Connex

Reference Manual

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Introduction

The Connex Reference Manual gives a brief explanation of most of the dialog bars for each routine in Connex. It does not give examples of how to use a routine; this information can be found in the Getting Started Guide. The Reference manual simply explains each field of the various dialog boxes/bars that are encountered from within Connex.

Overview

Connex is a Microsoft Windows based data transfer and conversion software that is used with Nikon survey instruments and other third party vendors. Connex supports the following features:

- Download and upload of data (via RS-232) between the PC and the following Nikon total stations:
    - DTM-300
    - DTM-310
    - DTM-350/330, NPL-350
    - DTM/NPL-302 Series
    - DTM-400 Series
    - DTM-500/501/502 Series
    - DTM-700 Series (AP700)
    - DTM-800/801 Series (AP800)
    - DTM-800/801 Series (Pre-Install)
- Manual data input and editing capabilities
- Coordinate computation
- Complete support for:
    - Map projection correction
    - Curvature and Refraction correction
    - Distance units (Feet, Meters, International feet)
    - Angle units (Degrees, Gons, Mils)
    - Sea level correction
    - Vertical angle (Zenith, Nadir, Horizon)
    - Horizontal angle (Azimuth, Angle right)
    - Coordinate order

- File import of the following formats.
    - ASCII Coordinates (.txt, etc.)
    - AutoCAD (.dxf)
    - LandXML (.xml)
    - Connex Coordinates (.cxj)
    - Nikon TransIt (Page 67)
- File export to the following formats.
    - ASCII Coordinates (.txt, etc.)
    - AutoCAD (.dxf)
    - LandXML (.xml)
- Simple coordinate geometry functions
- Report generation
- Graphical data display and selection for editing

System Requirements

To use Connex, you will need:

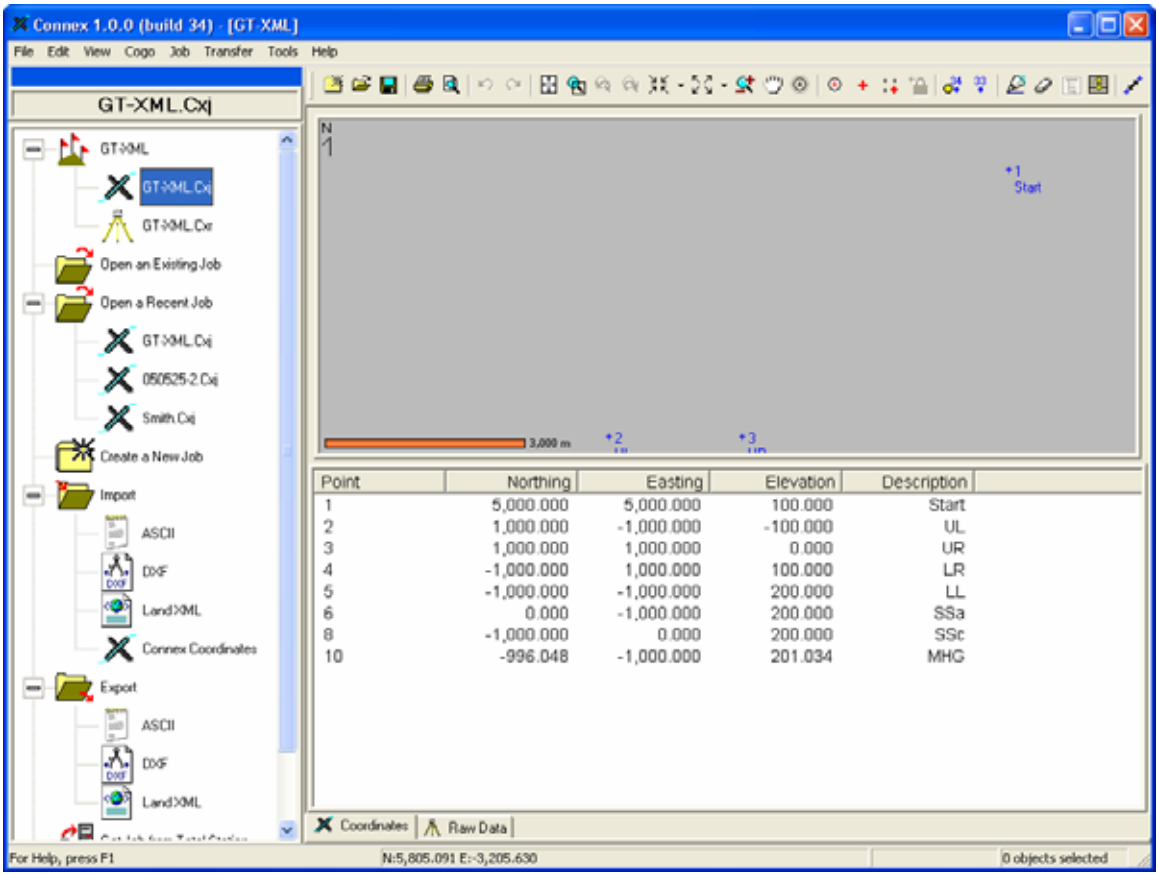
- Microsoft Windows 2000 or XP
- 256MB or more of RAM
- Typical available hard disk space required: 10 MB
- One CD drive
- 1024x768 or higher resolution graphics card
- Mouse or compatible pointing device.

Connex Package Contents

The Connex package should contain the following materials:

- Connex program CD
- Connex Getting Started Guide
- Registration Card

Connex Main Screen



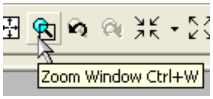
After Connex has been installed, you start the program by clicking ***Start*** | ***All Programs*** | ***Connex*** | ***Connex***. This will open the Connex main screen, shown here, where you access all the controls within the program.

Connex Toolbar

The Connex toolbar consists of shortcuts to commonly-used routines, which are also available from the pull-down menus.

The toolbar can be dragged by its left edge out of the toolbar area where it will become an independent movable window. To make it part of the toolbar area again, simply drag it back to the toolbar area.

The Connex toolbar can be toggled on or off from the ***View | Toolbars...*** menu item (Page 42).



When the mouse cursor is held still over any tool button, a *tool tip* will pop up displaying the name of the tool and the keyboard shortcut for that tool, if applicable.

Tools

New Job

This opens the ***New Job*** dialog bar (Page 10) where the details for a new job are defined. When the new job is created, the current job is closed and the new job becomes the current job.

Open Job

This opens the ***Open*** dialog box (Page 11) where an existing job can be selected. The current job will be closed and the selected job will be opened.

Save Job

This saves the current job (Page 11).

Print

This prints the map of the current job to the default printer (Page 31).

Print Preview

This displays a preview of how the printed map will look when printed (Page 31).

Undo

This removes the last change made to the job (Page 32).

Redo

This re-performs the last change to the job that was removed using the ***Undo*** command (Page 32).

Zoom Extents

This will modify the map so that all the data will fill the job view (Page 45).

Zoom Window

After activating this button, you can draw a box in the job view around the data that you want to zoom in on (Page 44).

Zoom Previous

This will zoom to the previous magnification (Page44).

Zoom Next

This will zoom to the magnification that was set before using the ***Zoom Previous*** button (Page 44).

Zoom In

This will zoom in by a custom percentage between 5% and 75%, which is selected after tapping the corresponding button (Page 45).

