filters. Note that if you check the "Set at Report runtime" box below the filter, this filter will be added to the Options sheet the wizard creates for you.

Notice that after you select a field, you can click the arrow next to the value to get a lookup window. See the topic [Introducing Filter Lookup](#) for more information on this window.

Finally, you are given the options to prepare report for Viewers, add basic Excel formatting, and to use Excel's data grouping feature. Click finish at this point to create your report.

Note that the report is created in an entirely new Excel workbook so it does not overwrite any existing worksheets in open workbooks.

Introducing the Insert Jet Function Wizard (Jfx)

Jet Reports Help

Jet functions can be easily inserted with the Insert Jet Function wizard, accessible from the Jfx button or the Jet/Insert Function menu option. This wizard works much like the Excel Insert Function wizard, so its interface should be familiar to Excel users.

The first step to inserting a function is to select the function and data source. You have the option of using your default data source, which will not explicitly define a data source in your function, or selecting a data source. Notice that the functions listed may be different depending on the type of data source you select.

After selecting a function such as the NL, you will be presented with the list of parameters for that function.

Notice that clicking the arrow next to the What parameter will give you a list of possible arguments for that parameter.

When you click the arrow next to the Table parameter you will get a Lookup window with a list of tables in your database.

Similarly, clicking the arrows next to the Field or FilterField parameters will give you a lookup window with a list of the fields in the specified table.

Clicking the arrow next to the Filter parameter will give you a filter lookup window. See [Introducing Filter Lookup](#) for more information.

Also, clicking any cell or range in Excel will insert a cell reference for that cell or range into the currently selected argument in the Jfx.

Notice that when you click the Evaluate button at the bottom of the window, you will get an approximate result for the function. This approximate result is the same as the result you will see in Design mode before you run Jet/Report and may not be accurate. There is also a drilldown button which will drilldown on the data in your database. When you click OK, your function will be inserted into the cell on your worksheet that was active when you opened the Jfx.

Introducing the Report Builder

The report builder allows you to quickly create reports based on information that is relevant to your task. When you start the report builder, you can select from the All Tables view or a data view that has been pre-configured to the type of report that you wish to create.

When you select a data view, you will see a description of the data view and a detailed mapping of the navigational links that are available. Each data view contains a name, a description and a base table. This information is pre-configured in the default data views. With the Data View Creator Tool, users can also modify categories and data views or create their own.

After selecting a data view, you may add fields, groupings, filters and subtotals based on the information in the data view and/or other tables that you can navigate to using the pre-configured links. Links appear in the report builder as bold fields with small navigational arrows next to them. These links allow you to navigate to get information from other areas of the database without worrying about how to link the information yourself.

Navigational links also provide the basis for grouping. You can group by any link field, or navigate through that link and group by link fields it contains. All of the fields in any level of navigation are available to you to group by. If you do not see what you need, see too much, or do not like the order of presentation, you can use the data view creator tool to modify the data views.

Before You Start

Before you use the report builder, you will need to import or create data views and categories. You can create your own, import views and/or categories from another user, or import the default data views.

Default data views are available on <http://www.jetreports.com/dataviews>. Links to this site are provided on the start menu (Start/All Programs/Jet Reports/Dynamics NAV/Download Data Views). You can also click on the Download Data Views link within the report builder.

After downloading the file, you should open the .zip folder and extract the data view category (.jdc) file.

Importing Data Views and Categories

To import data views and categories, choose Data Source Settings on the Jet tab in Excel and select File/Import/Data View Categories.

Each data source can have a unique set of data views, so if you want to have more than one set, or the same set for multiple data views, you should import the data views in each data source that you want to use them with.

The Report Builder is only available for Microsoft Nav data sources.

Building Reports With the Report Builder

Selecting a Data View

After importing data views, open the Report Builder from the Jet menu and start by clicking on the categories to show the data views within. Now click on the data views to select a data view. When you select a data view, the description and relationships will appear on the right side of the screen.

Jet Reports Help

Click the + nodes to expand or collapse the categories and/or the relationship information.

Click the Next button to move to the next step.

Adding Fields

On the Add Fields tab, double click a field to add it to the report. As you click on the fields, they will appear in the report preview area on the bottom of the form. To remove fields, click the remove button. If there are multiple fields in the report preview area, the most recently added field will be removed. Scroll up and down or use the find-as-you-type method to find any other fields you would like to add.

Fields with navigational links are displayed in bold with small navigational arrows displayed to the right of the fields' names. To navigate to a related area, click on the arrow next to the field's name or use your right arrow key.

As you navigate to other areas, you will notice a “bread crumb” display just above the field list that shows the path from the base table to the table to which you have navigated. You can click on any of the fields listed in the bread crumb display to return to that point in the chain. You may add fields from any navigable area.

When you have completed adding fields, click Next to move to the Add Groupings tab or select a tab directly by clicking the buttons at the top of the form.

Adding Groupings

To add groupings, double-click on the grouping field, or click the add button. When you do so, you will see the group appear in the report preview area on the bottom of the form.

After adding a grouping, you will be automatically navigates to the Add Fields tab so that you can add fields for the group. The groups that are available are defined by the navigational links, so if you do not see a group that you would like to group by, this can be modified by adding a linking field using the Data View Creator tool.

One thing to note in grouping is that you are not limited to single level navigation. If you would like to group item sales by territory code, navigate to the customer and then from the customer select the territory code and click Add.

To remove a group, click the remove button and the most recently added group will be removed. Be careful that the Add Groupings tab on the top of the form is selected and the not Add Fields tab. If the Add Fields tab is selected, the last field added, not the last group added, will be removed.

When you have completed adding groups, click Next to move to the Add Filters area or select any area directly by clicking the tabs at the top of the form.

Adding Filters

Click on a row in the report preview area to select filters for that row. The active row has a small arrow and is represented in light grey. Enter any default filter values in the filter area and click the Report Option checkbox for any filters that you would like the user to be able to modify when running the report.

Only fields that are on the report are available for filtering so if you would like to filter a field that does not appear on the reports, you can either add it to the report and hide it, or add it as a default filter in the data view itself with the Data View Creator tool.

Adding Subtotals

All numeric fields in the base table level (the most indented row in the report preview area) are available for automatic subtotalling. Check the box next to the numeric fields to add subtotalling.

When you are done adding subtotals, click Finish and the report will be created in a new Excel workbook for you.

The Report Builder is only available for Microsoft Nav data sources.

Array Calculations

Arrays are lists of data values. You can obtain a string representing such a list from Jet using "Filter" as the What parameter in an NL function. The values in arrays returned by Jet are guaranteed to be unique. The resulting array might be a list of Customers or a list of Invoice Document numbers or any other list of data that match a set of filters. The array calculation operations of the NP function allow you to find different combinations of two arrays.

An example of when you would need an array calculation is listing the invoice document numbers where either the Type on an Invoice Line is "Item" for all item numbers, or the Type is "G/L Account" and the account number is 300. Both the Item numbers and the G/L Account numbers are stored in the same "No." field, so there is no single set of filters that will create this list of document numbers.

The array operations available in the NP function are "Difference", "Union" and "Intersect". The difference between two arrays consists of all of the elements that are in the first array but are not in the second. The union of two arrays consists of a single copy of all of the elements in both arrays with any duplicates eliminated. The intersection of two arrays is the set of elements that are common to both arrays. An example of the results of the array operations are listed in the table below.

Array1: {100, 200, 300, 400, 500}	Array2: {400, 500, 900, 1000, 2000}
Difference	{100, 200, 300}

Jet Reports Help

Union	{ 100, 200, 300, 400, 500, 900, 1000, 2000 }
Intersect	{ 400, 500 }

Example 1

The following formula creates a list down rows of the union of all of the customers whose names start with A with all the customers whose names start with B.

Access Northwind

```
=NL("Rows", NP("Union", NL("Filter", "Customers", "ContactName", "ContactName", "A*"), NL("Filter", "Customers", "ContactName", "ContactName", "B*"))))
```

Navision Cronus

```
=NL("Rows", NP("Union", NL("Filter", "Customer", "No.", "Name", "A*"), NL("Filter", "Customer", "No.", "Name", "B*"))))
```

Great Plains Fabrikam

```
=NL("Rows", NP("Union", NL("Filter", "RM00101", "CUSTNMBR", "CUSTNAME", "A*"), NL("Filter", "RM00101", "CUSTNMBR", "CUSTNAME", "B*"))))
```

Note that you could do the same operation with the following simple formula.

Access Northwind

```
=NL("Rows", "Customers", "ContactID", "ContactName", "A*|B*")
```

Navision Cronus

```
=NL("Rows", "Customer", "No.", "Name", "A*|B*")
```

Great Plains Fabrikam

```
=NL("Rows", "RM00101", "CUSTNMBR", "CUSTNAME", "A*|B*")
```

Example 2

Access Northwind

This formula creates a list down rows of the Order IDs of all of the orders where the Region field is either USA or Canada.

```
=NL("Rows", NP("Union", NL("Filter", "Orders", "OrderID", "ShipCountry", "USA"),
NL("Filter", "Orders", "OrderID", "ShipCountry", "Canada"))))
```

Navision Cronus

The following formula creates a list down rows of the document numbers of all invoices where either the Type field is "Item", or it is "G/L Account" and the No. field is 2000.

```
=NL("Rows", NP("Union", NL("Filter", "Sales Invoice Line", "Document No.", "Type", "Item"), NL("Filter", "Sales Invoice Line", "Document No.", "Type", "G/L Account", "No.", "2000")))
```

Great Plains Fabrikam

The following formula creates a list down rows of the GL account 2nd segments where either the account type is 2 or the posting type is 0.

```
=NL("Rows", NP("Union", NL("Filter", "GL00100", "ACTNUMBR_2", "ACCTTYPE", 2), NL("Filter", "GL00100", "ACTNUMBR_2", "PSTNGTYP", 0)))
```

You should be cautious using arrays because they are often not the easiest or fastest way to solve a problem. Example 1 is a good example of a query that does not require arrays, and will run much slower if you use them. Also note that if NP("Union"), NP("Intersect"), or NP("Difference") are by themselves in a cell they will only return the first value from the array. You must put them inside NL("Rows") as in the examples above in order to correctly return all the data.

There are two more array operations that behave a bit differently than those listed above: "Split" and "Join". "Split" takes two text strings and splits the first string based on the second, resulting in an array. For instance, if you wanted to create a list of account numbers based on the string "1000+2000+3000", the formula would look like the following.

```
=NP("Split", "1000+2000+3000", "+")
```

The result would be the array {"1000", "2000", "3000"}. Note that this must be put inside an NL("Rows") as in the Union examples above in order to return all the data.

In the opposite scenario, if you have an array but would like to create a text string by joining each element of that array separated by a given string, you would use the "Join" operation. Using the same array, you can create a string for a filter with array values separated by the "|" character with the following formula.

```
=NP("Join", {"1000", "2000", "3000"}, "|")
```

Jet Reports Help

The result would be the text string "1000|2000|3000", which is a valid filter that you could pass into an NL function.

For Join and Split, Arg1 of the NP function is the value you want to manipulate and Arg2 is the character by which you want to join or split the value. If you experiment with these operations, you will find that you have an amazing amount of flexibility, especially when you use them in conjunction with the other array calculation formulas listed above.

Please note that the results of an NP("Join") may be very large and thus putting it directly inside another function may cause problems with Excel's 256 character formula limit as in the following formula.

```
=NL("Rows",NP("Split",NP("Join",{"some","array","here"},"|"),"|"))
```

It is recommended that in a situation like this the NP("Join") be placed in a separate cell as in the following.

```
B2: =NP("Join",{"some","array","here"},"|")
```

```
B3: =NL("Rows",NP("Split",B2,"|"),"|")
```

Design Mode Calculations

Some functions return different values in design mode than in report mode. In design mode, sorts, array filters, and link= are all ignored, and the first value matching the filters is returned. This makes design mode calculations faster while still generating generally accurate reports, but the accuracy of design mode results should not be relied on.

Loading Pictures

To load a bitmap from a file, put "Picture" in the What parameter, leave the table blank, and put the file name in the Field parameter. To use a picture that is stored as a BLOB in Navision, enter the Table, Field and Filter parameters that will select the correct BLOB. You can enter "Height=" and "Width=" in the filter fields with numbers in the corresponding filters to set the height and width of the picture. If you do not enter sizing specifications, Excel will choose a default size for the picture.

The following NL function displays a picture from Navision for Item 10000.

```
=NL("Picture","Item","Picture","No.,""10000")
```

The following NL function that will display a picture from a file with the height and width specified.

```
=NL("Picture",,"C:\testdb\picture.bmp","Height=","25","Width=","30")
```

Building a Report From Multiple Databases

If you want to build a report that uses multiple databases of any type, you need to create a data source for each database. Check the installation manual to find information on configuring data sources. Once your data sources are configured, you can specify separate connections in both the NL and the GL functions. You can change the connection that the NL function uses by specifying "DataSource=" as a filter field and the data source name as a filter. The Jet Browser will do this automatically if you are dragging and dropping from a data source that is not the default. The GL function has a separate parameter that will accept the data source name. The following example sums the amounts from Purchase Invoice number 1000 from both a Navision database and a Northwind Access database.

```
=NL(1,"Purch. Inv. Header", "Amount", "No.", "1000", "DataSource=", "Navision") +
NL(1,"Orders", "Amount", "OrderID", "1000", "Connection=", "Northwind")
```

In the preceding example, there is a data source named Navision that connects to a Navision database and a data source named Northwind that connects to the Northwind Access database. An important point to notice is that if you and a colleague both use the same report, you need to name your data sources the same thing or else make the data source name an option on the options sheet..

Listing Data Sources

The NP(DataSources) function returns an array of data source names. The following formula produces rows for each data source:

```
=NL("Rows",NP("DataSources"))
```

The following lookup formula provides a list of data sources in the report options:

```
=NL("Lookup",NP("DataSources"),"Select a Data Source")
```

Here's how it would look on the report options sheet:

	A	B	C	D
1	Auto+Hide+HideSheet	Title	Value	Lookup
2	Option	Data Source	*	=NL("Lookup",NP("DataSource"),"Select a Data Source")

Showing Data Queries

Jet Reports Help

ShowQuery= can be used to show the query that is produced by a Jet function and can be a useful debugging tool. In Nav, ShowQuery= shows the drilldown url Jet Reports uses to open Nav during drilldown. In a GP or Universal data source, ShowQuery= shows the sql query Jet Reports uses to retrieve the data from the database.

The following formula returns customer ID's from a SQL data source:

```
=NL("Rows","Customers","CustomerID","CompanyName","*")
```

To show the SQL query for this formula, you could add ShowQuery= as follows:

```
=NL("Rows","Customers","CustomerID","CompanyName","*","ShowQuery=","True")
```

You would see the following:

```
SELECT DISTINCT "CustomerID" FROM "Northwind"."dbo"."Customers" ORDER BY "CustomerID"
```

Structuring Reports

Introducing Automatic Rows and Regions

The NL function can create a copy of everything in a region of cells for each record in a group of records. The first parameter of the NL function specifies the region to copy and the filters select the group of records. When you run the report, the NL expands, inserting a new copy of everything in the region, including functions and formatting, into the worksheet for each record in the group. This feature is useful for making lists of data.

Navision Cronus Example

To make a simple Customer phone list using the Jet Browser, you can drag the Name and Address fields from the Customer table in the Jet Browser to cell C4. Make sure that you have the "Rows" option selected at the top of the Browser window.

If you click on each of the cells that have been filled in, you should have the following formulas.

In cell C4: =NL("Rows","Customer")

In cell D4: =NF(\$C4,"Name")

In cell E4: =NF(\$C4,"Address")

When you put Jet into report mode by choosing the menu selection Jet/Report, you will see something like the following.

When you put Jet into Report mode, the region of the NL formula is Rows, so Jet creates a copy of the row for each record that matches the filters. In this case, there were no filters, so Jet created a row for each customer in the Customer table. The NF functions in D and E were copied since they were inside the region; they used the record key returned by the NL function to retrieve data in each row. To see the NL function output in column B, you can use the Jet/Tools/Unhide menu option or the Jet/Unhide ribbon option.