Zoom Out

This will zoom out by a custom percentage between 5% and 75%, which is selected after tapping the corresponding button (Page 45).

Realtime Zoom

Once activated, you can zoom in by moving the mouse upward, or out by moving the mouse downward (Page 45).

Realtime Pan

This will change the cursor to a hand that can be used to drag the map around within the job view (Page 46).

Zoom to Point

This will prompt you for a point name. Enter a point name and the job view will zoom to where the point is centered within the view and an animated graphic will show you where the point is located (Page 45).

Snap to Point

When activated, the cursor will only snap to a point inside the pick box when you click in the Map View. The default snap options are set in the ***Preferences*** dialog box (Page 25).

Snap Free

This will snap to the coordinates at the center of the pick box when you click in the Map View. The default snap options are set in the ***Preferences*** dialog box (Page 25).

Snap to Grid

This snaps to the nearest intersection of a pre-defined grid. The grid size and default snap options are set in the ***Preferences*** dialog box (Page 25).

Lock Snap

When this is activated, the active snap mode will remain active for all consecutive mouse clicks. When the Lock Snap is not activated, the selected snap mode will only apply to subsequent mouse click.

Note: When using any snap option and the cursor is currently snapping to an object, the snap details are displayed in the bottom left corner of the Connex window.

Snapping to 5,436.352, 5,042.651

Add Points / Edit Points

This opens the ***Add / Edit Points*** dialog bar where a new point can be added or an existing point can be edited (Page 32).

Edit Multiple Points

This opens the ***Edit Multiple Points*** dialog bar where the details of several points can be edited simultaneously.

Redraw

This redraws the current drawing to fill in pixels that inadvertently disappear by a window placed over them (Page 46).

Erase Scratch Layer

This erases the scratch layer, erasing any construction lines that are not part of the drawing. (Page 46)

Toggle Shortcuts

This displays/hides the ***Shortcuts*** dialog bar on the left side of the screen (Page 9). This button will be grayed-out when the ***Shortcuts*** dialog bar is already being displayed.

Toggle Messages

This displays/hides the messages below the Map View that can occur from some routines. (Page 43)

Inverse Point to Point

This will open the ***Inverse Point to Point*** dialog bar where two points can be selected and the direction and distance information between them will be displayed. (Page 48.)

Point in Direction

This will open the ***Point in Direction*** dialog bar where a new point can be computed based a specified distance and direction from an existing reference point. (Page 49)

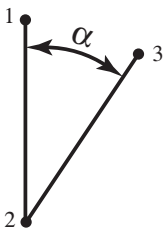
Intersection

This will open the ***Intersection*** dialog bar where the intersection of two specified lines is computed (Page 50).

Input Shortcuts

Distances and angles are normally entered in the appropriate fields simply by typing the value from the keypad, but you can use shortcuts to simplify the entry of a distance or angle.

If you want to enter the distance between two points in a particular field, but you do not know offhand what that distance is, you can enter the two point names that define that distance separated by a hyphen. For example, entering 1-2 in a distance field would compute the horizontal distance from Point 1 to Point 2. As soon as the cursor is moved from that field, the horizontal distance between the points will be computed and entered in that field.



Likewise, there is a similar shortcut to enter angles in fields that accept them. If you wanted to enter the angle, α, from the illustration shown here, you would simply enter 1-2-3 in the appropriate field. As soon as the cursor is moved from that field, the angle formed by the three points entered will be entered in that field.

Another shortcut can be used to enter distances with fractional inches (architectural units). Simply key in the feet, inches, and fractional inches where each value is separated by a space and the fraction is entered using a forward slash (/). For example, to enter 3 feet, 7 and 3/16 inches, you would key in 3 7 3/16. Once the cursor leaves that field, the distance will automatically be converted to the appropriate decimal distance. If the distance entered is less than one foot, a leading zero representing the feet value is still required. Similarly, if entering a distance less than one inch, two leading zeros are required representing the feet and inch values. For example, 5/8 inch would be entered as 0 0 5/8.

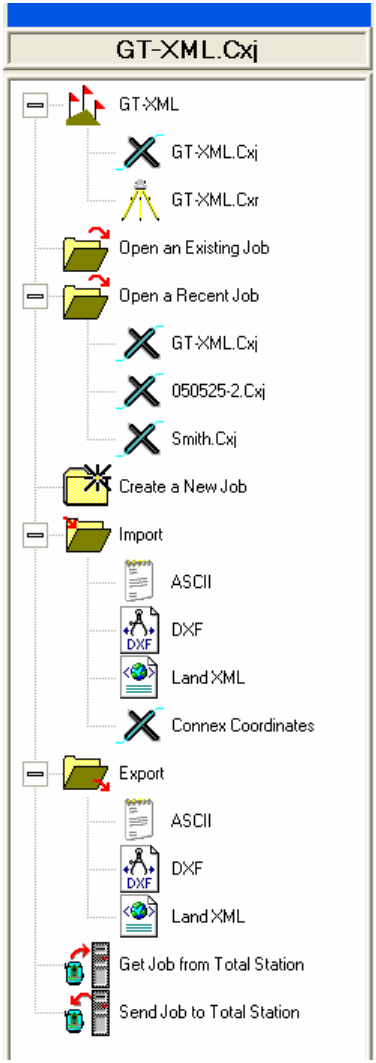
Note: Connex will only accept fractions that are evenly divisible by 1/16 inch. If a fraction is entered that is not evenly divisible by 1/16, it will be converted to the nearest 1/16 inch.

The following details should be considered when using the above method to enter fractional inches:

1. When the job is configured for Feet or US Survey Feet, it is assumed that the distance entered is in the same units as the job is configured for.
2. If the job is configured for meters, it is assumed that the distances entered are in International Feet and will be converted to meters when the cursor leaves the current field. (You cannot use this method to enter a metric distance in fractional format.)
3. If a fractional inch is entered that cannot be evenly divided by 1/16 inch, it will be automatically converted to the nearest 16th inch.

Shortcuts

When Connex is first started, shortcuts are displayed in the left portion of the Connex window, as shown here.



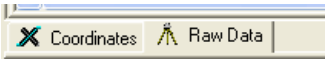
It is often quicker and easier to click a shortcut compared to accessing that particular routine from a pull-down menu or elsewhere in the program.

The left portion of the screen is also used to display various *dialog bars*. Dialog bars are used to configure most of the routines within Connex.

If a dialog bar is open, it will cover the shortcuts. To expose the shortcuts again, you can close any open dialog bars, or select the Toggle Shortcuts button from the toolbar, or select ***View | Shortcuts***.

The title bar of the shortcuts displays the name of the current job.

The options listed under the first icon marked with the icon allow you to quickly switch between the Coordinates view or Raw Data view. This view can also be toggled using the appropriate tab under the report view.



The remaining shortcuts are titled the same as how they are listed in the various pull-down menus described in the following sections of this manual.