You may have noticed that when you dragged and dropped fields into Excel, cell A1 changed to Auto+Hide. Jet Reports reserves Row 1 and Column A to use for marking automatically generated rows and columns, and allowing you to mark rows and columns you want to hide. Any row or column that an NL function automatically inserted will have Auto in column A or row 1 respectively. You can see the markings by using the Unhide feature as shown above. When you switch back to Design Mode, by choosing Design from the Jet menu, you will see that Jet has deleted all the rows and columns with the word Auto in row 1 or column A. If you accidentally enter Auto in Row 1 or Column A other than in cell A1, the entire row or column will be deleted when you change from Design mode to Report mode and back.

Access Northwind Example

To make a simple phone list using the Jet Browser, you can drag the CompanyName and Phone fields from the Jet Browser into cell C4. Make sure that you have the "Rows" option selected at the top of the Browser window.

If you click on each of the cells that have been filled in, you should have the following.

In Cell C4: =NL("Rows","Customers",{"CompanyName","Phone"})

In Cell D4: =NF(\$C4,"CompanyName")

In Cell E4: =NF(\$C4,"Phone")

When you put Jet into report mode by choosing the menu selection Jet/Report, you will see something like the following.

When you put Jet into Report mode, Jet creates a copy of the row for each record that matches the filters because the region of the NL function is "Rows". In this case, there were no filters, so Jet created a row for each customer in the Customers table. The NF functions in D and E were copied since they were inside the region. To see the NL function output in column B, you can use the Jet/Tools/Unhide menu option or the Jet/Unhide ribbon option, and you will get results as shown below.

Jet Reports Help

You may have noticed that when you drag and drop fields into Excel, cell A1 changes to "Auto+Hide". Jet Reports reserves Row 1 and Column A to use for marking automatically generated rows and columns, and allowing you to mark rows and columns you want to hide. Any row or column that an NL function automatically inserted will have "Auto" in column "A" or row "1" respectively. You can see the markings by using the Unhide feature as shown above. When you switch back to Design Mode (by choosing Design from the Jet menu) you will see that Jet has deleted all the rows and columns with "Auto" in row 1 or column A. If you accidentally enter "Auto" in Row 1 or Column A other than in cell A1, the entire row or column will be deleted when you change from Design mode to Report mode or visa versa.

Great Plains Fabrikam Example

To make a simple customer phone number list by using the Jet Browser, you can select the Customer Name (CUSTNAME), Phone 1 (PHONE1) and Phone 2 (PHONE2) fields and drag and drop them from the RM Customer MSTR (RM00101) table into cell B5. Make sure that the "Rows" options is selected at the top of the Browser window.

If you select each cell that has been filled with a Jet formula, you will find the following.

In cell B5: =NL("Rows", "RM Customer MSTR", {"Phone 2", "Phone 1", "Customer Name"})

In cell C5: =NF(\$B5, "Customer Name")

In cell D5: =NF(\$B5, "Phone 1")

In cell E5: =NF(\$B5, "Phone 2")

When you run the report be selecting Jet/Report, you will see something like the following.

When you put Jet into Report mode, Jet creates a copy of the row for each record that matches the filters because the region of the NL function is "Rows". In this case, there are no filters, so Jet creates a row for each customer in the Customers table. The NF functions in columns C, D and E are copied since they are inside the region. To see the NL function output in column B, you can use the Jet/Tools/Unhide menu option or the Jet/Unhide ribbon option and you will get results as shown below.

You may have noticed that when you drag and drop fields into Excel, cell A1 changes to "Auto+Hide". Jet Reports reserves Row 1 and Column A to use for marking

automatically generated rows and columns, and allowing you to mark rows and columns you want to hide. Any row or column that an NL function automatically inserted will have "Auto" in column "A" or row "1" respectively. You can see the markings by using the Unhide feature as shown above. When you switch back to Design Mode (by choosing Design from the Jet menu) you will see that Jet has deleted all the rows and columns with "Auto" in row 1 or column A. If you accidentally enter "Auto" in Row 1 or Column A other than in cell A1, the entire row or column will be deleted when you change from Design mode to Report mode or visa versa.

Introducing Automatic Column and Row Resizing

Some data values, such as customer names, are of variable length so when you load them into a worksheet cell, you do not know how wide the column should be before you run the report. If the column is not wide enough to hold the data, Excel will either display ##### in the cell, or it will only show the section of data that will fit in the cell.

Jet Reports can automatically format the column width or row height for the widest or tallest piece of data that you want to display. This operation is very similar to the manual sequence of selecting a column, clicking on Excels Format menu, then selecting "Autofit Selection". The whole column will resize to fit the widest cell. To do this with Jet, you can put the keyword "Fit" in row 1 of the column. For example, if you have a list of customer names in column C, you can put "Fit" in cell C1 to automatically resize the column for the longest customer name when the report is run. If you want to resize the height on a row, you can put "Fit" in Column A of that row.

Introducing Automatic Hidden Columns, Sheets and Rows

The NF function uses a record key (returned by the NL function with the blank Field parameter) to retrieve fields, but a record key itself does not display useful information so it may be useful to hide columns that contain record keys. You can use the "Hide" keyword in Row 1 of any column you do not want displayed, or in column A of any row you do not want displayed. To automatically hide whole sheets, you can add "+HideSheet" to cell A1 of a worksheet. When you run the report Jet Reports will hide the rows, columns or sheets that you have specified.

Often reports are built using calculations that do not need to be shown on the report. Automatically hidden rows, columns and sheets provide an easy way to hide these calculations on the final report. In Design Mode , the hidden rows, columns and sheets are visible so you can make changes to the report structure.

Conditionally Hiding Rows, Columns or Sheets

To conditionally hide a row, put "Hide+?" in cell B1, and use a formula to return "Hide" in Column B of any row that you want hidden. Please note that this will only work in column B.

Jet Reports Help

You can conditionally hide a column by entering "Hide+?" in cell A2, and using a formula to return "Hide" in row 2 of the columns you want hidden. As with conditional hiding of rows, this will only work in row 2.

Similarly, with "Hide+?" in cell A2 you can place a formula in cell B2 that conditionally returns "HideSheet" in order to hide the entire worksheet. Formulas that conditionally hide rows, columns, or sheets are typically IF formulas, such as the following.

```
=IF(C4=0,"Hide","Show")
```

In the following example, rows are hidden which have 0 in column C.

When this report is run by selecting Jet/Report, it looks like the following.

Notice that rows 3, 5 and 7 are hidden because they have 0's in column C and thus the word "Hide" in column B.

Grouping and Subtotaling

Since you can create a dynamic list using an NL function, the next logical step is to group the items in the list. The mechanism for grouping is nested NL functions. When one NL is inside the region of another, the NL functions are nested. The outer NL function lists the grouping criteria, and then the inner NL can use the results of the outer NL as a filter. When you select report mode, the outer NL will evaluate first, inserting copies of its region for each record and filling in its data values. Once the outer NL has expanded, the inner NL will expand, making copies of its own region for each of the outer NLs. Jet Reports evaluates the NL functions from left to right, and top to bottom so if you have put one NL function that acts on rows in cell D4, and one that acts on columns in cell B5, Jet Reports will evaluate cell B5 first.

Grouping and Subtotaling Tutorial

Access Northwind Example

A simple example of a grouped list is customers grouped by country. Since customers are being listed, one good place to start is the Customers table. First, you want to list the customer detail, then you can worry about the grouping later. If you drag and drop the CompanyName, Country, and Phone fields from the Jet Browser with the "Rows" option selected, you will end up with something resembling the picture below.

If you run the report, you will get a complete list of customers. The next step is to group the customers by Country. The overall idea is that you want to list unique countries, then use that list as a series of filters for the existing NL that lists customers. To achieve this goal, drag and drop the Country field into the cell that is one row up and one column to the left of the existing NL command. In the picture above, the cell you should be dropping into is cell C3. If you run the report, you will get a list of country names, then a list of customers as shown below.

Note that the column headers of CompanyName, Country and Phone were all copied in the region of the NL command. The next step is to change the NL command listing countries in C3 from "Rows" to "Rows=2", which will nest the two NL commands as described above. Now when the report runs, Jet Reports will copy rows 3 and 4 for each country, including the customer list. Finally, you can add a filter to the NL listing customers to filter by the country cell as pictured below.

If you run this report, you will get a list of countries, then a list of customers under each country. For aesthetic purposes you can change the What argument in the NL formula in cell C3 from "Rows=2" to "Rows=3", which will give you one blank row between each country group.

Navision Cronus Example

A simple example of a grouped list is one listing Customers who have sales along with their sales grouped by state and subtotaled. Since Customers are being listed, one good place to start is the Customer table. First you want to list customers who have sales, then you can worry about the grouping. The Sales (\$) flow field works well as a filter field for this purpose. If you drag and drop the Name, State and Sales (\$) fields out of the Jet Browser with the "Rows" option selected, then edit the resulting NL to filter for Sales (\$) <> 0, you will end up with something resembling the picture below.

If you run this report you will get a complete list of the customers who have sales. The next step is to group the customers by state. The overall idea is that you want to list unique states that have customers with sales, then use that list as a series of filters for the existing NL that lists customers. To achieve this goal, drag and drop the state field into the cell that is one row up and one column to the left of the existing NL command. In the picture above, the cell you should be dropping into is cell C3. Next you can add the same filter field, filter pair as the previous NL command for Sales (\$) <> 0. If you run the report, you will get a list of state names, then a list of customers as shown below.

Jet Reports Help

Note that the column headers of Name, State and Sales (\$) all got copied in the region of the NL command. Also note that the first customer state is blank. In this case, the customers outside the US have a blank state so it is a valid value that should be preserved.

The next step is to change the NL command listing States in C3 from "Rows" to "Rows=2", which will nest the two NL commands as described above. Now when the report runs, Jet Reports will copy rows 3 and 4 for each state, including the customer list. Finally, you can add a filter to the NL listing customers to filter by the state cell. Since you could have blank states, you need to pre-pend "@@" to the beginning of the filter so the formula will look like the picture below.

If you run the report, you will get a list of states, then a list of customers under each state. The final task is to add a subtotal by state for the Sales (\$) field. This can be a simple Sum function if you don't want a grand total, or a Subtotal function if you do want a grand total. For the sake of completeness, this example will calculate subtotals and a grand total. The first Subtotal function goes two rows below the NL listing Customers. The function should look like the one pictured below.

Note that both rows 4 and 5 are included in the range of the Subtotal function. Next, you need to expand the Rows=2 of the NL that lists States to include rows 3-6 so the new subtotal cell will fall into the region that gets copied. For aesthetics, you can include row 7 so we have a blank line between states. The "Rows=2" becomes "Rows=5". Now you need to add the Grand Total. Since there are 5 rows in the region on the state replicator, you need to skip row 8 and put the grand total on row 9 as shown below.

Finally, you can run the report and get a complete list of customers who have sales, grouped and subtotaled by state.

Multi-level Grouping and Subtotaling Tutorial

This tutorial builds on the Grouping Tutorial so if you haven't yet completed it, please do so before starting this tutorial.

Access Northwind Example

Often you want a report to contain more than one level of grouping. For instance, you might want to add more detail to the above example by not only grouping the customers by country but by city as well. The result would be a list of customers grouped by city, grouped by country. The first thing you need to do is to create room for this intermediate level of grouping by inserting a column between C and D, and a row between 3 and 4.

You can also move the column headings down to the newly inserted row 4, as shown in the picture below.

The next thing you need to do is add the formula to insert the list of cities. Open the Customers table in the Jet Browser, select the "Rows" option, and drag the City field into cell D4. Note the stair-step pattern of the three NL functions, which is the standard format for grouped reports. As in the previous example, you must link lists to the grouping criteria using filters, as shown below.

You will also have to adjust the size of the replicator regions to account for the new level of grouping (in effect, nesting the NL functions). In order to do this, you have to change the What argument in the newly added NL function from "Rows" to "Rows=2" and in the NL function listing countries from "Rows=3" to "Rows=4".

If you run the report as is, you see that the first city under each country is the only one for which the customer list does not return an error (take Austria as an example). In order to see the source of the error you must select Jet/Tools/Unhide, select the problem cell and press the F2 key. This will highlight the cell references that the formula is making (as seen below) and indicate that you are attempting to use a blank filter.

This is a standard problem when doing a multi-level grouping. What you need to do to resolve it is to copy the value from cell C3 into column B and down, filling the 4-row region of the replicator.

Note that you do not want to copy and paste the formula from cell C3, but rather set each cell equal to the adjacent cell (in cell B3 you have "=C3", in cell B4 you have "=B3", etc.). Finally, you need to adjust the filter in cell E5 to refer to the value (country) that is on the same row to ensure you do not lose the cell reference. See the example below.

If you run the report seen above you will obtain a list of customers grouped by country, grouped by city. Note that you can add as many levels of grouping as you want (for instance, you could further expand this example by adding order details by customer).

Navision Cronus Example

Often you want a report to contain more than one level of grouping. For instance, you might want to add more detail to the above example by not only grouping the customers

by state but by city as well. The result would be a list of customers grouped by state then by city. The first thing you need to do is create room for this intermediate level of grouping by inserting a column between C and D, and a row between 3 and 4. You can also move the column headings down to the newly inserted row 4, as shown in the picture below.

The next thing you need to do is add the formula to insert the list of cities. Open the Customer table in the Jet Browser, select the "Rows" option, and drag the City field into cell D4. Note the stair-step pattern of the three NL functions, which is the standard format for grouped reports. Just as you did in the previous example, you must link the list (cities, in this case) to the grouping criteria (the state) using a filter, as shown below.

You should also add the filter for Sales (\$) $\lt \gt$ 0 to your City NL function. Just as you did before, you will have to adjust the size of the replicator regions to account for the new level of grouping (in effect, nesting the NL functions). In order to do this, you have to change the What argument in the newly added NL function from "Rows" to "Rows=2" and in the NL function listing states from "Rows=5" to "Rows=6". You do not need to adjust the subtotal (you will still do a subtotal by state). Since you have increased the size of the outermost region, you will have to move the subtotalling region of the grand total function down one row. This will allow for the anchor row, as shown in the picture below.

If you run the report as is you see that the first city under each state is the only one for which the customer list does not return an error (except in the case of the state values that do not exist which is a special case). In order to see the source of the error select Jet/Tools/Unhide, select cell E9, and press the F2 key. This highlights the cell references that the formula is making and indicates that the cell is attempting to use a blank filter. This is a standard problem when doing multi-level grouping. What you need to do to resolve it is to copy the value from cell C3 over into column B and down, filling the 6-row region of the replicator, as shown below.

Note that you do not want to copy and paste the formula from cell C3, but rather set each cell equal to the adjacent cell (in cell B3, "=C3", in cell B4, "=B3", etc.). Next, you need to adjust the filter in cell E5 to refer to the value (state) that is on the same row to ensure you do not lose the cell reference. Finally, add a filter to the NL formula in E5 to group the customer lists by not only the state but also the newly inserted city as well. See the example below.

For aesthetic purposes, you may also want to hide column B. If you run the report above you will obtain a list of customers grouped by state then by city as stated in the goal. Note that you can add as many levels of grouping as deemed necessary (for instance, you could further expand this example by adding order details by customer).

Performance and Convenience

Introducing the NP Function

Sometimes you need to do certain utility tasks such as formatting a date range, evaluating a formula or doing array calculations. The Jet Utility function, NP, will do these tasks for you. The following example formats a date range from 1/1/04 to 12/31/04.

```
=NP("DateFilter","1/1/04","12/31/04")
```

This above function will return 1/1/04..12/31/04. The first argument tells Jet that this NP function will create a date filter that can be used by an NL function. The second argument is the start date of the filter, and the last argument is the end date of the filter.

The next example evaluates the volatile Now() function, preventing it from slowing down your report.

```
=NP("Eval","=Now()")
```

The above formula will return the current date and time. The first argument tells Jet that this NP function will evaluate a formula. The second argument is the formula to evaluate. See the Evaluating Formulas section for more details.

The following example takes the intersection of two arrays.

```
=NP("Intersect",{"1","2","3"},{"2","3","4"})
```

The above formula will return {2, 3}. The first argument tells Jet that this NP function will return the intersection of two arrays. The second and third arguments are the arrays for which to find the intersection.

Evaluating Formulas

There are some cases where you want to evaluate a formula only once each time you run your report. A good example of this is the Now() function. You generally want the Now() function to run once when you update the report, and otherwise remain inert. If Now() is allowed to behave normally, it will cause the sheet it is on, including Jet formulas, to recalculate constantly, resulting in a major performance problem.

Jet Reports Help

You can use the NP function to control when a formula updates by putting "Eval" in the What parameter. The formula you want to evaluate, including the "=" sign goes in the Arg1 parameter and must be in quotes. If you are evaluating a formula that already has quotes inside it, then Excel requires you to use two sets of quotes instead of one. Some examples are listed below.

This following function will calculate Now() once each time the report updates.

```
=NP("Eval", "=Now()")
```

The function below calculates a date filter for the current month without using NP("Eval").

```
=NP("Datefilter", Date(Year(Now()), Month(Now()), 1), Date(Year(Now()), Month(Now())+1, 1)-1)
```

However, the formula above uses the Now() function liberally, so you should put it inside an NP("Eval") formula and change "Datefilter" to ""Datefilter"" with two sets of quotes as in the following formula.

```
=NP("Eval", "=NP("""Datefilter""", Date(Year(Now()), Month(Now()), 1), Date(Year(Now()), Month(Now())+1, 1)-1)")
```

Note that you should place any volatile Excel function (i.e. NOW() and TODAY()) directly inside the NL("Eval") to avoid constant recalculation, even if the volatile function has no other dependent cells. A cell reference is not sufficient. For instance, =NP("Eval", "=NOW()") will only be calculated once with each run of the report, whereas =NP("Eval", "=B4"), where B4 contains a volatile function, will still be constantly recalculated.

Evaluating Off-sheet References

The NP ("Eval") function can evaluate any Excel function including cell references. The formula below displays the value in cell C5.

```
=NP("Eval", "=C5")
```

This application of the Eval function can improve your report execution time if you have an Options sheet. When your report runs, any cell which has a dependency on a cell that has changed will be recalculated. Unfortunately, when cells have dependencies that extend outside their sheet, Excel does not know when that external reference may have changed so it will recalculate the formula every time the current worksheet changes. Jet Reports changes worksheets many times over the course of evaluating a report causing Excel to recalculate any formula that has off-sheet dependencies. You can eliminate this unnecessary recalculation by using the NP("Eval") function to bring the values from off-sheet references onto the local worksheet, then change your cell references to only use the local cell where you have the NP("Eval") function.

When you need to reference cells on other worksheets inside your workbook, you can use the same formula only with the worksheet name followed by an "!" as part of your cell reference. The following Eval function will display the value from C5 of the worksheet named "Options".

```
=NP("Eval", "=Options!C5")
```

If the cell you are trying to reference is on a worksheet that has a space in its name you need to wrap the worksheet name in single quotes as in the following formula.

```
=NP("Eval", "'Options Page'!C5")
```

Named ranges with NP("Eval")

NP("Eval") can be used with named ranges as well as cell references (see the Useful Excel Features section for information on Named Ranges). So assuming you named cell C5 on your Options worksheet "DateFilter", you can use the cells name as if it were a normal cell reference without the worksheet or workbook name as in the following formula.

```
=NP("Eval", "=DateFilter")
```

If you had a Profit and Loss report, you would probably have a changeable Start Date and End Date on the Options page with cell references on a Detail page and a Summary page. Instead of having many cell references to the Options page, you could name the cells StartDate and EndDate respectively, and use the following two formulas to bring the data in the two cells onto the Detail and Summary pages.

```
=NP("Eval", "=StartDate")
```

```
=NP("Eval", "=EndDate")
```

If you put these two formulas in cells B2 and B3 respectively, you can then use local cell references to B2 and B3 for your filters, eliminating a large amount of Excel calculation overhead when reporting.

Using NL("Sheets") with NP("Eval")

The NP("Eval") function will work to reference an Options page from a worksheet that is replicated with NL ("Sheets"). However, it may behave unexpectedly when it is used to reference a cell on the same sheet as the NL("Sheets") formula. Therefore using an NP("Eval") formula on a sheet with an NL("Sheets") to reference cells that are on that same worksheet is not recommended.

Improving Report Performance

In order to speed up the run-time of your reports, follow these guidelines.

- Apply filters in Jet Reports that will match a key that is already in your Navision Database . Also, if you are applying sorts in your formulas, make sure the order of the sort fields is the same order as a Navision key.
- Whenever possible, use NL functions to retrieve record keys rather than unique values, then use the NF function to obtain field values from those record keys.
- When filtering across tables, be sure to choose either NL("Filter") or "Link=" appropriately (see "Filtering Based On Data from Another Table").
- Avoid making frequent off sheet cell references. If you find yourself doing this, bring the values over to the current sheet using NP("Eval") and refer your Jet formulas to the copied values instead.
- Avoid bringing large amounts of data into a spreadsheet and using conditional hide to eliminate the data you do not want to see. In many cases, using an appropriate filter will eliminate the data you do not want to see.
- Using the NL function for "Rows" or "Columns" and specifying a Field can be very slow when working with large tables because Jet Reports must examine every record to find the unique values. If there is a table that holds unique values of the field you are interested in, it is sometimes better to use that table. You can use Link= to a larger table to only bring back the desired values.
- Avoid using volatile Excel function like NOW() and TODAY(). If you do use them, make sure they are "wrapped" inside an NP("Eval") function, i.e. =NP("Eval", "=NOW()"). This will avoid constant recalculation.
- Avoid inserting manual page breaks into your reports.
- Avoid using Excel "Grouping" (also known as "Outline") functionality.

Canceling Long Calculations

If a worksheet calculation takes longer than two seconds, Jet Reports will display a status window with calculation information in it. If you want to abort the current calculation, you can click the Cancel button. If Excel is in the middle of a calculation, the cancel button can be slow to respond, but when Excel is finished with the calculation, the report will stop refreshing and the uncalculated cells will display #VALUE.

Useful Excel Features

Addressing Modes

Excel has three addressing modes: relative, absolute and mixed. Absolute addresses will reference the same cell no matter where the reference is moved or copied in a worksheet. For example, when you copy the formula =\$A\$3 from B3 to C5, it will still read =\$A\$3. A relative address will reference the same cell in relation to any cell where it is copied. For example cell B3 is one cell to the right of A3, so when you copy the formula =A3 from B3 to C5, it will now read =B5. Mixed mode addressing contains one relative coordinate and one absolute coordinate, for example \$A3 or A\$3. Mixed mode addressing is extremely useful for quickly generating reports using NL and NF functions. There are several examples of the use of mixed mode addressing in the Spread Company Income Statement example report that comes with Jet Reports.

Charts

When creating an Excel chart, make the range for the chart one row or column larger than the row or column containing the NL ("Rows") or NL("Columns") function and hide the extra row or column. For some types of charts, it is easier to put some sort of dummy label and value in the hidden row or column. "Graph Anchor" is a good dummy label and zeros are good dummy values. Most charts will not include data from hidden rows or columns. See the Customer Sales Report example workbook for a sample of charts with Auto Rows and Columns.

AutoCorrection

Though Excel's AutoCorrect feature can be very helpful at times, it can also be a bit of a nuisance when it comes to formatting. For instance, assume that cell B2 is formatted as currency and B3 is formatted as a percentage. In cell B4 you type " $=B2*B3$ " in order to obtain the product of the two values. With Excel AutoCorrection turned on, the cell is automatically formatted as currency. Though this may typically be what is desired, in this instance you would like to apply the accounting format to the product. Excel will allow you to do this temporarily, but when the cell is recalculated, AutoCorrect changes it back to currency. This becomes a problem when a replicator expands because during the expansion a recalculation occurs throughout the entire workbook. This may cause you to think that Jet Reports is reformatting your workbook, when in fact it is the Excel AutoCorrect feature.

If you find yourself in this situation, you can attempt to turn off this feature by selecting "Tools/AutoCorrect Options" in Excel. Select the "AutoFormat As You Type" tab and make sure the "Include new rows and columns in list" check box is deselected. Please note that for certain types of formatting there is nothing that can be done about Excel reformatting.

Dates

Five date related functions in Excel make working with dates much easier. The functions are as follows.

`=Date(Year, Month, Day)`

`=Day(Date)`

`=Month(Date)`

`=Year(Date)`

`=Text(date, format)`

Jet Reports Help

To find the first day of the month from a date entered in D4, you could enter the following formula.

```
=Date(Year(D4), MONTH(D4), 1)
```

Since dates are stored in Excel as integers, you can find the last day of the month from a date entered in D4 with the following formula.

```
=Date(Year(D4), MONTH(D4)+1, 1)-1
```

Since you can disassemble a date easily into the year, the month and the day, it is also easy to calculate the start of the year for the date in D4 with the following formula.

```
=Date(Year(D4), 1, 1)
```

If your fiscal year started in July instead of January, the formula is similar. The IF formula in the Year parameter of the following formula determines, in this case, if the start of the fiscal year is the same as the calendar year (i.e. Sept 6, 2003 is in the 2003 Fiscal Year), or if you need to subtract 1 from the calendar year (May 15, 2003 is in the 2002 Fiscal Year).

```
=Date(If(Month(D4)<7,Year(D4)-1, Year(D4)),7, 1)
```

To build a date range from two dates, use the NP ("DateFilter") function. If the start of the month was in cell D4 and you wanted to calculate a filter for the whole month, the formula for the date range would be:

```
=NP("DateFilter",D4, Date(Year(D4), MONTH(D4)+1,1)-1)
```

The function above looks complicated, but it is just an NP function with the end of month formula previously listed.

Named Ranges

Any range in Excel can be associated with a name that can be used to reference that range anywhere in the workbook. Naming ranges are particularly useful if you are referencing a particular cell, such as a Start Date on the Options sheet, in several worksheets. Entering a name like "StartDate" in the Name Box in the upper left corner of the Excel screen makes referencing the date cell much easier as you design the rest of the report. You must press Enter after typing in the name, or Excel will not save it. There is one caveat to using Named Ranges which occurs when you are nesting formulas as parameters for other formulas. An example of this is the If statement below that outputs "More" if the sum of B5:B10 is greater than 10 and "Less" otherwise:

```
=If(Sum(B5:B10)>10,"More","Less")
```

The cell references in the above formula cannot be named ranges, they have to be cell references like they are now since the Sum formula is nested in the If formula. However, you could still use a named range if you used another cell for the Sum formula and had the if statement reference that cell.

Now() and Today()

The Now() and Today() functions are called volatile functions and can cause problems in Jet Reports because they recalculate each time there is a change in the worksheet. Jet Reports makes large numbers of changes to the worksheet while it runs and each of those changes can cause a recalculation of the entire worksheet if you have a volatile function on the worksheet. To avoid issues with volatile functions, use the NP ("Eval") function.

Protected Worksheets

If you protect a worksheet in a workbook using the Excel Protect Sheet feature, Jet Reports will not be able to generate a report. Jet Reports will automatically protect locked worksheets (worksheets that have Auto+Report+Lock in cell A1 and Jet Reports formulas on them) after a report is generated and will automatically unprotect locked worksheets with Jet/Design. Please see *Introducing Report Viewers* for more details.

Sums from Auto Rows and Columns

To compute a sum of a column for rows that are automatically inserted by an NL ("Rows"), you can use the =SUM([range]) worksheet function. The sum range should include the rows that the NL formula will copy plus one extra row. Excel will automatically expand the sum functions range to include all the inserted rows. For example if the NL("Rows") formula were on row 10 and you wanted to sum column D, you could put a sum formula in D12 of =SUM(D10:D11). If you do not want the extra row to show on the report, you can use the Hide feature.

Likewise, to sum values added by an NL("Columns"), the sum range should include the columns that the NL formula will copy plus one extra column. For example, if the NL("Columns") function were in column E and you wanted to sum the values in row 12, you could put a sum formula in column G of =SUM(E12:F12). Again, if you do not want the extra column to show, you can hide it.

When using nested NL functions to group information, you can compute the subtotals and grandtotal of a column using a SUBTOTAL function. The same sum range rules detailed above should be used for each of the nested SUBTOTAL functions. There are two parameters to the SUBTOTAL function, the function number and the calculation range. The SUBTOTAL function can calculate the average, count, max, min, product, standard deviation, sum or variance of a cell range so the first parameter tells SUBTOTAL which operation to perform. The most common use is calculating a sum, which is function number 9. The formula for calculating a sum of cells B5 through B10 is shown below.

=SUBTOTAL(9,B5:B10)

The Excel Help has the rest of the details for the SUBTOTAL function.

Advanced Database Issues

Building a Report From Multiple Databases

If you want to build a report that uses multiple databases of any type, you need to create a data source for each database. Check the installation manual to find information on configuring data sources. Once your data sources are configured, you can specify separate connections in both the NL and the GL functions. You can change the connection that the NL function uses by specifying "DataSource=" as a filter field and the data source name as a filter. The Jet Browser will do this automatically if you are dragging and dropping from a data source that is not the default. The GL function has a separate parameter that will accept the data source name. The following example sums the amounts from Purchase Invoice number 1000 from both a Navision database and a Northwind Access database.

```
=NL(1,"Purch. Inv. Header", "Amount", "No.", "1000", "DataSource=", "Navision") +  
NL(1,"Orders", "Amount", "OrderID", "1000", "Connection=", "Northwind")
```

In the preceding example, there is a data source named Navision that connects to a Navision database and a data source named Northwind that connects to the Northwind Access database. An important point to notice is that if you and a colleague both use the same report, you need to name your data sources the same thing or else make the data source name an option on the options sheet..

Databases with Multiple Schemas

Some databases such as Microsoft SQL Server and Oracle group objects such as tables and records by the owner (or group of owners) of the object. This logical grouping is called a schema and it can be used to restrict which tables a user can access. In many SQL Server databases, the DBO user is the owner of all database objects so "DBO" is the only schema name in the database. Oracle databases generally have a schema per user along with multiple administrative schemas.

Jet Reports will obtain the default schema for your user from your server and unless your database has multiple schemas, you will not need to override that default. If you do need to override the default schema, you can specify the schema with the Schema= keyword. The Schema= keyword goes in a Filter Field parameter of the NL function and the schema name goes in the following Filter parameter. For example, to access all records in a table named Customer that are owned by the SYSTEM user group, you would use the following NL function:

```
=NL("Rows", "Customer", "Schema=", "SYSTEM")
```

This topic does not apply to Navision users.

Navision Codes and No.'s with Special Characters

Characters used in Navision filters like "&", "|", and ".." should not be used as values in Code or No. fields. In addition, you should not use blank Codes or No.'s. Using blanks or special characters in your Code or No. fields will cause problems with reporting and filtering in both Navision and Jet Reports. Fortunately, it is rare to find blanks or special characters in Code or No. fields.

When field values contain filter characters like "&", you must put the field values in single quotes to use them in a filter. For example, if customer IDs have embedded "&"s you can filter on the customer ID as follows.

B2: =NL ("Rows","Customer","No.")

B3: =NL("Customer","Name","No.", ""&B2&"")

Note the customer number is in a formula that surrounds it with single quotes: ""&B2&"". This causes Navision to consider any embedded special characters as part of the field value.

This information is only necessary for Navision users.

Multiple Local Navision Database Connections

If you attempt to use more than one local database connection in a workbook that use the same Navision client, you will see #VALUE for the results of one of them. When you use Debug, the function may calculate correctly. This is because when you run Debug, Jet closes all other local database connections to analyze the cell you have selected. The #VALUE occurs because each workbook can only have a single local database connection open at a time for a particular Navision client. You can include data from multiple server database connections on the same workbook with no problems. You can also include data from multiple local Navision databases if they are accessing different Navision clients or a different copy of the Navision client.

Only Navision users need to worry about multiple local database connections.

Navision Advanced Dimensions

If you have the Navision Advanced Dimensions granule, you can use a dimension code in the Field or FilterField arguments of the NL function with tables that have advanced dimensions. Jet Reports creates "virtual fields" for each of the dimension codes.

Since advanced dimensions are stored in secondary tables, this feature greatly simplifies writing reports with Advanced Dimensions. Because the data must be retrieved from two

tables, using Advanced Dimensions might take longer than using fields that are in the same table.

Jet Reports will add virtual fields for dimension codes to custom tables if the custom tables are designed just like the standard tables using the same secondary tables to store advanced dimensions and the same field numbers and key structures.

Virtual fields for dimension codes will not be visible in the Jet Browser field lists.