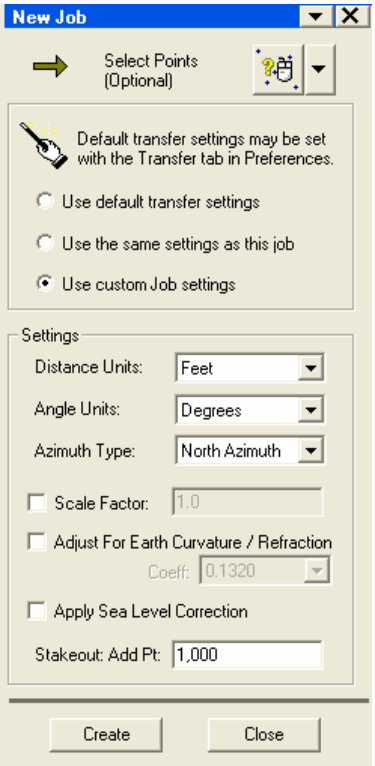
File Menu

The ***File*** menu contains options regarding job files. These options include the ability to open and close a job, save a job, import and export data as well as printing and plotting. To access the ***File*** menu, click on ***File*** on the menu bar.

New Job

File | New Job

The ***New Job*** option will create a new job with the specified settings and optional imported data from the current job.



Select Points: When activated, data can be selected from the Map View of the current job to include in the new job.

Use default transfer settings: When selected, the settings for the new job will match those set in the ***Transfer Preferences***. (Page 24)

Use the same settings as this job: When selected, the settings from the current job will be used for the new job.

Use custom Job settings: When selected, the settings for the new job can be select from the options that follow.

Distance Units: allows you to select ***Feet***, ***Meters***, or ***US Survey Feet*** for distance units of the new job.

Angle Units: allows you to select ***Degrees*** or ***Grad / Gons*** for the angle units of the new job.

Azimuth Type: allows you to select a ***North Azimuth*** or ***South Azimuth*** for the new job.

Scale Factor: defines the scale factor that you want to apply to each horizontal distance measured. (A scale factor of 1.0 will result in no change to the measured distances.)

Adjust for Earth Curvature / Refraction: When checked, Connex will adjust the elevation of new points for the curvature of the earth and refraction based on the selected coefficient.

Apply Sea Level Correction: allows for this correction to be applied to the current job.

Stakeout: Add Pt: This value will be added to the point number that is being staked and used as the new point name if the stake point is stored.

[***Create***]: generates the new job.

[***Close***]: closes the dialog bar.

Open Job

File | Open Job...

The ***Open Job*** option opens the ***Open*** window and allows you to open an existing job. Locate and select the job you want to open and click [***Open***].

Save Job

File | Save Job

The ***Save Job*** option allows you to save your current job.

Save Job As

File | Save Job As

This option opens the ***Save Job As*** window, which allows you to save the current job to a new file with a new name. Enter a new name for the job and tap [***Save***] to save the file. Once the job is saved, you will be asked if you want to open the new job to make it the current job.

Close Job

File | Close Job

The ***Close Job*** option will close the current job without exiting the program itself. After the job is closed, an untitled, empty job will be created.

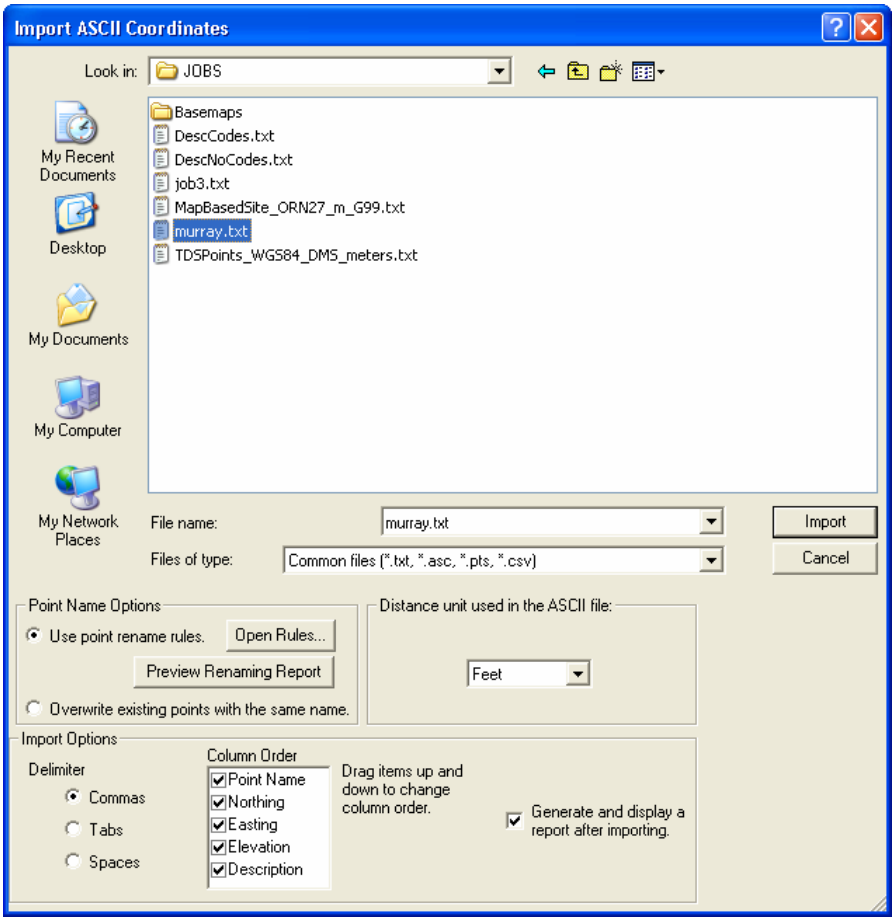
Import

File | Import

The ***Import*** option allows you to import data into your current job. There are four types of files you can import data from: ASCII Coordinate (.TXT), AutoCAD (.DXF), LandXML (.XML), or Connex Coordinates, (.CXJ).

Importing From a .TXT File

***File | Import* | ASCII (.TXT, etc.)...**



When importing an ASCII file, the ***Import ASCII Coordinates*** dialog box will open where all the import parameters are configured.

File Name: the name of the file to be imported. This field can be filled in by selecting a file in the file list above it.

Files of type: determines the types of files that will be listed in the current folder. The default setting is to list all common ASCII file types.

Use point rename rules: When selected, imported points will be named according to the point rename rules that are configured in the ***Rename Rules*** dialog box (Page 29).

[***Open Rules***]: opens the ***Rename Rules*** dialog box (Page 29).

[***Preview Renaming Report***]: creates a preview report of the points that will be imported and how they will be named.

Overwrite all existing points with the same name: When selected, imported point data will overwrite the data for points in the current job with the same name.

Distance unit used in the ASCII file: specifies the distance units used for the points to be imported.

Delimiter: specifies what was used in the ASCII source file to separate each column of data.

Column Order: lists the order of the columns in the ASCII source file. Columns that do not exist in the source file should be un-checked here. Each item in this list can be dragged to a new position so the order matches the order of the columns in the source file.

Generate and display a report after importing: When selected, a WordPad report will be generated after the import process is complete.