If you have created an Advanced Dimension with the same name as a field in the table from which you are pulling data, Jet Reports will use the field in the table rather than the Advanced Dimension. An example of this occurs in the Cronus database that ships with Navision. In the Sales Line table (table 37) there is a field named Area (field 82). In the same database, there is an Advanced Dimension named Area. If you use "Area" in an NL or NF function that references the Sales Line table, Jet Reports will use the Area field from the Sales Line table rather than the Advanced Dimension named Area. The simplest fix for this problem is to rename the Advanced Dimension. If you do not want to rename the Advanced Dimension, you will have to pull the data out of the table that stores the Dimension Entries instead.

Advanced Dimensions are only available under Navision.

Local Navision Databases

You cannot open a local Navision database both with the Navision client program and with Jet Reports at the same time. You may get an error message that a file cannot be created if you attempt this. As long as you have sufficient concurrent users in your license file, you can open a database that is on a server by Navision clients and Jet Reports at the same time.

Only Navision users have to worry about this issue.

SQL=

SQL= is a power feature for the Universal Connector to allow absolutely any data to be retrieved from any database. This feature is intended for advanced users only. This section is not intended to teach you SQL, but only to show you how to use the SQL= feature.

SQL= allows you to use SQL queries directly in the NL function while having Jet Reports' user-friendly filtering capabilities. This allows you to create rows, columns or sheets from SQL queries and to use cell references for user editable filters that will be converted into SQL filters and placed in your SQL query. This function allows you to do complicated SQL Joins that are not possible using the current Jet Reports Universal connector. It also allows you to make the SQL server do the work of sorting the resulting data.

SQL= Example

Please note that the table/field names and date ranges in this example will work with Great Plains 8.0.

In Great Plains, many tables store a G/L account index instead of the actual G/L account number. Users want to sort by the G/L account number. In SQL, you could join two tables to produce this result. The SQL statement might be something like the following.

```
"SELECT ACTNUMST, IVIVINDX
FROM IV30300 LEFT JOIN GL00105 ON IVIVINDX = ACTINDX
WHERE DOCDATE BETWEEN '2004-01-20' AND '2004-01-31'
ORDER BY ACTNUMST, IVIVINDX"
```

This query returns a list of G/L account numbers and the G/L account index for accounts to which inventory have been expensed during the last 11 days of January, 2004, sorted by the G/L account number. The corresponding SQL= statement is as follows.

```
"SQL=SELECT DISTINCT ACTNUMST, IVIVINDX FROM IV30300 LEFT JOIN
GL00105 ON IVIVINDX = ACTINDX WHERE %Filter1% ORDER BY %Sort%"
```

Notice that %Filter1% will be replaced by Jet Reports filters in the NL function. You must put "ORDER BY %Sort%" if any of your NL function filters does a sort that you want to affect the SQL statement. You can put this statement in a separate cell, say C5, and use a cell reference as the NL table parameter . The "SQL" "What" parameter is used to illustrate the resulting SQL query. You can put "Rows" as the "What" argument to return the actual rows.

```
=NL("SQL", $C$5, "ACTNUMST", "1S=DOCDATE", C18, "+1S=ACTNUMST", "*", "+1S
=IVIVINDX", "*")
```

Note that even though there are multiple filter fields/filters, you only need a single %Filter1% replacement string since there is only one WHERE clause. If you had Sub queries or Joins that had additional Where clauses, you would need to use multiple %FilterX% replacement strings if the fields and filters did not match in the two tables.

SQL= is not available for a Navision connector.

Updating Navision Drilldown Forms

The drilldown forms in Jet Reports match the relationships between tables and drilldown forms for the objects in Navision. If a table does not have a drilldown form, drilldown for that table will not be available. The default drilldown forms will work for most default tables in Navision. However, if you have added tables or changed the default drilldown

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forms, you need to update the Jet Reports drilldown forms. Jet Reports stores the drilldown forms separately for each data source. If you have more than one data source you need to update each one.

In some cases, you might need to add a drilldown form and then update the corresponding table since not all tables in Navision have drilldown forms. After you are satisfied with all the drilldown form/table relationships in Navision, export the table definitions to a text file. You might not be able to export all tables to text due to license restrictions. You must export all the tables that you want to change. Every time you update drilldown forms, all previous changes you have imported are deleted. So each time you export tables in order to update drilldown forms, make sure to include all the tables that you need to drilldown into.

After the tables are exported, open Excel and go to Jet/Data Sources. Select Tools/Update Drilldown Forms, select the exported text file, and click Update.

In order to perform the operations described above, follow the following procedure.

In Navision:

1. Please note that due to the Navision granule needed to export objects as text, this will probably have to be done by a Navision provider. End users usually do not have the necessary granule in their Navision license.
2. Open Navision and select Tools/Object Designer.
3. Select the table for which you would like to update the drilldown form, and click Design.
4. Scroll to the bottom of the list of fields and select the first line that does not currently contain data.
5. Select View/Properties, then click on the Value field for the DrillDownFormID Property.
6. Click on the up arrow, and select the appropriate form.
7. Close the Properties window and the Table Designer, and select Yes when asked if you would like to save.
8. With the name of the updated table still selected, select File/Export.
9. In the Save as Type drop-down menu, select Text Format.
10. Save the file to the directory of your choice.

In Jet Reports:

1. Open Excel and go to Jet/Data Sources.
2. Go to Tools/Update Drilldown Forms..
3. Under Navision Object Text File, select the .txt file that you have just exported from Navision.
4. Click the Update button.
5. Click OK to close the Jet Data Sources.

You should now be able to drill down from your Jet Report.

This topic is only relevant for Navision connectors.

Blank Spaces in Database Fields

Some databases, including Great Plains, store text data in fixed length fields. One example of a fixed length text field is the Customer Name in Great Plains. Great Plains defines this field as 25 characters and if you put a short name like Bob into the customer entry screen, Great Plains will store Bob in the database as Bob followed by 22 spaces. In Great Plains, and most other databases that store their text fields at a fixed length, the application interface will conceal the blank spaces from you. If you filter for "Bob", Great Plains will find the customer "Bob" even though there are 22 spaces after the name and you did not enter "Bob*" as the filter. Great Plains will also display this username as "Bob", trimming the trailing spaces so you never see them.

Jet Reports can provide an equivalent translation between text values and filters if you activate the "Trim trailing spaces from text fields" option under Jet/Data Sources. We recommend that Great Plains users activate this option. It may also be useful for other database types depending on how the database application represents empty space. This feature is not available when using ODBC drivers unless the Data Source is of type Great Plains. Please note that enabling this option may incur a slight performance hit to the run time of reports, depending on the size of the database and number of text values that are affected.

Navision users do not need to worry about Blank Spaces in their database fields.

The Jet Reports User Interface

Introducing the Jet Reports Menu and Toolbar

Microsoft Office 2000-2003

Jet Reports adds a new menu selection to the main Excel menu bar and a new toolbar.

Microsoft Office 2007

Jet Reports adds a new Jet Ribbon option to the Office 2007 ribbon.

Design, Report, and Refresh

You can choose between Design mode and Report mode. Design mode is used to create a report. Report mode is the result of running the report against your database. In Design mode, hidden rows and columns are visible and any rows that the NL or GL functions have automatically created are deleted, allowing you to easily work on the design of your report. Also, Jet function results are optimized for speed in Design mode and are not guaranteed to bring back the correct results. Formula results are also cached for speed.

In Report mode, rows, columns and sheets are automatically created and populated with correct data, and hidden rows and columns are hidden. Although many reports can be created without hidden or automatic rows, columns, or sheets, these modes add power and convenience to Jet Reports and the data values returned will be correct.

Refresh can also be used to enter Report mode. Refresh clears all cached formula results, which may make the report run take longer, but will guarantee that the most current database results are returned.

Purge Cache

Purge Cache clears all cached formula results, which will guarantee that the most current database results are returned the next time functions are calculated.

Unhide

Unhide makes all hidden rows and columns in all worksheets of the current workbook visible. This can help diagnose problems in Report mode by showing the results of calculations that are in hidden rows and columns.

Unlock

Unlock will unprotect all worksheets and restores locked Jet Formulas without reverting to Design mode and losing the values on the report. This is helpful if you are using

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Auto+Hide+Lock to lock a worksheet and have a problem that you need to diagnose. See [Introducing Report Viewers](#) for more details.

Jfx

This starts the Jet Insert Function Wizard. See the section [Introducing the Insert Jet Function Wizard \(Jfx\)](#) for more details.

Reports Wizards

Classic Wizard starts the Classic Report Wizard. See the section [Introducing the Classic Report Wizard](#) for more details.

Multi-Table Wizard starts the new Multi Table Report Wizard.

Browser

Browser opens the Jet Browser. See [Introducing the Browser](#) for more details.

Drilldown

Drilldown opens a window in Navision and displays the records used to calculate the formula in the active cell. To use drilldown, select a cell containing an NL, GL, or NF function, then select Drilldown from the menu. In design mode, you can use Drilldown to make sure you are selecting the correct Navision records. Similarly, in report mode you can use Drilldown for data analysis.

Drilldown opens a Data Grid window and displays the records used to calculate the formula in the active cell. To use drilldown, select a cell containing an NL or NF function, then select Drilldown from the menu. In design mode, you can use Drilldown to make sure you are selecting the correct records. In report mode, you can use Drilldown for data analysis.

With Great Plains or Universal connectors, drilldown opens a Data Grid window and displays the records used to calculate the formula in the active cell. To use drilldown, select a cell containing an NL or NF function, then select Drilldown from the menu. In design mode, you can use Drilldown to make sure you are selecting the correct records. In report mode, you can use Drilldown for data analysis.

With Navision, drilldown opens a window in Navision and displays the records used to calculate the formula in the active cell. To use drilldown, select a cell containing an NL, GL, or NF function, then select Drilldown from the menu. In design mode, you can use Drilldown to make sure you are selecting the correct Navision records. Similarly, in report mode you can use Drilldown for data analysis.

Debug

Debug helps diagnose problems. If you make a mistake in entering a Jet Reports formula, you may see #VALUE as the result. Select the cell and choose Debug. If Jet Reports can identify the problem in your formula, it displays a message.

Tools

Tools allows you to build embedded functions quickly and easily. Using the Quote or Quote Global option, you can convert the format of a formula in a cell to a string. Using the Unquote option, you can convert the string back to a formula.

Schedule

Schedule allows you to schedule a report or a batch of reports to be run at a future time. See *Introducing the Jet Scheduler* for more information.

User Data

User Data provides you with options to manipulate Stored Viewer Data in Reports.

Upload allows you to upload your stored viewer budgets to Navision. To do this, you must install the Navision budget import form. For more information on the Navision budget import form, contact Jet Reports.

Purge Then Report purges any data that you have stored for this particular workbook, then runs the report. Data is stored on a per workbook basis, so only the stored data for the particular workbook you have open will be deleted.

Purge Then Refresh purges any data that you have stored for this particular workbook, then refreshes the report.

Purge Then Design purges any data that you have stored for this particular workbook, then enters design mode.

Settings

Settings allows you to change Jet Reports settings. See *Settings* for more information.

Data Sources

Data Sources allows you to configure Jet Reports data sources. See *Data Sources* for more information.

Data Source/Company Quickswitch

The Jet Reports toolbar and ribbon now display the default data source and company. You can also click the drop down arrows to select a new default data source or company.

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You may find this feature useful if you frequently switch your default data source or company. You can disable it in the Settings if you choose.

Help

This options opens the Jet Reports HTML Help.

About

About shows you information about the currently installed version of Jet Reports.

Jet Reports Keyboard Shortcuts

The following Jet Reports keyboard shortcuts are available:

Shortcut	Available in	Behavior
F1	Jfx, Lookup, Report Wizard, Browser, Scheduler, Report Options	Displays context sensitive HTML Help
F4	Jfx	When an Excel cell reference is selected, toggles the cell addressing mode.
F6	Jfx, Report Wizard, Report Options	Displays the database lookup window

Sharing Reports Created with Jet Reports

Introducing Report Viewers

A report Viewer is an Excel user that has Jet Reports installed but is not licensed to design reports. A report Viewer is allowed to change report options and use Jet/Report but may not use any other Jet Reports features. A report Viewer may not enter Jet functions into cell formulas or make any changes to the report design.

To design reports that a Viewer can use, you must do one of two things: lock all worksheets that contain Jet formulas or convert the Jet formulas to values.

Introducing Locked Worksheets

Locking a worksheet prevents Viewers from accidentally changing the formulas. When you select Report mode in a workbook with locked sheets, Jet saves all formulas to a hidden worksheet and does not recalculate them when the workbook opens. You create a locked worksheet by entering "Auto+Hide+Lock" in cell A1. The worksheet will be locked after the report is generated with Jet/Report and can be unlocked (by a licensed Designer) with Jet/Design.

If you want to create a report that Viewers can use, you should create an Options worksheet that is not locked. The Options worksheet should be used for all the report options, such as the dates, that might change. This worksheet cannot contain any Jet formulas except NL(Lookup). The actual report should be on other worksheets which must have "Auto+Hide+Lock" in cell A1. You must choose Jet/Report to lock the formulas and then save the workbook before giving it to Viewers.

Introducing Viewer Editable Worksheets

If you would like to design a report that Viewers can use without locking any of the worksheets, you can instead convert the Jet formulas on the workbook to values. You do this by placing "Auto+Hide+Values" in cell A1 of any worksheet. Upon doing this, all Jet Reports formulas will be converted to values while all other Excel formulas will remain intact and the worksheet will be editable (although changes will be lost when the report is re-run). The Jet formulas can be restored (by a licensed Designer) by selecting Jet/Design.

Sharing Reports with Excel Users Who Don't Have Jet Reports

In the previous two sections we introduced the +Lock and +Values keywords, which allow Jet Reports Viewers to use your reports. Both of these features are also useful for

allowing people to view reports who use Excel and do not have Jet Reports installed, but +Values does not lock the report so the person receiving the report can edit it.

Introducing Report Options with Database Lookup

Suppose you wanted to give your report viewers the option to select specific values from the database on the Options sheet. Previously, you couldn't do this unless you manually typed the values onto the Options sheet. Now you can use the Database Lookup feature to do that automatically and even hide the Options sheet from Viewers.

Navision Cronus Example

Suppose you have an Options sheet with filters for start date, end date, G/L account number, customer number, and company. It might look like the following.

First, to tell Jet Reports which rows contain options, you must type "Option" in column A to the left of each filter option like the following.

Next, type "Title" in row 1 above the column that contains the titles of your options and "Value" above the column that contains the filters you are using in the report sheet(s).

In order for Jet Reports to know where the data is in the database, you must write NL functions with "Lookup" as the What argument. These NL functions will simply return all the values that you want viewers to be able to select as filters, so you can filter data just like you would in any other NL function.

To look up dates in Navision, you can use the Date table. Your NL functions for start date and end date might work like the following if you wanted to use months as your period type and wanted to give viewers the option to select months between 2000 and 2001.

```
=NL("Lookup","Date","Period Start","Period Type","Month","Period Start","01/01/00..12/31/01")
```

```
=NL("Lookup","Date","Period End","Period Type","Month","Period End","01/01/00..12/31/01")
```

You must create another column in your Options sheet with "Lookup" in row 1 and the lookup formulas across from each option like the following.

You might want to give viewers the option to select any G/L account number or customer number like the following.

Finally, when users select a company, you may want to give them a note that they can only select 1 company at a time. You can do this by adding a Filter Field to your NL function called "Headers=" and typing the message you want in as the Filter argument like the following.

```
=NL("Lookup","Company","Name","Headers=","Only select 1 company at a time")
```

Now when you go Jet/Report a Report Options window will be displayed. You can type filter values into the Filter column, or if you click the arrow to the right of each filter, you will get a Lookup window with the values returned from the database by the NL("Lookup") formula. Notice that if you click the arrow next to the Company, the header at the top of the Filter Lookup window gives the message that you typed into the Headers= Filter in the NL("Lookup") formula.

Using this method to set report options, you can actually hide the Options sheet itself from viewers by adding +HideSheet to cell A1.

Access Northwind Example

Suppose you made an Options sheet for a report that is returning orders. You might include customer name, City, State/Country, and Date like the following.

First, to tell Jet Reports which rows contain options, you must type "Option" in column A to the left of each filter option like the following.

Next, type "Title" in row 1 above the column that contains the titles of your options and "Value" above the column that contains the filters you are using in the report sheet(s).

In order for Jet Reports to know where the data is in the database, you must write NL functions with "Lookup" as the What argument. These NL functions will return all the

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values that you want viewers to be able to select as filters, so you can filter data just like you would in any other NL function.

The functions for customer name, city, and state/country are pretty simple. They can be created like the following.

When viewers select a date, you may want to give them a note that they are actually filtering on ship date, not order date. You can do this by adding a Filter Field to your NL function called "Headers=" and typing the message you want in as the Filter argument like the following.

Now when you go Jet/Report a Report Options window will be displayed. You can type filter values into the Filter column, or if you click the arrow to the right of each filter, you will get a Lookup window with the values pulled from the database by the NL("Lookup") formula. Notice that if you click the arrow next to the Date, the header at the top of the Filter Lookup window gives the message that you typed into the Headers= Filter in the NL("Lookup") formula.

Using this method to set report options, you can actually hide the Options sheet itself from viewers by adding +HideSheet to cell A1.

Great Plains Fabrikam Example

Suppose you are creating an Options sheet for a P&L Statement. You might want filters for revenue accounts, cost of good accounts, expense accounts, years, and periods. You could set that up like the following.

First, to tell Jet Reports which rows contain options, you must type "Option" in column A to the left of each filter option like the following.

Next, type "Title" in row 1 above the column that contains the titles of your options and "Value" above the column that contains the filters you are using in the report sheet(s).

In order for Jet Reports to know where the data is in the database, you must write NL functions with "Lookup" as the What argument. These NL functions will return all the

values that you want viewers to be able to select as filters, so you can filter data just like you would in any other NL function.

The first 3 functions for GL account filters are fairly simple. They can be created like the following.

The years can be retrieved from the GL11110, Account Summary Master View table like the following.

When viewers select a period, you may want to remind them that Period 0 contains the starting balance. You can do this by adding a Filter Field to your NL function called "Headers=" and typing the message you want in as the Filter argument like the following.

Now when you go Jet/Report a Report Options window will be displayed. You can type filter values into the Filter column, or if you click the arrow to the right of each filter, you will get a Lookup window with the values pulled from the database by the NL("Lookup") formula. Notice that if you click the arrow next to the period filter, the header at the top of the Filter Lookup window gives the message that you typed into the Headers= Filter in the NL("Lookup") formula.

Using this method to set report options, you can actually hide the Options sheet itself from viewers by adding +HideSheet to cell A1 like the following.

Displaying Values Not in the Database

It is possible to display a list of lookup values not in the database. You can do this by supplying an Excel array for the Table argument of the NL("Lookup") function like the following:

```
=NL("Lookup",{ "MyValue1","MyValue2","MyValue3"}, "My Values")
```

```
=NL("Lookup",H5:H10,"My Values")
```

Note that a Field argument is still required when you specify an Excel array so that there is a value in the title of the Lookup window.

Introducing Stored Viewer Data in Reports

Suppose you want to allow Report Viewers to create and edit data on reports. Normally any changes made in Report mode will be lost when you go to Jet/Report to re-run the

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report. However, with the stored user data feature, it is possible to designate sections of a report where users may enter and change data which will be stored and kept by Jet Reports when the report is run.

Navision Cronus Example

Suppose you wanted to create a simple list of G/L expense accounts with current budget information. You could do that like the following.

Say you wanted to create new budget amounts based on the current amounts with a projected 10% growth in each. You could add a column to do that like the following.

However, what if you didn't want to increase budgets by 10% all across the board, but wanted to play with the numbers a little and increase some by less and some by more.

Normally, any changes of this kind made in report mode would be lost when the report was re-run. However, with the stored viewer data feature they can be kept. Start out by typing "Data" in column A left of the cell(s) where users will enter stored data and row 1 above the cell(s) where users will enter stored data, in this case G1 and A8.

This tells Jet what cell(s) to store data from. But what if you decided to change the filters to bring back a different list of G/L accounts? Then the budgets stored might not correctly match the G/L accounts. Because of this, Jet must have a unique key for each piece of data stored. In this case, the G/L account number uniquely identifies the table records, so it can be used as the unique key. Type "Key" in column A or row 1, depending on which intersects the key values with the "Data" keyword. In this case, type "Key" in cell D1.

In some cases, more than one key may be necessary in order to uniquely identify the data items. For example, if you were creating budgets by department, you might need a key for the account number and a key for the department in order to uniquely identify your data values. Because of this, each key needs a name. In this example, "No.", the name of the field in the G/L Account table, will serve for the key name. Type "Keyname" in column A or row 1, depending on which intersects the key name with the "Key" keyword. In this case, type "Keyname" in cell A7.

Sharing Reports Created with Jet Reports

Now when you run the report, you can tweak the values under Projected Budget in Report mode (as seen below) and the data will be stored when you run the report again or enter design mode.

Finally, you want to be sure to have Auto+Hide+Values in cell A1 so that Report Viewers can use the report. You can also add Hide and Fit keywords to row 1 like the following.

Notice that even if you add options for filters that change the G/L accounts returns, the projected budgets entered by the user will stay with the correct account.

Access Northwind Example

Suppose you wanted to create a report of sales amounts by category. You could do that like the following.

Then say you wanted to add a column for projected sales with a 10% increase in each category. You could add a column to do that like the following.

However, what if you don't want to increase all the projected sales by 10% but wanted to play with the numbers a bit for some for some categories after running the report? Normally, any changes made in report mode are lost when the report is re-run. However, with the stored viewer data feature they can be kept. Start out by typing "Data" in column A and row 1 above and left of where you want viewers to be able to enter stored data, in this case A5 and E1.

This tells Jet what cell(s) to store data from. But what if you decided to change the filters to bring back a different list of categories? Then the projected sales data stored might not correctly match the categories. Because of this, Jet must have a unique key for each piece of data stored. In this case, since we are retrieving a unique list of categories, the category can be used as the unique key. Type "Key" in column A or row 1, depending on which intersects the key values with the "Data" keyword. In this case, type "Key" in cell C1.

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In some cases, more than one key may be necessary in order to uniquely identify the data items. For example, if you wanted to show individual products for each category, you might need a key for the category and a key for the product in order to uniquely identify your data values. Because of this, each key needs a name. In this example, "Categories", the title above the field, will serve for the key name. Type "Keyname" in column A or row 1, depending on which intersects the key name with the "Key" keyword. In this case, type "Keyname" in cell A4.

Finally, you want to be sure to have Auto+Hide+Values in cell A1 so that Report Viewers can use the report. You can also add Hide and Fit keywords to row 1 like the following.

Notice that now whatever values you type into column E under Projected Sales in Report mode will be saved when you re-run the report.

Great Plains Fabrikam Example

Suppose you wanted to create a list of G/L accounts for a specific Great Plains budget. You could do that like the following.

Say you wanted to create new budget amounts based on the current amounts with a projected 10% growth in each. You could add a column to do that like the following.

However, what if you didn't want to increase budgets by 10% all across the board, but wanted to play with the numbers a little and increase some by less and some by more. Normally, any changes of this kind made in report mode would be lost when the report was re-run. However, with the stored viewer data feature they can be kept. Start out by typing "Data" in column A left of the cell(s) where users will enter stored data and row 1 above the cell(s) where users will enter stored data, in this case G1 and A8.

This tells Jet what cell(s) to store data from. But what if you decided to change the filter to bring back accounts from a different budget? Then the budgets stored might not correctly match the G/L accounts. Because of this, Jet must have a unique key for each piece of data stored. In this case, the G/L account number uniquely identifies the table

records, so it can be used as the unique key. Type "Key" in column A or row 1, depending on which intersects the key values with the "Data" keyword. In this case, type "Key" in cell D1.

In some cases, more than one key may be necessary in order to uniquely identify the data items. For example, if you were creating budgets by department, you might need a key for the account number and a key for the department in order to uniquely identify your data values. Because of this, each key needs a name. In this example, "No.", the name of the field in the G/L Account table, will serve for the key name. Type "Keyname" in column A or row 1, depending on which intersects the key name with the "Key" keyword. In this case, type "Keyname" in cell A7.

Now when you run the report, you can tweak the values under Projected Budget in Report mode (as seen below) and the data will be stored when you run the report again or enter design mode.

Finally, you want to be sure to have Auto+Hide+Values in cell A1 so that Report Viewers can use the report. You can also add Hide and Fit keywords to row 1 like the following.

Below is the final output you will see after adding the hide and fit keywords.

Advanced Stored Viewer Data

Suppose you wanted to store viewer data based on multiple keys. This example builds on the one in the Introducing Stored User Data in Reports section. If you have not yet read that example, please do so before continuing.

Navision Cronus Example

Let's say you want to insert a columns replicator to your report to make new budget columns for each department and add a filter for departments. The department information is stored in the Dimension Value table since it is Global Dimension 1 by default. So you could insert a column F and add the columns replicator like the following.

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You also have to add a filter for the department (Global Dimension 1) to the GL function returning budgeted amounts.

Since departments are being replicated across columns, the unique key for the department must appear in the column where the viewer data will be stored, in this case column H, cell H6. Then you must type "Key" in column A in the cell that intersects "Data" with the unique key value, in this case cell A6.

Since you can have multiple unique keys to identify your data, each key must have a name. In this case, you can name the key "department", which you can type into cell C6. You must also type "Keyname" into cell C1 so that the key name appears at the intersection of "Keyname" (column C) and "Key" (row 6). Finally, row 6 can be hidden since it is not necessary to view it in Report Mode.

Now if you run this report, you will see a new set of green columns for each department, and any information the user types into the Projected Budget columns will be stored for each department.

Access Northwind Example

Let's say you want to insert another rows replicator into your report to break down each category by product. You could insert a column D and return rows for products like the following.

You also have to change the filter for the sales totals to sum by product instead of category.

Since you are returning a unique list of product names for each category, the product name field will serve as the second key. Since Products are also being replicated down rows, you must type "Key" in row 1 in the cell that intersects "Data" with the product names, in this case cell D1.

Notice that since "Keyname" in cell A4 already intersects with "Key" from cell D1 at cell D4, "Product" is the name of the second key for the stored viewer data. Now if you run this report you will see a list of products for each category with stored data for projected sales. Notice that if you edit the data in column F under Projected Sales and re-run the report, any changes you make will remain.

Great Plains Fabrikam Example

Let's say you want to insert a columns replicator to your report to make new budget columns for each period and add a filter for periods. The period information is stored in the Period Setup (SY40100) table. So you could insert a column F and add the columns replicator like the following.

You also have to add a filter for the period to the GL function returning budgeted amounts. You can filter the Start Period and End Period arguments by the same period number to get just the budget for that period.

Since periods are being replicated across columns, the unique key (period number) must appear in the column where the viewer data will be stored, in this case column H, cell H6. Then you must type "Key" in column A in the cell that intersects "Data" with the unique key value, in this case cell A6.

Since you can have multiple unique keys to identify your data, each key must have a name. In this case, you can name the key "Period ID", which you can type into cell B6. You must also type "Keyname" into cell B1 so that the key name appears at the intersection of "Keyname" (column B) and "Key" (row 6). Finally, row 6 can be hidden since it is not necessary to view it in Report Mode.

Now if you run this report, you will see a new set of green columns for each period, and any information the user types into the Projected Budget columns will be stored for each period.

Moving a Workbook

Jet Reports Help

If you open a workbook on a computer that has Jet Reports installed in a different directory than on the computer where the workbook was created, a window may open with "File Not Found" as the title and JetReports.xla or JetReports.xlam in the File name box. This window appears when you first open the workbook.

Click Cancel and Jet Reports will attempt to automatically update the link. If you see this box more than once, click Cancel each time the box appears.

Jet Reports can usually update the links automatically, but if this does not work, you can update the link manually. From the Excel menu choose Edit/Links and then click Change Source. Choose JetReports.xla from the Jet Reports program folder.

If you are having trouble moving reports between computers, read the section entitled Sharing Reports with Excel Users Who Don't Have Jet Reports in Introducing Report Viewers. You can use the same technique to transfer reports between Jet Reports users without getting the warning message from Excel. The report recipient can simply open the report and use it as they are accustomed.

Automating Reports and Programmability

The Jet Scheduler

Introducing the Jet Scheduler

The Jet Scheduler allows you to schedule reports to run at a later time. The main window allows you to view all of the Jet Reports tasks that are scheduled on the current computer. It provides details including the name of the task, the schedule (the times at which the task is scheduled to run), the next and last run times, the task status and the username of the task creator. From this window you can create a new task or edit an existing one. You can also run a task (regardless of the schedule) or end a task that is currently running. Additionally, you can disable unneeded tasks or delete them completely.

You can access most of the actions associated with a task by right-clicking the task. Please note that in order to create or edit tasks you must have permissions to do so on the specified computer.

Scheduling a Jet Reports Task

In order to create a new task, click the "New Task" button. If you have a workbook open in Excel, the Reports tab will be populated with the appropriate information for the active workbook. Otherwise, the Input and Output paths will be blank and you will have to browse to a report or folder.

Jet Reports uses the Autopilot application to run the scheduled task, so if you are familiar with Autopilot you may recognize the input parameters for the task. In order for Autopilot to run successfully you must specify an input path (either an entire folder or a single file) and an output path. It is also recommended that you provide a descriptive task name.

On the Schedule tab you can specify the times at which you would like your report(s) to run. Similarly to the Windows Task Scheduler, you can choose to run your tasks once, daily, weekly, monthly, at startup or logon, or when the computer has been idle for a given period. You can also choose to disable the task. Based on the frequency that you select in the drop-down list you may also have to provide additional information on another tab. For instance, if you select "Monthly" you may choose to run the task on the last Friday of every month or at the end of every quarter.

On the Options tab you can specify report options to be set when the scheduled task is run. These options must be Excel named ranges in your workbook in order for them to show up on the Options tab.

Jet Reports Help

On the E-mail tab you can specify e-mailing of the completed reports. If you want to automatically e-mail the reports, you can supply the name of a range of cells in the input workbook that contains the list of email addresses or supply the list of email addresses in the text box. E-mails can be sent via Outlook or SMTP. The e-mail subject and message body can be specified by selecting the "Message..." button. Note that if on the Output tab you choose to output the workbooks in HTML format, e-mailing will not be available.

On the output tab, you can choose options about what is outputted by the scheduled task. Here you can choose the output format of the report (either an Excel Workbook or an html web page) and whether or not you would like to output debug messages to a log file. The "Batch File Generation" section uses the "/X" capability of Autopilot. See AutoPilot Command Line Parameters for more details.

Select "Run Now" to run the task immediately or select "Schedule" to save the task for future execution. You will be required to enter your Windows username and password in order to run or save the task.

Using the Jet Scheduler to Email Using SMTP

In versions of Jet Reports prior to 2009, scheduled reports to be sent via e-mail utilized Microsoft Outlook. In Jet Reports 2009 and later, a second alternative for e-mail distribution is available. This option is Simple Mail Transfer Protocol (SMTP). SMTP is an Internet standard for e-mail transmission and does not require the installation of a mail client such as Outlook.

Setting up an SMTP Server

Before you can use the SMTP e-mail option, you must configure your SMTP settings in the Jet Reports Application Settings.

1. From Excel, open the Jet Reports Application Settings (Jet/Application Settings).
2. In the "SMTP Server" area, specify the SMTP server address. If you are using Microsoft Exchange, this is the name of the Microsoft Exchange server which you can find in the Microsoft Exchange Settings (Tools/Mail/Mail Setup/E-mail Accounts/Change). If you are using another Post Office Protocol (POP3) or Internet Message Access Protocol (IMAP) server, you will need to specify the name of that server (this is usually a fully qualified domain name such as smtp.example.com).
3. Specify the e-mail address from which the reports will be sent in the "From" box. It is important that this is filled out correctly as any replies to your e-mail will be sent to this address. This is typically your e-mail address.
4. If you need to provide a port or authentication information, check the "Use advanced options" box.
5. Leave the Port setting blank to use the default SMTP port, which is 25. If the mail transfer agent uses a different port, this can be specified here.
6. You may need to provide authentication information in order to send e-mail. If so, specify your user name and password.

Technical Notes: Microsoft Exchange provides full SMTP mail services. The Exchange SMTP server can be used to receive mail and to relay mail to other Exchange computers on your network or to other SMTP servers on the Internet. Mail relay permits Exchange mail clients to send mail to users in other organizations. If mail relay is not permitted, the Exchange computer can only receive and send mail for users who are in the same mail domain as the Exchange server.