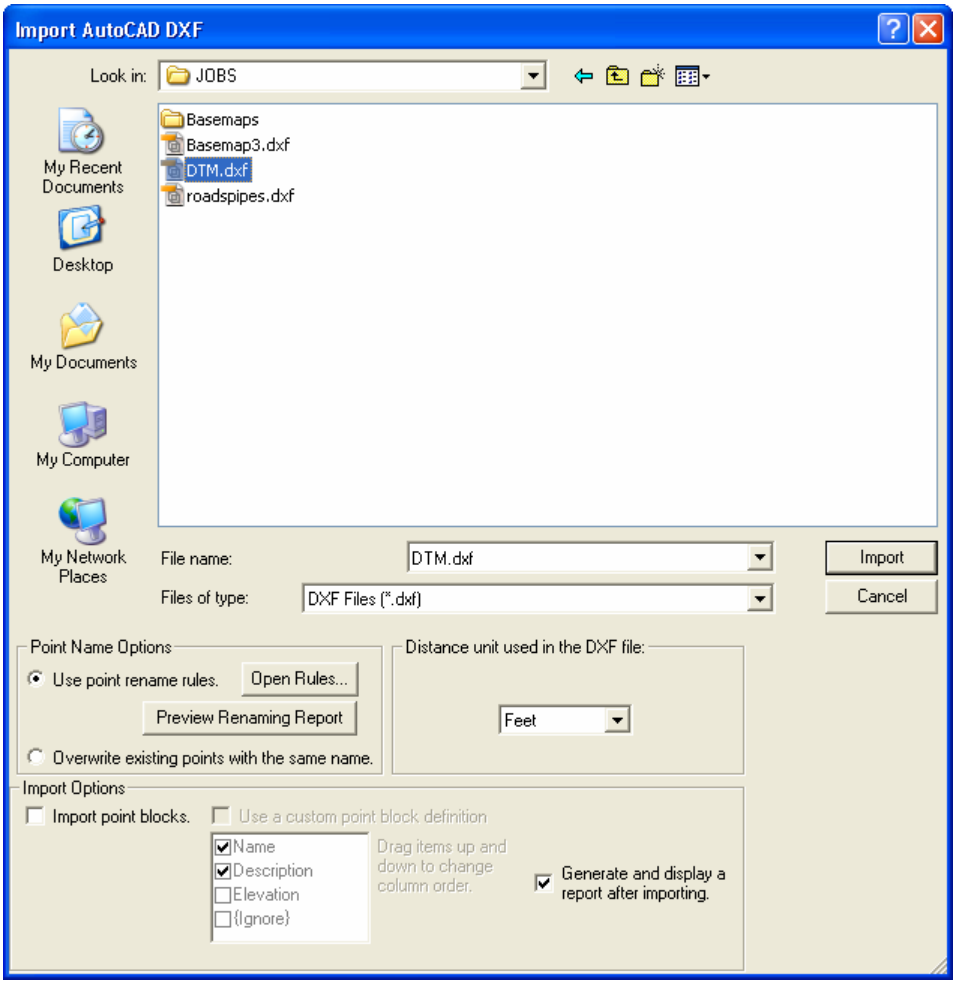
[***Import***]: imports the data according the settings specified.

[***Cancel***]: cancels the import and closes the import dialog box.

Importing from a .DXF File

***File* | *Import* | AutoCAD (.DXF)...**

The process of importing a .DXF file begins with locating the file and then specifying the import options.



File Name: the name of the file to be imported. This field can be filled in by selecting a file in the file list above it.

Files of type: controls what type of files appear in the file list above it.

Use point rename rules: When selected, imported points will be named according to the point rename rules that are defined in the ***Rename Rules Preferences*** (Page 29).

[***Open Rules***]: opens the ***Rename Rules Preferences*** (Page 29).

[***Preview Renaming Report***]: creates a preview report of the points that will be imported and how they will be renamed.

Overwrite existing points with the same name: When selected, if an imported point name conflicts with an existing point, the imported point will overwrite the existing point.

Distance unit used in the DXF file: defines the distance measurement units used in the DXF file.

Import point blocks: When checked, Connex will import point blocks as points. If this check box is not selected, then blocks will be imported as common blocks.

Use a custom point block definition: When checked, the point block attributes that you want to import are selected from the corresponding list. The items can be dragged to new positions to change the column order accordingly.

Generate and display a report after importing: When checked, a detailed report will be generated after the import process is complete.

[***Import***]: imports the data according the settings specified.

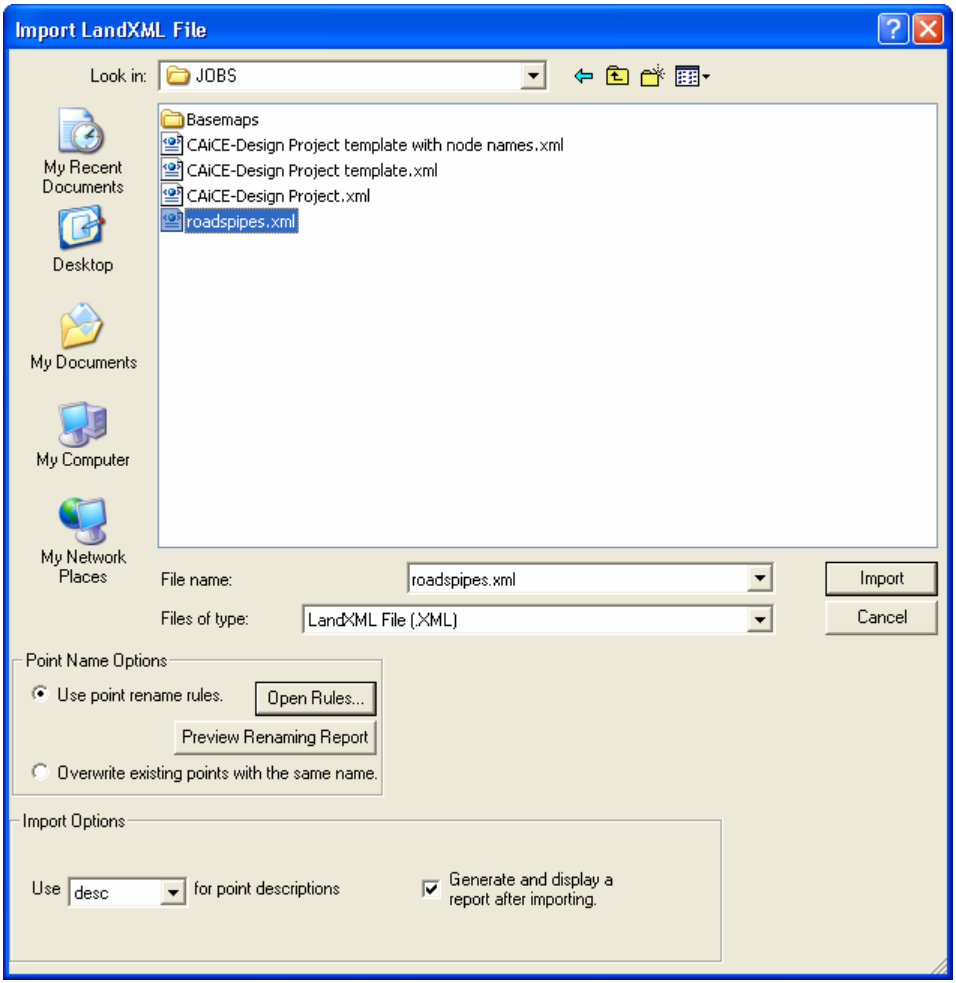
Note: Some colors that exist in the .DXF file may not be supported by Connex.

[***Cancel***]: cancels the import and closes the import dialog box.

Importing from an .XML File

***File* | *Import* | LandXML (.XML)...**

The process of importing an .XML file begins with locating the file and then specifying the import options.