Emailing a Scheduled Report with SMTP

After setting up the SMTP Server, it is available when creating scheduled tasks. To send a scheduled report via SMTP, open or create a scheduled task in the Jet Scheduler. Then on the E-mail tab, choose “E-mail using an SMTP server” from the Mail Properties area.

Technical Notes: AutoPilot will use SMTP when you have the "/S" and "/E [E-mail@recipient.com]" in your command line as long as SMTP settings have been configured in the Jet Reports Application Settings. The /S and /E arguments can be in any order.

Customizing Scheduled E-mail

When e-mailing reports via the Jet Scheduler, you can specify the e-mail subject and message body. This information can be inputted when the report is scheduled, or it can be set up to dynamically use information from the report itself when it is run by the scheduler.

Adding a Custom E-mail Subject and Body

To create a customized e-mail subject and/or message body when scheduling a report, click the “Message...” button on the E-mail tab in the Scheduled Task form. If you leave the fields blank, both the subject and the message body will be set to the name of the report you are sending.

Adding a Dynamic E-mail Subject and Body

If you want to update the subject and/or message body of your e-mail dynamically when the report is run, you can use Excel named ranges to do so. In order to use this feature, the report you are scheduling must contain named ranges containing the subject and message body of your e-mail.

For the subject, you can use the drop down to select the Excel named range that contains the subject or type one of your own. Only one cell can be included in the subject. If a named range consists of more than one cell, only the value in the first cell will be used.

To use an Excel named range as the message body of the e-mail, check the “Get body from Excel Named Range” option and select the range you would like to use from the drop down list. The e-mail body can consist of more than one cell.

If the message body named range consists of more than one cell, a space will be inserted between the value in each cell on the same row and a new line will be inserted for each new row. If the named range contains a replicator that has an anchor row or column, all of the replicated cells will be included in the e-mail body.

Technical Notes: In order to specify the subject of your e-mail using AutoPilot, use /U ["Your subject or named range"]. Similarly, you can specify the body of your e-mail in AutoPilot using /B ["Your e-mail body or named range"].

AutoPilot

Introducing AutoPilot

AutoPilot allows workbooks saved in an input directory to be refreshed and saved to an output directory. The workbooks can be saved as workbooks or as web pages. By using Windows Task Scheduler, AutoPilot can automatically create updated workbooks and web pages. When AutoPilot runs, it opens each workbook in the input directory. Depending on the mode specified on the command line, either it saves refreshed workbooks or Web Pages to the output directory.

AutoPilot Command Line Parameters

AutoPilot determines what action to take based on command line parameters. The parameters follow the program name. AutoPilot recognizes the following command line parameters: /M, /I, /O, /D, /L, /E, /X, and /P.

Parameter	Action
/M	Sets the mode. (UPDATE, SIMPLEWEB)
/I	Specifies the input directory or a particular report.
/O	Specifies the output directory where the report(s) will be saved or a path to the output report.
/D	Turns on debug mode. You can specify a text file where the debug information will be saved. When AutoPilot runs Excel will open visibly and errors and status will be stored in the text file.
/L	Creates a log file just like /D except without opening Excel visibly. If no log file is specified, a text file will be created in My Documents with the date in the filename.
/S	Emails the reports via SMTP if SMTP

	settings are specified in the Jet Application Settings and /E is specified.
/E	Emails the report(s) to the e-mail addresses in the specified Excel named range or a semicolon separated list of e-mail addresses. Does not work in SIMPLEWEB mode.
/U	Specifies the subject of the e-mail or the Excel named range containing the subject. If no subject is specified, the filename of the report will be used.
/B	Specifies the message body of the e-mail or the Excel named range containing the message body. If no message body is specified, the filename of the report will be used.
/X	Creates and runs a batch file from the specified Excel named range.
/P	Starts the list of named range replacements. This must be last in the command line.

Here is how to setup the command line:

```
AutoPilot /M <Mode> /I <Input Directory> /O <Output Directory> /D <Debug File Path> /L <Log File Path> /E <Range or list of email addresses> /X <Range> /P <Range1> <Value1> <Range2> <Value2>
```

There must be a space between each command line item above, both before and after /M, /I, /O, /D, /L, /E, /X and /P. If the input or output directory or any Range or Value has a space, it must be enclosed in quotes. The /P parameter must be last.

/X

Often times when running AutoPilot you wish to update the batch file dynamically. This is not always easily done using DOS commands. However, dynamically updating Excel spreadsheets is much easier. /X allows you to write your batch files in Excel so you can use the power of Jet Reports and Excel functions instead of DOS commands to dynamically update your batch files.

When using /X, AutoPilot will run your report as normal. The "/X" parameter will then create and execute a temporary batch file from the specified named range in Excel. Each row in the named range will be a single line in the batch file. The columns in the range will be concatenated (separated by a space) to construct a line in the batch file.

This temporary batch file can be used to run another Jet Report via AutoPilot.

Jet Reports Help

/E

/E automates the email distribution of your reports. When using /E, AutoPilot will run your report as normal. It will then email the finished report to all of the specified email addresses. You can specify the list of email addresses on the command line in two ways.

First, you can specify an Excel named range that contains them. The named range can be any number of cells but must only contain one email address per cell. In this case, since the report is run prior to sending the email, the list of email addresses can be created using Jet Reports formulas giving you the ability to email the report based on a condition within the report. For example, you could conditionally hide or show an email address based on a G/L account balance in the report. If the balance of the account fell below a certain amount, the report would be emailed to the CFO.

Alternatively, you can specify a semi-colon delineated list of email addresses on the command line itself. Please note that Jet Reports does not have the capability to check the validity of each address, so you should be careful to enter them correctly.

AutoPilot Mode

Mode	Action
UPDATE	Opens the workbook; Jet/Reports; Saves the workbook in Output folder.
CONVERT	This mode is deprecated and now works identically to UPDATE. We recommend that you use +Values in cell A1 and UPDATE to achieve similar results.
SIMPLEWEB	Opens the workbook; Jet/Reports; creates a drilldown hyperlink whenever "drilldown" is in the cell comment; creates a subfolder in the output folder with the workbook name; in this subfolder, saves an html file for each sheet in the workbook.
VALUES	This mode is deprecated and now works identically to UPDATE. We recommend that you use +Values in cell A1 and UPDATE to achieve similar results.

Using AutoPilot to Update Report Options

If the workbook has single cell named ranges, AutoPilot can replace the contents of the named ranges. This allows AutoPilot to update report options. Follow the /P parameter with <Named Range> <Value> pairs. Put a space between the named range and the

value. If either includes spaces, enclose them in quotes. You can include as many pairs as needed. If the named range does not exist in a workbook, it is ignored. Below is an example AutoPilot command.

```
AutoPilot /M UPDATE /I "C:\Input" /O "C:\Output" /P "DateFilter" "9/1/02..9/30/02"
"Sales" "10000.."
```

AutoPilot Command Line Substitutions

The input and output directories can contain date and time tags that will be replaced with current date and time elements. The following tags are available.

Tag	Result
%YEAR%	Current year, four digit
%MONTH%	Current month, two digits
%DAY%	Current day of the month, two digits
%HOUR%	Current hour, 2 digits, 24 hour clock
%MINUTE%	Current minute, 2 digits.

The date and time substitutions are based on the date and time that AutoPilot starts. For example,

```
AutoPilot /M SIMPLEWEB /I "C:\Statistics" /O "C:\InetPub\%Year%-%Month%-
%Day% %Hour%"
```

If the AutoPilot started at 10PM on July 23, 2003 the output directory from the above command line would be "C:\InetPub\2003-07-23 10".

Using the Windows Task Scheduler

To run AutoPilot on a schedule, use the Windows task scheduler. You must set AutoPilot to "Run As" a user that has Excel and Jet Reports installed and properly configured. If you are not using Windows Authentication, the user name and password for Navision must be saved in the options. For better security, Windows Authentication is recommended.

Note that to use the Windows task scheduler requires the user to have read/write permissions for the C:\Windows\Tasks folder. Normally only members of the Local Administrators, Backup Operators, or Server Operators groups have these permissions, However, an administrator can grant permissions for the directory to other users with the CACLS command at the command prompt. For example, if the username to be granted rights was John, the command might look like this:

```
CACLS C:\Windows\Tasks /E /G John:F
```

Jet Reports Help

For more information on the CACLS command, Windows tasks, and permissions, see the Microsoft website.

AutoPilot Testing

Before saving a worksheet in the AutoPilot input directory, you should login as the user specified in the "Run As" of the task scheduler, open the workbook from the input directory, and choose Jet/Reports. Then use "Save As" to save the file to the output directory. If this is successful, AutoPilot should be able to create the output files. If you have trouble with a workbook, you should try this test to diagnose the problem.

Webpage Creation Format

When AutoPilot runs in SIMPLEWEB mode, a new directory is created for each workbook in the input directory. The name of the directory is the same as the name of the workbook. For each sheet in the workbook, an HTML (.htm) file is created in the workbook directory. The filename is the same as the name of the sheet.

If you want a drilldown hyperlink on the web page for a cell, put "drilldown" in the cell comment. To use the hyperlink, the user must have Navision installed on their computer and they must be able to access the Navision server.

Programming with Jet Reports

Launching Jet Reports from Navision

If you are a Navision developer and have appropriate development granules you can launch Excel from Navision, update report options, refresh the report and print. You must have the OCX granule and either Application Builder or Report Designer. Below is a code-unit example of how to do this. The same code could be written inside a form or a Navision report. Be sure to replace [Jet Reports Program Folder] with the path to the Jet Reports program folder on your system.

Documentation()

Example: Run A Jet Report from within Navision

Steps implemented in code:

1. Start Excel; make it visible and interactive.
2. Open the Jet Reports Add-in.
3. Open a Workbook.
4. Update Options.
5. Run Jet/Report.
6. PrintPreview the Worksheet that contains the report.

7. Close Excel.

Global Variables (This example uses Excel XP objects. For other versions of Excel, these will be slightly different.):

Name	Data Type	Subtype
XL	Automation	'Microsoft Excel 10.0 Object Library'.Application
Workbook	Automation	'Microsoft Excel 10.0 Object Library'.Workbook
Worksheet	Automation	'Microsoft Excel 10.0 Object Library'.Worksheet

OnRun()

```

    {To reuse existing instances of Excel, use CREATE(XL)}
IF CREATE(XL, TRUE) THEN BEGIN
    {Workbooks don't necessarily start visible or interactive. Since the
    user will interact with the workbook, you need to set the below values.}
        XL.Interactive := TRUE;
        XL.Visible := TRUE;
    {Add-ins do not automatically open when using automation, so the Jet Reports
    add-in
    must be opened below. You must also open any other add-ins that are needed. Be
    sure
    to replace [Jet Reports Program Folder] with the path to the
    Jet Reports program folder on your system.}
        XL.Workbooks.Open("[Jet Reports Program Folder]\JetReports.xlam");
    {Open the report workbook. Be sure to replace [Jet Reports Program Folder] with the
    path to the
    Jet Reports program folder on your system.}
        Workbook := XL.Workbooks.Open("[Jet Reports Program
        Folder]\Reports\Finance Graph.xls");
    {Update the report options. The option values are in single cell named ranges.}
        Workbook.Names.Item('PeriodType').RefersToRange.Value := 'Week';
        Workbook.Names.Item('DateFilter').RefersToRange.Value :=
        '1/1/01..3/31/01';
    {Run the jet report.
    IMPORTANT NOTE: Jet Reports intends to keep the below command working in future
    versions
    of Jet Reports. All other menu commands might change. They might work now, but
    could
    break in future version. Please do not use any other Jet Reports commands in your
    software.}

```

Jet Reports Help

```
XL.Run('JetMenu','Report');
XL.Run('Events');
{In some cases all the below steps may not be desired. Perhaps the user wants
to drilldown and examine the report in Excel.}
{Choose a worksheet and launch print preview. The user can cause the report to print
if desired.}
Worksheet := Workbook.Worksheets.Item('Report');
Worksheet.PrintPreview;
{Avoid the message asking if the workbook should be saved by marking it as already
saved. Be careful
with this.
This step assumes that the workbook does not need to be saved since it is a report
template.}
Workbook.Saved := TRUE;
{Close Excel}
XL.Quit;
END;
```

Launching Jet Reports from VBA

If you write macros in Excel or want to launch Jet Reports from another application, you can launch Excel, update report options, refresh the report and print. Below is some sample code that demonstrates how to do this. Be sure to replace [Jet Reports Program Folder] with the path to the Jet Reports program folder on your system.

Steps implemented in code:

1. Start Excel; make it visible and interactive.
2. Open the Jet Reports Add-in.
3. Open a Workbook.
4. Update Options.
5. Run Jet/Report.
6. Print the Worksheet that contains the report.
7. Close Excel.

```
Sub JetUpdate()
```

```
Dim XLApp as Object
Set XLApp = New Excel.Application
```

Workbooks don't necessarily start visible or interactive.

If the user will interact with the workbook, you need to set the following two values.

```
XLApp.Visible = True
XLApp.Interactive = True
```

Add-ins do not automatically open when using automation, so the Jet Reports add-in must be opened manually. You must also open any other add-ins that you need.

Be sure to replace [Jet Reports Program Folder] with the path to the Jet Reports program folder on your system.

```
XLApp.Application.Workbooks.Open ("[Jet Reports Program  
Folder]\jetreports.xlam")
```

Open the report workbook

```
XLApp.Application.Workbooks.Open ("ReportName.xls")
```

Update the report options. The option values are in single cell named ranges.

```
XLApp.Application.Workbooks("ReportName.xls").Names.Item("DateFilter").RefersToRange.Value = _  
"1/1/2004..3/31/2004"
```

Run the jet report.

IMPORTANT NOTE: Jet Reports intends to keep the below command working in future versions

of Jet Reports. All other menu commands might change. They might work now, but could

break in future version. Please do not use any other Jet Reports commands in your software.

```
XLApp.Application.Run "JetReports.xlam!JetMenu", "Report"
```

In some cases all the below steps may not be desired.

Choose a worksheet and launch print preview. The user can cause the report to print if desired.

```
XLApp.Application.Workbooks("ReportName.xls").PrintPreview
```

Avoid the message asking if the workbook should be saved by marking it as already saved.

Be careful with this. You are assuming that the workbook does not need to be saved since it is a report
'template.

```
XLApp.Application.Workbooks("ReportName.xls").Saved = TRUE
```

Close Excel

```
XLApp.Quit
```

End Sub

Reference

Filtering Reference

Meaning	Symbol	Sample Expression	Records Displayed
Equal to	None	377 BLUE	Number 377 Those with the BLUE code, for BLUE warehouse code
Not equal to	<>	<>0	All numbers except 0. Note that <> cannot be used in conjunction with other wild cards like *. See Wild Card Filters.
And	&	<2000&>1000	Numbers that are less than 2000 AND greater than 1000. The & sign must be used with a range because no single record can have two values. An example of an invalid use of & is A&B because no records can be equal to A AND equal to B. An example of a valid use of & is A*&*B, which means find all records that start with A AND end with B.
Or		1200 1300	Those with number 1200 OR 1300
Greater than	>	>1200	Numbers greater than 1200
Great than or equal to	>=	>=1200	Numbers greater than or equal to 1200
Less than	<	<1200	Numbers less than 1200
Less than or equal to	<=	<=1200	Numbers less than or equal to 1200
Interval	..	1100..2100 ..2500 ..12/31/2000 8..	Numbers 1100 through 2100 Up to and including 2500 Dates up to and including 12/31/2000

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			Everything after 8
Indefinite number of unknown characters	*	*Co* *Co Co*	Text that contains "Co" Text that ends with "Co" Text that begins with "Co" See Wild Card Filters.
One unknown character	?	Hans?n	Text such as Hansen or Hanson See Wild Card Filters.
Calculate first	()	30 (>=10&<=20)	Number 30 OR with a number from 10 through 20 (the result of the calculation within the parentheses)
Ignore special characters	@ @	@ @A&B	Those equal to "A&B" the & is a part of the value instead of being interpreted as an AND operator.
	' '	'A&B' 'M&M'	Those equal to "A&B" OR those equal to "M&M". The is interpreted as a logical operator as described above. If you need to combine two filters that both have special characters, you can enclose your filters in single quotes. Check Special Characters in a Filter for examples.
	"@@"&	"@@"&C3 Or ""&C3&"" Or ""&C3&" "&C4&"" Where C3 and C4 could contain blank or special characters	Use "@@" & <Cell Reference> if the cell reference could be blank and you want to filter for blank field values. Use the ' character in double quotes added before and after a cell reference to always have a safe filter from the cell reference. The two methods listed above are equivalent for a

		like the following: John(Huston), Ben & Jerrys	single filter. If you want to combine two cells with filters in them, you must use as in the bottom example.
Ignore case (upper or lower)	@	@location	Text such as LOCATION, location or LocatioN

You can also combine the various filter expressions as in the following table.