File Name: the name of the file to be imported. This field can be filled in by selecting a file in the file list above it.

Files of type: controls what types of files appear in the field list above it.

Use point rename rules: When selected, imported points will be named according to the point rename rules that are defined in the ***Rename Rules Preferences*** (Page 29).

[***Open Rules***]: opens the ***Rename Rules Preferences*** (Page 29).

[***Preview Renaming Report***]: creates a preview report of the points that will be imported and how they will be renamed.

Overwrite existing points with the same name: When selected, if an imported point name conflicts with an existing point, the imported point will overwrite the existing point.

Use ___ for point descriptions: used to assign which field to use for the point descriptions.

Generate and display a report after importing: When selected, a WordPad report will be generated after the import process is complete.

[***Import***]: imports the data according the settings specified.

[***Cancel***]: closes the dialog box.

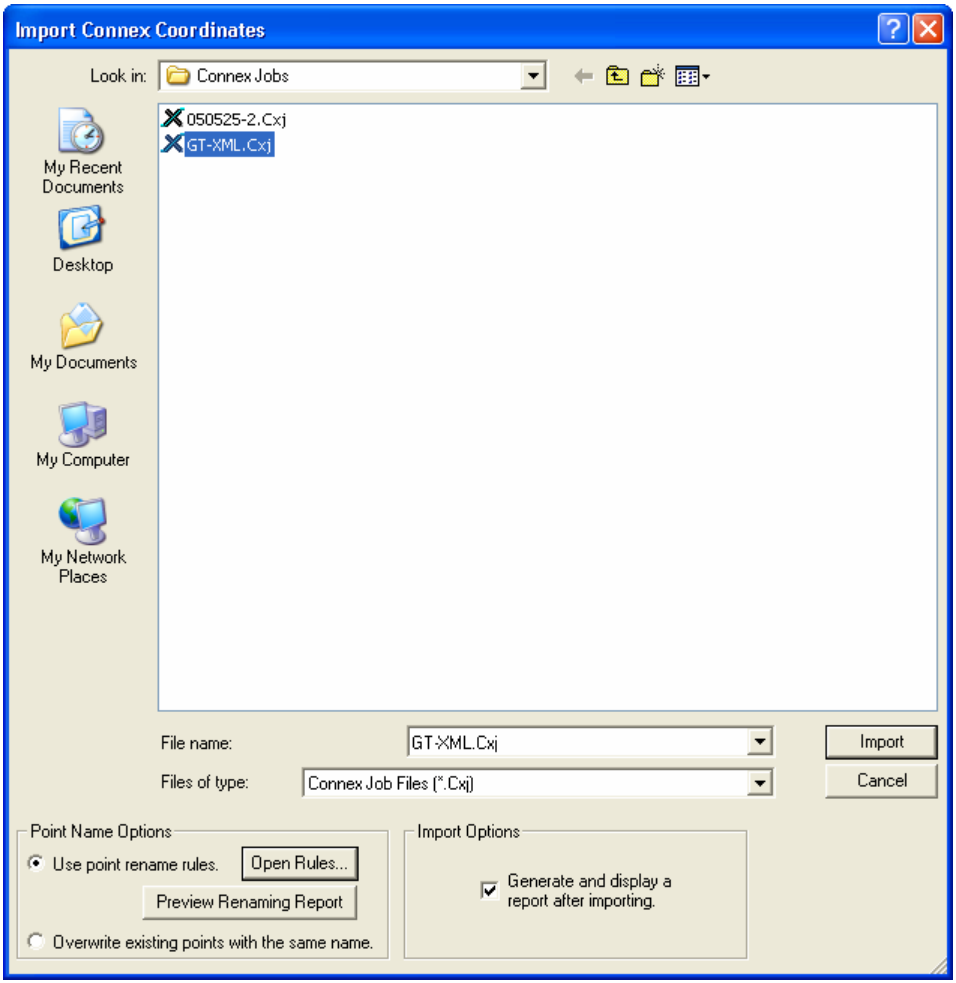
Importing TransIt Files

You can import a TransIt file from the ***Tools | Create Job from TransIt File*** routine described on Page 67.

Importing Connex Coordinates

***File* | *Import* | Connex Coordinates (.CXJ)...**

The process of importing Connex Coordinates begins with locating the file and then specifying the import options.



File Name: the name of the file to be imported. This field can be filled in by selecting a file in the file list above it.

Files of type: controls what types of files appear in the field list above it.

Use point rename rules: When selected, imported points will be named according to the point rename rules that are defined in the ***Rename Rules Preferences*** (Page 29).

[***Open Rules***]: opens the ***Rename Rules Preferences*** (Page 29).

[***Preview Renaming Report***]: creates a preview report of the points that will be imported and how they will be renamed.

Overwrite existing points with the same name: When selected, if an imported point name conflicts with an existing point, the imported point will overwrite the existing point.

Generate and display a report after importing: When selected, a WordPad report will be generated after the import process is complete.

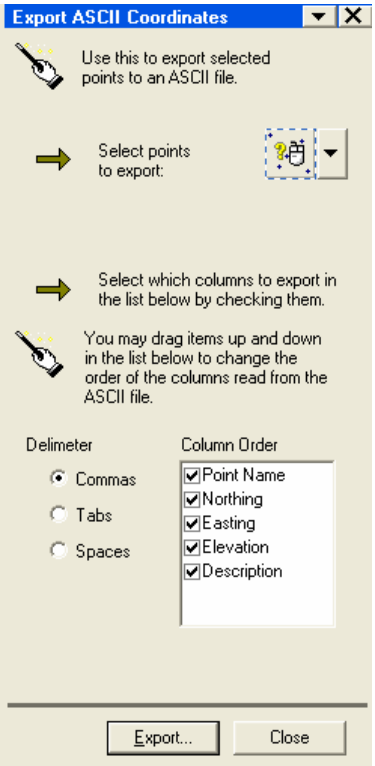
[***Import***]: imports the data according the settings specified.

[***Cancel***]: closes the import dialog box.

Export

File | Export

Connex allows you to export certain types of data. The ***Export*** routines allow you to write to a variety of file formats using the data in the current job.



Exporting to ASCII Coordinates

File | Export | ASCII (.TXT, etc.)...

Select points to export: once activated, the points to export can be selected from the Map View.

Delimiter: specifies the character used to separate each column of data.

Column Order: lists the data to export. Check the items that you want to export. You can change the order of the columns by dragging the items to the desired position in this list.

[***Export***]: opens the ***Save As*** dialog box (Page 11) to save the file.

[***Close***]: cancels the export and closes the dialog bar.

Exporting to AutoCAD

***File* | *Export* | AutoCAD (.DXF)...**

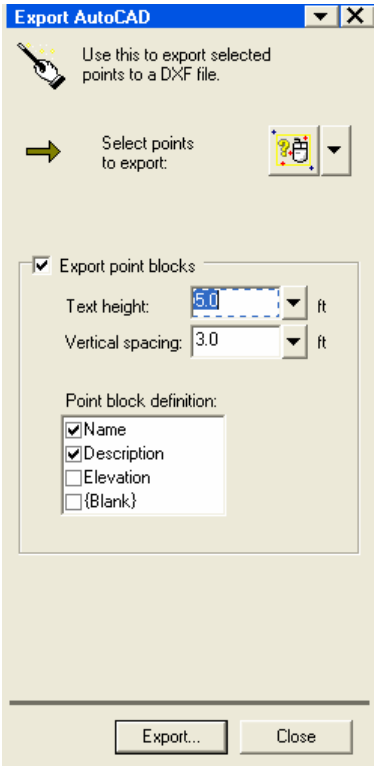
Select points to export: once activated, the points to export can be selected from the Map View.