5999 8100..8490	Include any records with the number 5999 OR a number from the interval 8100 through 8490.
..1299 1400..	Include records with a number less than or equal to 1299 OR a number equal to 1400 or greater (all numbers except 1300 through 1399).
>50&<100	Include records with numbers that are greater than 50 AND less than 100 (numbers 51 through 99).
C&*D*	Text containing both C AND D.
@*co?*	Text containing co, CO, Co, cO, such as cot, cope and incorporated. CO, cO, Co or co must be present, followed by at least one character, but there can be an indefinite number of characters before and after these, and case is unimportant.

Note: It is important that you enter only meaningful filters. For example, it is possible to specify an interval that does not exist, and Jet Reports cannot check this for you.

NF Function Reference

=NF

(Key,Field,FlowfilterField1,Filter1,FlowfieldField2,Filter2,,FlowFilterField9,Filter9)

Purpose: Returns a field based on a record key. Record keys can be generated with the NL function. If the field returned is a Flow Field, it is calculated based on the Flow Filters.

Note: When an NL function returns a record key, the Flow Filters from the NL function are not used to calculate the return value of the NF function.

Parameter	Description
Key	Specifies a record key returned by the NL function when the Field parameter is blank or has a Field Cache.
Field	Name of the field to return. The field specified must be present in the Field Cache in the NL function if a Field Cache is being used.

FlowFilterField1	Flow filter fields are only available in Navision..The name of a flow filter to use in calculating the value to return. Flow filters are only used if Field is a flow field.
FlowFilter1	Flow filters are only available in Navision..The value of the filter for FlowFilterField1.
FlowFilterFieldN	Flow filter fields are only available in Navision..Same as FlowfilterField1. Up to 9 pairs of Flow Filter Field and Filter pairs can be included in an NF Function.
FlowFilterN	Flow filters are only available in Navision..Same as Filter1 but for FlowFilterFieldN.

NF Function Examples

This NF returns the Net Change flow field from the record key in cell A3 and filters it for January 2002.

=NF(A3,"Net Change","Date Filter","1/1/2002..1/31/2002")

This NF returns the Name field from the NL record key in cell B3.

=NF(B3,"Name")

This NF returns the City field from the NL record key in cell B3.

=NF(B3,"City")

NP Function Reference

=NP (What, Arg1, Arg2,....,Arg22)

Purpose: Does various utility functions documented below.

What	Description/Parameter
"Eval"	Evaluate the formula in the Arg1 parameter. The formula must be enclosed in quotes and will be evaluated when the report refreshes.
"DateFilter"	Calculates a date filter using the start date and end date specified in the Arg1 and Arg2 parameters.
"Format"	Formats an expression with a specific Excel formatting string. Arg1 is the expression to format such as a date or cell reference, and Arg2 is the Excel formatting string such as "YYYY/MM/DD" for a date formatted with a 4-digit year then a 2-digit month and 2-digit day.
"Companies"	Returns a list of the companies associated with a data source. Arg1 is a company filter such as A* to return all companies that start with the letter A. Leaving Arg1 blank will return all companies. Arg2 is the data source. Leaving Arg2 blank will return companies from the

	current data source. Note that you should reference the result of this function in the table argument of an NL replicator function to actually list them out in Excel.
"DataSources"	Returns the list of data sources. Note that you should reference the result of this function in the table argument of an NL replicator function to actually list them out in Excel.
"Intersect"	Returns the intersection of two arrays specified in the Arg1 and Arg2 parameters. Note that if NP("Intersect") is by itself in a cell, it will only return the first value from the array. You must put it inside an NL("Rows") in order to correctly return all the data.
"Difference"	Returns the difference of two arrays specified in the Arg1 and Arg2 parameters. Note that if NP("Difference") is by itself in a cell, it will only return the first value from the array. You must put it inside an NL("Rows") in order to correctly return all the data.
"Union"	Returns the Union of two arrays specified in the Arg1 and Arg2 parameters. Note that if NP("Union") is by itself in a cell, it will only return the first value from the array. You must put it inside an NL("Rows") in order to correctly return all the data.
"Join"	Joins the elements of the array specified in Arg1 together into a single string separated by the contents of Arg2.
"Split"	Splits the string in Arg1 into an array of values. The splitting is delimited by the contents of Arg2. Note that if NP("Split") is by itself in a cell, it will only return the first value from the array. You must put it inside an NL("Rows") in order to correctly return all the data.

NP Function Examples

The following NP evaluates the formula in cell of D5 from a worksheet called Options.

```
=NP("Eval", "=Options!$D$5")
```

The following NP creates a list of the document numbers of all invoices where either the Type field is "Item", or it is "G/L Account" and the No. field is 2000.

```
=NL("Rows", NP("Union", NL("Filter", "Sales Invoice Line", "Document No.", "Type", "Item"), NL("Filter", "Sales Invoice Line", "Document No.", "Type", "G/L Account", "No.", "2000")))
```

The following NP creates a date filter for the month of June 2003 if the Windows date format is set to mm/dd/yyyy. It returns "6/1/2003..6/30/2003".

```
=NP("DateFilter", "6/1/2003", "6/30/2003")
```

The following NP creates a date filter for all dates up to and including May 15, 2004 if the Windows date format is set to dd/mm/yyyy. It returns "..15/5/2004".

=NP("DateFilter",,"15/5/2004")

The following NP splits up the string "this|is|an|array" and creates the array {this, is, an, array}.

=NP("Split", "this|is|an|array", "|")

The following NP formats a number in cell A4 to have 2 decimal places.

=NP("Format",A4,"0.00")

The following function lists all the companies for the current data source in rows.

=NL("Rows",NP("Companies"))

NL Function Reference

=NL (What,Table,Field,FilterField1,Filter1,FilterField2,Filter2,FilterField10,Filter10)

Purpose: Returns fields or record keys from a table based on filters. Duplicates report templates.

Note: If the NL function is making copies of a template, it must be the only function in the cell. The functions =NL("Rows") and =NL("Rows")*-1 are not valid.

Parameter	Description	
What	Determines what is returned.	
	Argument	Description
	Blank or omitted	Returns the Field or record key from the first record that matches the other NL arguments.
	"Sum"	Returns the sum of the Field for all records that match the filters. To use Sum, the field type must be numeric.
	"Count"	Returns the count of all records that match the filters. Ignores the Field parameter.
	"CountUnique"	Returns the count of all of the unique values of the specified field that match the filters.
"Rows"	Copies the current row and all of its contents for each unique value of Field in the records that match the filter. The	

	values returned are sorted. To copy more than one row, put "Rows=n" where n is the number of rows to copy. For example, to copy the current row and the next two rows use "Rows=3".
"Columns"	Just like "Rows" but copies columns.
"Sheets"	Like "Rows" and "Columns" but copies the current worksheet. "Sheets=n" is not supported. Only the current worksheet can be copied. The name of the sheet is set to the value returned. If name is too long or already exists, jet will create a new name. If the worksheet is locked, the name is limited to 22 characters. If the worksheet is not locked, the limit is 31 characters. If the values returned exceed these limits, the NL function will truncate the long names.
Positive Number	1 returns the first record or field that matches the filters, 2 returns the second record or field, etc.
Negative Number	-1 returns the last record or field that matches the filters, -2 returns the second to last record or field, etc.
"First"	Returns the first record or field that matches the filters.
"Last"	Returns the last record or field that matches the filters.
"AllUnique"	For all operations except those in which you pass an array to an Excel function, it is now recommended that you use "Filter". Returns an array of unique values for the field. If you are using Excel 2000, array size is limited. In our experience, arrays up to 5,000 elements seem to work fine. Larger arrays can cause unpredictable results. Excel 2002 or later is highly recommend if you are going to use large arrays.
"Picture"	Loads a bitmap image (bmp) from a file

	or from a BLOB in Navision.
"Caption"	Returns the Navision caption in the current language for the specified table or field.
"Lookup"	Creates a formula that will perform the database lookup for Report Options. This function must be used with the Option tag in column A and the Lookup tag in row 1. See the Report Options topic for more details.
"Filter"	Returns a string value that can be used as a filter in another NL function. Intended for filtering the contents of one table based on the contents of another. Can also be used with array operations such as NP("Union") or NP("Intersect").
"Link"	Returns a string value that can be used as a filter in another NL function. Intended for filtering the contents of one table based on the contents of another.
Table	<p>The name or number of the table. If you want to load a picture from a file, leave the table blank.</p> <p>When the "What" argument is "Rows", "Columns" or "Sheets" you can also use an Excel array in the Table argument. Excel arrays can be created in a number of ways, including typing {"element1","element2","element3"}, using a range of cells like E8:E16, or using one of the Jet Reports Array Calculations. This will cause rows, columns or sheets to be created for each element of the array.</p> <p>If your Table parameter starts with SQL=, Jet Reports expects the rest of the parameter to be a valid SQL query.</p>
Field	<p>The name or number of the field to return. To return a record key, leave the Field blank or use a Field Cache. Also see Advanced Dimensions.</p> <p>A Field Cache is required when a table does not have a primary key and will speed up a report even when the table does have a primary key. The format of the field cache is either a comma delimited, quoted list of field names inside curly brackets : { "FieldName1", "FieldName2", "FieldName3", etc. } or a cell range reference: \$B\$2:\$G\$2 where the field names are in cells B2 through G2. If a Field Cache is used, every field that will be retrieved with</p>

	NF functions must be in the Field Cache. When the "What" argument is "Picture", this parameter becomes the full path for the file.
FilterField1	The name of the first field by which to filter. Put "Company=" in a FilterField to override the default Navision or Great Plains Company. Put "DataSource=" in a FilterField to override the default data source. You can use multiple server data sources and a single local data source connection in the same workbook. See Limiting the Number of Records in a Query for Limit=. See Filtering Based on Data from Another Table for Link=. See Databases with Multiple Schemas for Schema=. See Specifying More Than Ten Filters in the NL Function for Filters=. See also Advanced Dimensions and Array Calculations.
Filter1	The value of the filter to apply to FilterField1. If "Company=" is in the corresponding FilterField, put the company name here. If "DataSource=" is in the corresponding FilterField, put the connection name as defined in Jet/Options here.
FilterFieldN	Same as FilterField1. Up to 10 field and filter pairs can be specified. If you specify multiple filters, they combine in a logical AND.
FilterN	Same as Filter1, but applies to FilterFieldN.

Access Northwind NL Function Examples

This NL returns the record key for all of the Customers in the City of Portland with a 503 area code.

```
=NL("Rows","Customers",,"Phone","503-???-????","City","Portland")
```

This NL returns the number of units in stock for product number 26. Since the NL can only return one record, the "What" parameter is blank.

```
=NL("Products","UnitsInStock","ProductID","26")
```

This NL returns information using a connection other than the default.

```
=NL("Rows","Customers",,"DataSource=",2)
```

Navision Cronus NL Function Examples

This NL that returns the record key for all of the customers in the Customer table who are in the City of Boston with a Balance less than zero.

```
=NL("Rows","Customer",,"Balance",<0,"City","Boston")
```

Jet Reports Help

This NL returns the Customer Name from sales quote number 10000. This NL can only return one record so the "What" parameter is blank.

```
=NL("Sales Header","Name","No.,"10000","Document Type","Quote")
```

This NL returns information for a company other than the default one in the Options screen.

```
=NL("Rows","Customer",,"0","CRONUS USA, Inc.")
```

This NL returns information for a company other than the one in the Options screen using a connection other than the default.

```
=NL("Rows","Customer",,"0","CRONUS USA, Inc.,"DataSource=","2")
```

This NL creates sheets called "US","CANADA" and "MEXICO" using an array in the table field:

```
=NL("Sheets",{ "US","CANADA","MEXICO" })
```

This NL creates lookup values for use with Report Options for each item in cells F5 through F15.

```
=NL("Lookup",F5:F15)
```

GL Function Reference

```
=GL (What,Arg1,Arg2,Arg3,...,Arg22)
```

Purpose: Returns the budget, balance, net change, quantity, debits or credits of the G/L Account of a given company based on filters.

Navision Parameter	Great Plains Parameter	Description
What	Where	<p>Navision: Determines what the GL Function returns. Options are Balance, Budget, Quantity, Credits or Debits</p> <p>Great Plains: Determines where the GL function returns its data. Options are "Rows", "Columns", "Sheets", and "Cell". "Rows" will insert rows, "Columns" will insert columns, "Sheets" will insert sheets, and "Cell" will put a single value in the current cell. Additionally, you can use "Rows=x" and "Columns=x" to insert multiple rows or columns for each result, which works just like the NL function. If</p>

		<p>you leave this argument blank, it defaults to "Cell".</p> <p>Note that the options available for the What argument depend on the Where argument. See the next argument for more details.</p>
Account	What	<p>Navision: G/L Account Number, Filter or Range. If you specify a single, totaling account, you will get totals. If you specify multiple accounts or a range of accounts, totaling accounts will not be included in the returned number even if the other account(s) have nothing to do with the specified totaling account(s).</p> <p>Great Plains: Determines what the GL function returns. If the Where argument is "Cell", then the What options are "Balance" which returns a G/L balance, "Budget" which returns a G/L budget, "Name" which returns the name of a G/L account, or "CatName" which returns the name category name for a specified category.</p> <p>If the Where argument is "Rows", "Columns", or "Sheets", then the What options are "Accounts" which will give a list of account numbers, "Categories" which will give a list of account category numbers, or "SegX" where X is a segment number and which gives a list of that specific account segment.</p>
StartDate	Account	<p>Navision: Specifies the starting date of transactions to include. If you are interested in the balance of an account on a given date, leave StartDate blank. If you are interested in the net change of an account, use Balance and specify both the StartDate and EndDate.</p> <p>Great Plains: Traditional segmented account number filter.</p>
EndDate	Start Period	<p>Navision: Specifies the ending date of transactions to include.</p> <p>Great Plains: Specifies the start period or date in one of several formats: YYYY/PPP where YYYY is the 4 digit fiscal year and PPP is the 1 to 3 digit period number; YYYY/M/D where YYYY is a 4 digit year, M is a month, and D is a day; DDDDD.DD which is a 5+ digit number interpreted as an Excel Julian date, and M/D/YY or D/M/YY (depending on your computer's locale settings) where M is a month, D is a</p>

		<p>day, and Y is a 2 or 4 digit year.</p> <p>Specifying a start period and an end period will give you the net change between the first day of the start period and the last day of the end period. Specifying a start period with no end period will give you the net change between that start date and the present. Specifying no start period will give you the balance/budget as of the end period. Specifying no start period or end period will give you the present balance/budget. You cannot use a range or other special filter here. For information on Period 0, see Fiscal Year Beginning Balances in the GP GL function.</p>
View	End Period	<p>Navision: The G/L Analysis View to use. Leave this blank to use balances from the G/L directly. Analysis Views are available in Navision version 3 and later. This field should be blank if you are using objects from an earlier version of Navision.</p> <p>Great Plains: Specifies the end period in the same format as start period. You cannot use a range or other special filter here.</p>
Dim1	Category Number	<p>Navision: Filter for the first dimension of the analysis view. If View is blank, this is the filter for Global Dimension 1. Dimension totaling is handled the same way as Account totaling. In Navision versions before 3.0, Dim1 is used as the Department filter.</p> <p>Great Plains: Specifies filters for the category number(s).</p>
Dim2	Seg1Filter	<p>Navision: Filter for the second dimension of the analysis view. If View is blank, this is the filter for Global Dimension 2. In versions before 3, this is the Project filter.</p> <p>Great Plains: Specifies filters for specific account segments. You can use either an account argument or segment filters, not both.</p>
Dim3	Seg2Filter	<p>Navision: Filter for the third dimension of the analysis view.</p> <p>Great Plains: Specifies filters for specific account segments. You can use either an account argument or segment filters, not both.</p>
Dim4	Seg3Filter	<p>Navision: Filter for the fourth dimension of the</p>

		<p>analysis view.</p> <p>Great Plains: Specifies filters for specific account segments. You can use either an account argument or segment filters, not both.</p>
BusinessUnit	Seg4Filter	<p>Navision: Filter for the business unit.</p> <p>Great Plains: Specifies filters for specific account segments. You can use either an account argument or segment filters, not both.</p>
Budget	Seg5Filter	<p>Navision: Budget filter. This is unused unless returning budgets.</p> <p>Great Plains: Specifies filters for specific account segments. You can use either an account argument or segment filters, not both.</p>
Company	Seg6Filter	<p>Navision: Company Name. This must be spelled the same as it appears in Navision, including case, spaces and punctuation. If this parameter is empty (""), the default company in the Jet Reports Options/Data Sources Screen is used.</p> <p>Great Plains: Specifies filters for specific account segments. You can use either an account argument or segment filters, not both.</p>
Reserved	Seg7Filter	<p>Navision: Blank. For backwards compatibility, a Data Source Name as defined in Jet/Options can be used.</p> <p>Great Plains: Specifies filters for specific account segments. You can use either an account argument or segment filters, not both.</p>
ExcludeClose	Seg8Filter	<p>Navision: If you want to exclude closing dates from your GL query, enter True. If this parameter is empty, entries that were posted on the closing dates are included.</p> <p>Great Plains: Specifies filters for specific account segments. You can use either an account argument or segment filters, not both.</p>
Reserved	Seg9Filter	<p>Great Plains: Specifies filters for specific account segments. You can use either an account argument or segment filters, not both.</p>
Reserved	Seg10Filter	<p>Great Plains: Specifies filters for specific account segments. You can use either an account argument or segment filters, not both.</p>

Jet Reports Help

Reserved	Budget	Great Plains: Specifies the budget filter, blank for all budgets. Note that budgets are associated with a specific year in Great Plains so if your budget and fiscal year filters do not coincide you will get a 0 value.
Reserved	Company	Great Plains: Specifies the Great Plains company to get data from.
Reserved	Reserved	
Data Source	Data Source	Data Source Name as defined in Jet/Options can be used. If this parameter is empty, the default Data Source is used.

Navision GL Function Examples

This GL returns the G/L Balance for Account 1120.

```
=GL("Balance","1120")
```

This GL returns the Quantity for Account 4410 for January 2001 using the OCC View for Seattle.

```
=GL("Quantity","4410","1/1/01","1/31/01","OCC","SEATTLE")
```

This GL returns the Budget for Account 5010 for 2001 for the 2001 Budget.

```
=GL("Budget","5010","1/1/01","12/31/01",,,,,,"2001")
```

Great Plains GL Function Examples

This GL returns the G/L Balance for Account 000-1100-00.

```
=GL("Cell","Balance","000-1100-00")
```

This GL returns the net change for Account 000-1100-00 for the first 3 periods of 2001.

```
=GL("Cell","Balance","000-1100-00","2001/1","2001/3")
```

This GL returns the G/L Budget as of the 6th period of 2002 for account segment 100.

```
=GL("Cell","Budget",,"2002/6",,"100")
```

This GL returns a list of the G/L Account numbers listed down rows.

=GL("Rows","Accounts")

The GL Function is only available for Navision and Great Plains databases.

SQL= Reference

=NL (What,Table,Field,FilterField1,Filter1,FilterField2,Filter2,FilterField10,Filter10)

Purpose: A special type of NL function that uses the power of SQL to allow complete flexibility in retrieving data from a database. Note that this feature is for power users in special situations only and should not be used regularly.

Argument	Meaning
What	Rows, Columns, Sheets, N, -N, Blank, SQL (SQL shows the SQL statement created)
Table	Must be a SQL query string starting with SQL=
	To add Jet Reports interpreted filters to the Where or Having clauses, add %Filter1%,,%Filter9% to your existing Where term. These parameters will be replaced by an appropriate Where terms enclosed in (). Please note that every %FilterX% must have at least one corresponding Jet filter (see the FilterField1 row below for more details). If your filter is *, the corresponding %FilterX% will be converted to "field LIKE '%". If the preceding word in the SQL query is Where, and there are no following words like AND or OR, then Where will be removed. If the preceding word is AND, OR, etc then that word will be removed. If the preceding word is Where and the following word is AND or OR, then the following word will get stripped. For example if Where1 was blank in the following, "SQL=Where () AND %Filters1%", the "()" and the "AND" would be removed. In the following: "SQL=Where %Filters1% AND ()" the AND would get removed. In the following: "SQL=Where %Filters1%" the Where would get removed.
	To add user determined sorting to your SQL statement, add %Sort% to the Order By clause. Since Joins use a common sort and Sub queries do not use sorting, you do not need to put a number on %Sort%. Despite this, your NL filters for sorting must still be prefixed by a filter number (see the section on FilterField1 below).
Field	Field cache (example: {"Field1","Field2"}) = Returns a Record Key just like what happens when an array of field names is passed in to this argument with a normal NL function. The field names actually returned depend on the SQL Select Statement.

	FieldName = returns that field name which must be one of the fields returned by the SQL Select Statement. All the other fields returned are ignored.
FilterField1	Where term replacements in the format "1S=FieldName". The first character corresponds to the %FilterX% that you want to replace. The second character determines the Field type and can be one of the following. Please note that every %FilterX% in the SQL statement MUST have at least 1 corresponding Jet filter.
	D = Date
	N = Number
	S = String
	G = GUID
	B = Boolean
	The entire FilterField (including the 1S, 2D, etc.) can be prefixed with a "+" or "-" to sort. So for example, you can use "+1S=FieldName" or "-1S=FieldName". Please note that despite the fact that a sort may not correspond to any particular %FilterX% replacement, you must still prefix your sort field with a filter number, data type, and =. Simply using +Fieldname will not work.
Filter1	Filter using standard Jet filters.

Access Northwind Examples

The following function returns the contact names from the customers table where the contact name starts with A and sorted by the City in descending order.

```
=NL("Rows","SQL=SELECT ContactName FROM Customers WHERE %filter1% ORDER BY %sort%","ContactName","1S=ContactName","A*","-1s=City","*")
```

The following function returns all the contact names from the customers table sorted by the city.

```
=NL("Rows","SQL=SELECT ContactName FROM Customers WHERE %filter1% ORDER BY %sort%","ContactName","-1s=City","*")
```

SQL= is not necessary for the Navision connector.

Troubleshooting

#NAME Errors

If you see "#NAME" in a cell containing a Jet Reports formula, Jet Reports may not be properly installed or the link source for the worksheet may need to be changed.

#VALUE Errors

If you see a "#VALUE" in a cell containing a Jet Reports formula, it means there is a problem. Select the cell and then choose the Jet/Debug menu option. You might get a useful message that helps explain the problem.

AutoCorrection

Though Excel's AutoCorrect feature can be very helpful at times, it can also be a bit of a nuisance when it comes to formatting. For instance, assume that cell B2 is formatted as currency and B3 is formatted as a percentage. In cell B4 you type " $=B2*B3$ " in order to obtain the product of the two values. With Excel AutoCorrection turned on, the cell is automatically formatted as currency. Though this may typically be what is desired, in this instance you would like to apply the accounting format to the product. Excel will allow you to do this temporarily, but when the cell is recalculated, AutoCorrect changes it back to currency. This becomes a problem when a replicator expands because during the expansion a recalculation occurs throughout the entire workbook. This may cause you to think that Jet Reports is reformatting your workbook, when in fact it is the Excel AutoCorrect feature.

If you find yourself in this situation, you can attempt to turn off this feature by selecting "Tools/AutoCorrect Options" in Excel. Select the "AutoFormat As You Type" tab and make sure the "Include new rows and columns in list" check box is deselected. Please note that for certain types of formatting there is nothing that can be done about Excel reformatting.

Design Mode Calculations

Some functions return different values in design mode than in report mode. In design mode, sorts, array filters, and link= are all ignored, and the first value matching the filters is returned. This makes design mode calculations faster while still generating generally accurate reports, but the accuracy of design mode results should not be relied on.

Canceling Long Calculations

If a worksheet calculation takes longer than two seconds, Jet Reports will display a status window with calculation information in it. If you want to abort the current calculation, you can click the Cancel button. If Excel is in the middle of a calculation, the cancel button can be slow to respond, but when Excel is finished with the calculation, the report will stop refreshing and the uncalculated cells will display #VALUE.

Excel and Formula Limits

In Excel 2003 and earlier, the max number of rows on a worksheet is 65536 and max number of columns is 256. In Excel 2007, the max number of rows is 1048576 and the max number of columns is 16384. If a replicator on the worksheet exceed these limitations, an error will occur and the replicator will not expand.

Excel also has memory size limitations for the formulas in a workbook. In Excel XP, only 128 MB of memory is allowed for formulas, while in Excel 2003, only 1 GB of memory is allowed for formulas. In Excel 2007, Windows manages Excel's memory directly, so it is only limited by the maximum process size allowed by the installed Windows version, which is 2 GB for 32-bit versions of Windows and virtually unlimited (except by physical memory) for 64-bit versions.

If you exceed the memory size limitations of Excel, you may receive an "Out of Memory" error. In this case, the best thing to do is split the data on the workbook up into separate workbooks. The only other way to solve this problem is to upgrade the version of Excel or Windows.

If you are a Navision user, C/Front has a 779 character limit on filters. This means that no filter in a Jet functions can be longer than 779 characters all by itself. If you have a formula with a filter longer than 779 characters, you will get the error message "Invalid filter" when debugging.

Excel Date Problems

If Jet Reports is returning dates (i.e. Posting Dates or Period Start dates) four years ahead of the year that you are filtering for, you may have your workbook set to use the 1904 date system. In Office 2000 and XP, you can change the date setting in the Tools/Options/Calculation menu. Turn off the check box next to the "1904 date system" setting.

If you have your Windows Regional Settings configured to treat dates as MM/DD/YYYY and you are using dates in Jet Reports as DD/MM/YYYY, you will either get unexpected results or #VALUE, depending on which dates you are specifying. You can create the same sort of problem with some database servers that have a built in date formula specification. For some database servers, the date format can be configured independently from Windows, so you need to know what date format the server is set to.

Filter Ranges and Excel

Always enclose in quotes any ranges containing ".." that you type directly into a formula or into a parameter with the Excel function wizard. Without quotes, Excel may interpret your range as a set of values from the worksheet. For example, if you enter "49950..59950" including the quotes, Excel will interpret the filter as a simple text string. Without the quotes, 49950..59950 means all the values in rows 49950 through 59950. This is a very large array of cells. In this example, if you omit the quotes, Excel will go into a very long calculation. Usually the only way to stop this calculation is to end the Excel process. Consult your IT expert for instruction on how to end a process on your computer.

This functionality of Excel has nothing to do with Jet Reports. However, Jet Reports users are more likely to accidentally enter a range that causes Excel to perform a long calculation because of the way ranges of values are entered using "..". These range calculations are a basic feature of Excel and there is no way for Jet Reports to change this behavior.

If a formula references a cell that contains a range with ".." you do not need to type the quotes into the cell. The quotes are only required when you put the range directly into a function parameter.

Formatting Cells as Text

Setting the Number format of a cell containing a Jet formula to Text can cause problems. When you format a cell as Text, the formula itself becomes the value of the cell and Excel does not evaluate it. Since Jet Reports assumes that Excel will evaluate any formula entered into a cell, this can be a problem. It is best not to set the Number format of a cell containing a Jet formula to Text.

Local Navision Databases

You cannot open a local Navision database both with the Navision client program and with Jet Reports at the same time. You may get an error message that a file cannot be created if you attempt this. As long as you have sufficient concurrent users in your license file, you can open a database that is on a server by Navision clients and Jet Reports at the same time.

Only Navision users have to worry about this issue.

Multiple Local Navision Database Connections

If you attempt to use more than one local database connection in a workbook that use the same Navision client, you will see #VALUE for the results of one of them. When you use

Debug, the function may calculate correctly. This is because when you run Debug, Jet closes all other local database connections to analyze the cell you have selected. The #VALUE occurs because each workbook can only have a single local database connection open at a time for a particular Navision client. You can include data from multiple server database connections on the same workbook with no problems. You can also include data from multiple local Navision databases if they are accessing different Navision clients or a different copy of the Navision client.

Only Navision users need to worry about multiple local database connections.

NF Field Not Found in Field Cache

If you create an NF function referencing an NL function with a field cache you may get an error that the field was not found in the field cache. You must add this field to the field cache in your NL function for the NF to work. While the field in your NF function may be a valid field in the table, it is missing from the field cache in the NL function. A field cache is required for a table that has no primary key and is recommended even for a table with a primary key since it speeds up the report. For this reason, the Report Wizard and dragging and dropping from the Jet Browser create field caches in the NL functions they create.

A field cache may appear in an NL function in 2 forms, either a comma delimited list of fields inside curly brackets: { "field1", "field2", "field3" } or a range of cell references: \$B\$2:\$G\$2. To add another field to the field cache, either add a comma and then the name of the field in quotes to the end of the list inside the curly brackets (in the first case) or extend the cell range and type the name of the field into the last cell (in the second case).

Visual FoxPro Errors

Mismatched OLE Database Provider

If you are using a different version of Visual FoxPro than the version of the Visual FoxPro OLE database provider, you may receive the following error:

"Either EOF or BOF is true or the record has been deleted."

If this happens, please ensure that you have the version of the Visual FoxPro OLE provider installed that matches the version of your Visual FoxPro database.

Only Jet Reports Universal users can connect to Visual FoxPro.

Wild Card Filters

The * and ? are wild card filters. Wild card filters cannot be used as part of a range filter in the Navision connector. This means that filters, such as "A*..C*" are not valid. Likewise, "<>A?..B?" is not valid. If you want to create a filter including everything starting with A through C, the filter would simply be "A..CZ". If you want to create a filter that will exclude everything starting with A through C, you need to think of the filter as including everything except the things starting with A through C. When you think of the filter as including values, then D.. is the filter you would use. Note that "<>A*&<>B*&<>C*" would also work since no ranges are involved.

This topic applies only to the Navision connector.

Glossary

A

Argument: A specific value supplied as a function parameter.

D

Data Source: A Jet Reports connection to a database.

Database: A collection of data arranged for ease and speed of search and retrieval.
Examples include Microsoft Navision and Great Plains.

Design Mode: A Jet Reports mode which allows reports to be created with simple worksheet functions.

Drilldown: A way to view the data which is being retrieved by a Jet Reports function.

E

Excel: Microsoft Excel is a popular computer program that allows you to create and edit spreadsheets, which are used to store information in columns and rows that can then be organized and/or processed.

F

Function: A procedure to perform some task. Functions can have input values called parameters and return some value or values.

G

GL: A simple Excel worksheet function that combines multiple NL functions to report from the General Ledger. This function is only available with Navision or Great Plains databases.

J

Jet Browser: A window into your database, allowing you to scroll through the tables and fields available, look at values for each field, or drilldown on the data.

Jet Reports: Jet Report is a Microsoft Excel Add-in that integrates Excel with Navision, Great Plains, or any database that has an OLE or ODBC driver available so you can create reports with simple worksheet functions. Instead of printing a report and re-entering data into worksheets, you can enter formulas that read directly from your database and refresh the data right in Excel.

Jet Scheduler: The Jet Scheduler allows you to schedule batches of reports to run at a later time.

N

NF: The NF Function is a shortcut. You can define which record you want with the NL function and then you can retrieve multiple fields from that record with the NF function. By using the NF function, you do not have to retype all the filters for each field you want to retrieve.

NL: The Jet Reports general data retrieval function. The NL allows you to retrieve any field from any record in any table. You can set up to ten filters to define which record(s) you want.

NP: The NP function is a utility function which allows you to do certain tasks to speed up your reports or make them more convenient. You can use NP to create date filters, evaluate formulas or do array operations, among other things.

P

Parameter: An input value which must be supplied to all functions of a specific type. For example, "What" is the first parameter to the NL, GL, and NU functions.

R

Report Designer: A person who is licensed to create Jet Reports.

Report Mode: A Jet Reports mode which shows valued retrieved from the database by the Jet Reports functions.

Report Viewer: A person who is licensed to change report options and refresh data but may not create reports or use other Jet Reports features.

V

Viewer: A person who is licensed to change report options and refresh data but may not create reports or use other Jet Reports features.