Export point blocks: When checked, AutoCAD point blocks will be exported in addition to non-block points.

Point block definition: a list of point block definitions available for export. Select the items you want to export.

[***Export***]: opens the ***Save As*** dialog box (Page 11) to save the file.

[***Close***]: closes the dialog bar.



Exporting to LandXML

***File* | *Export* | LandXML (.XML)...**

Select points to export: once activated, the points to export can be selected from the Map View.

Export point descriptions as: specifies how descriptions will be exported.

[***Export***]: opens the ***Save As*** dialog box (Page 11) to save the file.

[***Close***]: closes the dialog bar.

Preferences

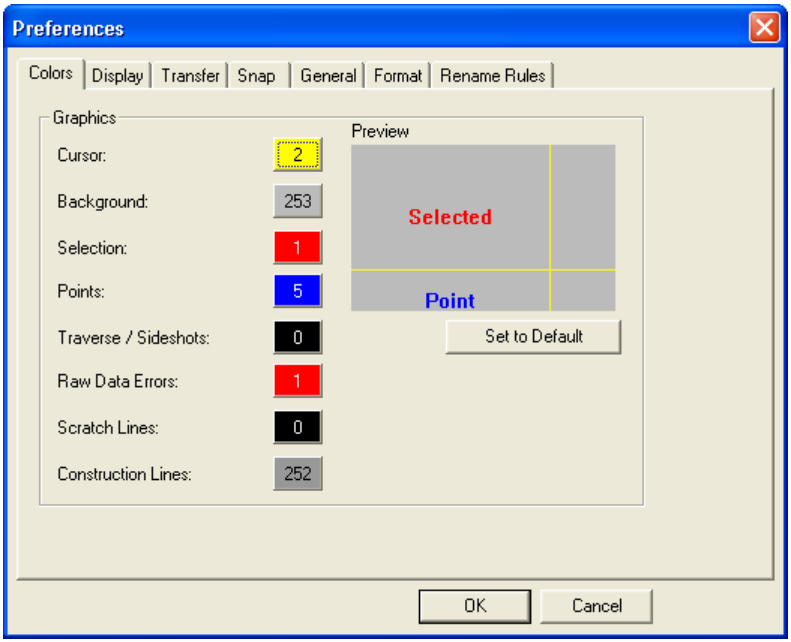
File | Preferences

The ***Preferences*** dialog box is used to configure several different settings in Connex. Settings will be preserved as you go from tabbed area to tabbed area. Click [***OK***] to save the changes when you are completely finished. Selecting [***Cancel***] will cancel all changes and exit the ***Preferences*** dialog box. Each tabbed screen is explained below.

Colors

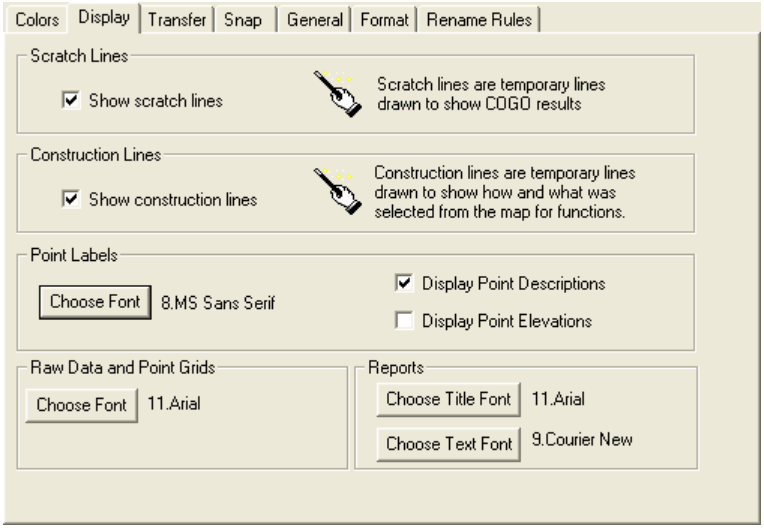
The ***Colors*** card allows you to change the default colors for the points displayed in the Map View. Clicking any of the colored buttons will open a color map where you can select a new color by clicking on it.

[***Set to Default***]: change all the colors back to the default color scheme.



Display

The ***Display*** card is used to configure what is displayed in the Map View.



Show scratch lines: When checked, scratch lines will be displayed after performing a COGO routine.

Show construction lines: When checked, construction lines will be displayed in the Map View.

Point Labels: controls what is displayed in relation to point labels from the following options:

- [***Choose Font***]: allows the selection of a different font for displaying point information in the Map View.
- ***Display Point Descriptions***: When checked, point descriptions will be displayed in the Map View.
- ***Display Point Elevations***: When checked, point elevations will be displayed in the Map View.

Raw Data and Point Grids: settings for fonts displayed in the Raw Data and Coordinate Views (directly below the Map View).

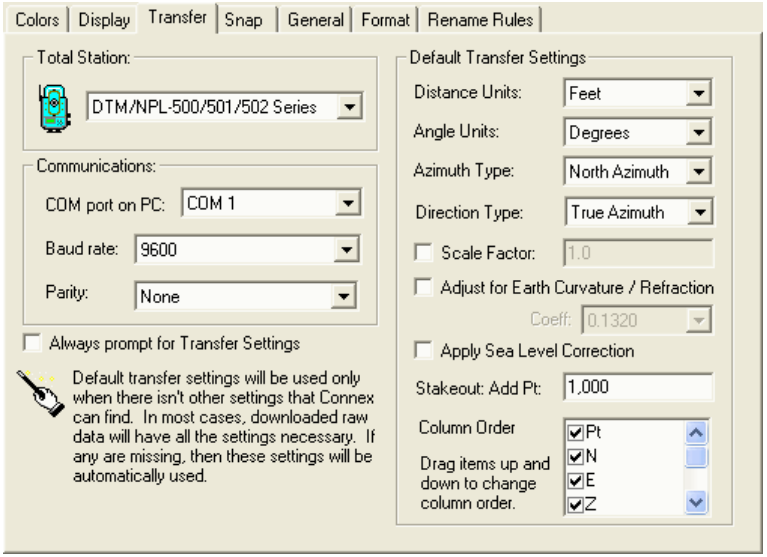
- [***Choose Font***]: allows you to select a different font to display in the Raw Data and Coordinate Views.

Reports: settings for fonts used in reports.

- [***Choose Title Font***]: sets the font for report titles.
- [***Choose Text Font***]: sets the font for the body text in generated reports.

Transfer

The ***Transfer*** card lets you configure parameters for data transfers and default settings for jobs that may be used for new jobs or for jobs created from file transfers when not otherwise specified in the source file.



Total Station: select the model of Nikon total station used for data transfers.

COM port on PC: is the COM port on the PC that the total station is connected to.

Baud rate: is the transfer speed. This must match the baud rate set in the total station for file transfers.

Parity: this must match the parity set in the total station. This is usually set to none.

Always prompt for Transfer Settings: when this box is checked, the ***Transfer Settings*** will open automatically prior to any other transfer dialog box opening.

Default Upload/Download Settings: these are default transfer and new job settings that will be used when not already specified elsewhere.

Note: When downloading data, the settings available here will be ignored if they are already specified in the raw file on the total station.

For users of DTM-300, DTM-310, DTM-400 Series instruments, it is assumed the data downloaded is in the same angle and distance units specified in the ***Default Transfer Settings*** section of the screen. Care should be taken to configure these fields correctly if downloading from these instruments, or else the downloaded data will be set to the wrong units, requiring re-download. Due to this behavior, it is also important to never change the distance and angle units on the total station during the course of the survey.

Distance Units: specifies ***Feet***, ***Meters***, or ***US Survey Feet*** for distance units.

Angle Units: specifies ***Degrees*** or ***Grads / Gons*** for angle units.

Azimuth Type: specifies a ***North Azimuth*** or ***South Azimuth***.

Direction Type: defines if the job was set such that all horizontal angles turned were referenced from the ***True Azimuth***, or where the horizontal angle was set to zero when aimed toward the backsight (***HA zero to BS***).

Scale Factor: When checked, specifies the scale factor that you want to apply to horizontal distances.

Adjust for Earth Curvature / Refraction: When checked, Connex will adjust elevations for the curvature of the earth and refraction based on the selected coefficient.

Apply Sea Level Correction: allows for this correction to be applied.

Stakeout: Add Pt: This value will be added to the point number that is being staked and used as the new point name if the stake point is stored. This setting is a default setting only used when creating a new job; it is not applicable to file transfers.

Column Order: Specifies the order of the coordinate data being transferred. When uploading, you must ensure the column order here matches the order in the job on the total station. The order is changed by dragging the items to the desired position. Un-checking an item will result in that item not being transferred.

Snap

The ***Snap*** card is used to configure the snap settings. These control how the cursor behaves when moving it over the Map View.

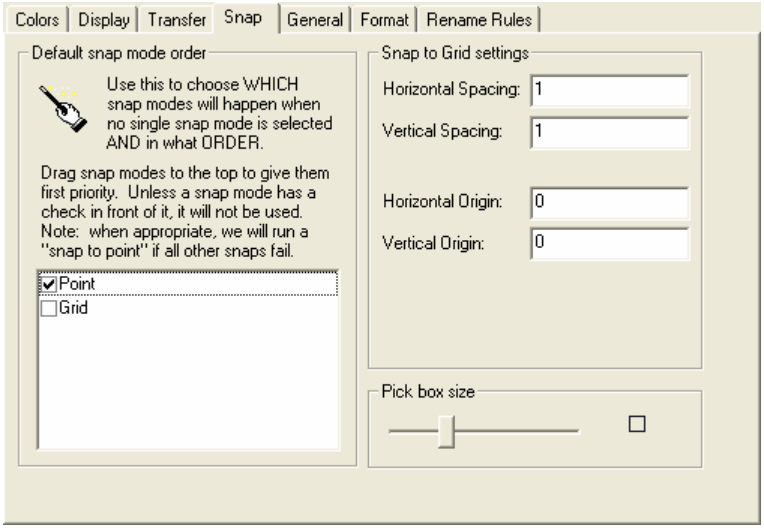
Note: When using any snap option and the cursor is currently snapping to an object, the snap details are displayed in the bottom left corner of the Connex window.

Snapping to 5,436.352, 5,042.651

Default snap mode order: is used to select which snap modes will be used by default when no snap mode is selected in the ***Snap*** toolbar (Page 4). This affects how the cursor (the pick box) behaves as it moves around the Map View.

Check the boxes that correspond with the snap modes you want to use and drag them so they are listed in the order where the modes with most priority are listed first.

If no snap mode is selected, the cursor will behave as if the ***Point*** snap mode was selected.



Point: The point inside the pick box will automatically be selected. If more than one point is inside the pick box, the point closest to the center of the pick box is automatically selected.

Free: This is essentially the same as using no snap mode. The coordinates in the center of the pick box will be selected.

Grid: This causes the center of the pick box to align with the intersections of an invisible grid in the Map View. The grid can be customized as described below.

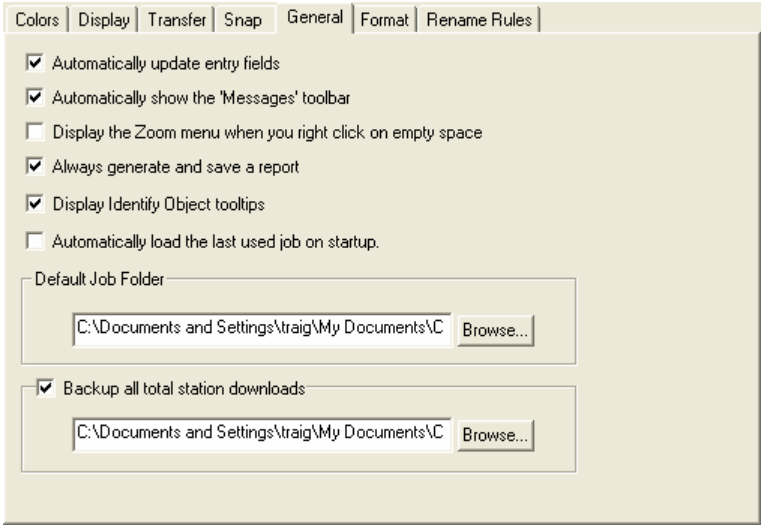
Snap to Grid: settings that control the spacing between grid intersections.

- ***Horizontal***: the horizontal distance between snap grid intersections.
- ***Vertical***: the vertical distance between snap grid intersections.
- ***Horizontal Origin***: the horizontal origin for the grid.
- ***Vertical Origin***: the vertical origin for the grid.

Pick box size: the slider is used to select the size of the pick box.

General

The ***General*** card contains several check boxes for a variety of options.



Automatically update entry fields: When checked, any field where information is manually entered will automatically be updated after the cursor leaves that field. When this is unchecked, another step, such as pressing [***OK***], is required before the new information entered is accepted.

Automatically show the 'Messages' toolbar: When checked, messages that can be displayed after a specific function is performed will automatically be displayed in the message window. When this is unchecked, the ***Toggle Messages*** button would need to be activated for messages to be displayed.

Display the Zoom menu when you right-click on space: When checked, the ***Zoom*** menu will be displayed at the cursor location when a right-click is performed in the Map View. If this is unchecked, nothing will happen.

Always generate and save a report: When checked, a report will open in a new window after completing a routine in Connex that is designed to generate a report. If this is unchecked, no report that can be saved will be created, but a report will be displayed in the message area if the ***Toggle Messages*** button is activated.

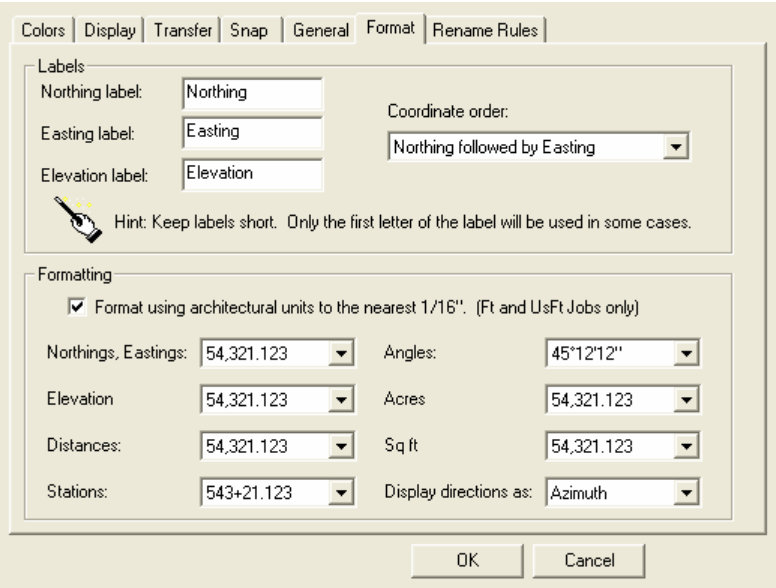
Display Identify Object tooltips: When checked, details will be displayed about a point when the pick box hovers over it.

Automatically load the last used job on startup: When checked, Connex will automatically load the previous job when started.

Default Job Folder: is the default folder where jobs will be stored. Use the corresponding [***Browse...***] button to change the default folder.

Backup all total station downloads: When checked, a backup of every download will be created in the specified location. Use the corresponding [***Browse...***] button to change the folder.

Format



The ***Format*** card lets you customize the point labels and number formats used throughout the program.

Northing label: is the label used to describe the Northing field.

Easting label: is the label used to describe the Easting field.

Elevation label: is the label used to describe the Elevation field.

Coordinate order: is the order you want each column to appear.

Format using architectural units...: When this box is checked, and when the current job is configured to Feet or US Survey Feet, distances will be presented in architectural units in the Report Window and in various results dialogs.

Northings, Eastings: specifies the number of places past the decimal point displayed for northings and eastings. (This does not affect the accuracy used for internal calculations.)

Elevations: specifies the number of places past the decimal point displayed for elevations.

Distances: specifies the number of places past the decimal point displayed for distances.

Stations: specifies the format for stationing.

Angles: specifies the number of places past the seconds displayed for angles.

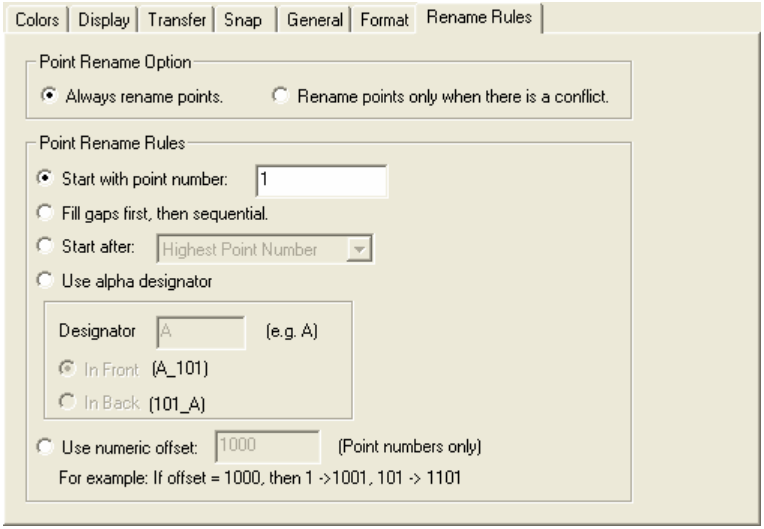
Acres: specifies the number of places past the decimal point displayed for acreage.

Sq ft: specifies the number of places past the decimal point displayed for square feet.

Display directions as: displays directions as azimuths or bearings.

Rename Rules

The ***Rename Rules*** card is used to define how to handle points with duplicate names as they are imported into another job.



Always rename points: When selected, all points will be renamed as they are merged according to how the remaining fields are configured.

Rename points only when there is a conflict: When selected, if any point within the selection has a conflict with existing points, then all the points will be renamed according to the rename rules. If no points in the selection cause a conflict, then none of the selected points will be renamed. The entire renaming sequence must succeed or the merger will fail.

Start with point number: When selected, all imported points will be named consecutively starting with the point number entered in the provided field. Each consecutive point that is renamed will be given the next available point number.

Fill gaps first, then sequential: When selected, any points will be renamed with the first available point number, where 1 is the lowest possible point name.

Start After: When selected, point renaming will start after the highest point number, the next round 100, the next round 1000, or the next round 10000 depending upon the selected option.

Use alpha designator: When selected, points will be renamed with the number convention defined in this screen, along with predefined alpha character(s).

Designator: the defined alpha character to be added to the imported point name.

In Front: places the predefined ***Designator*** in front of the original point name.

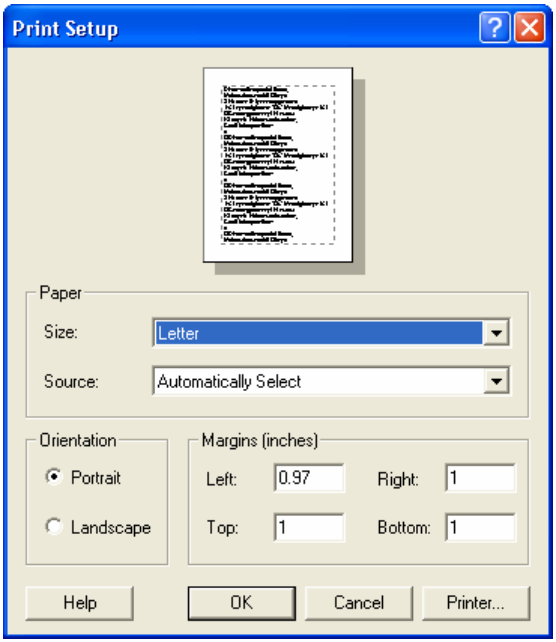
In Back: places the predefined ***Designator*** behind the original point name.

Use numeric offset: When selected, any numeric point name that is renamed will be the old name plus the numeric offset entered here.

Print Setup

File | Print Setup

The ***Print Setup*** dialog box controls how pages will be printed with the selected printer. From within the ***Print Setup***, you can set the paper ***Size*** from a drop down list and the ***Source*** of the paper. You can also adjust the ***Margins*** on the paper's edge and set the ***Orientation***. Selecting the [***Printer***] button will bring up ***Print Setup*** dialog box for your default printer. From here you can select what printer you want to use and adjust ***Properties*** specific to your printer. See your printer's manual for more help on settings specific to your printer. Click on the [***OK***] button to save the changes.



Print Preview

File | Print Preview

Connex allows you to preview your data prior to printing it. From within the ***Print Preview*** screen, you can [***Zoom In***] and [***Zoom Out***] by clicking the corresponding button then clicking the area of the page you want to zoom in or out on. You can also select [**P*rint***] to print the page. [**C*lose***] will return you to standard program view.

Print

File | Print

This option will print the map area of the current job as defined in the ***Print Setup*** dialog box.

Exit

File | Exit

This will exit the program.

Edit Menu

The ***Edit*** menu contains some simple routines that are useful while working in almost any part of Connex.

Undo

Edit | Undo

Undo: Removes the previous action performed.

Redo

Edit | Redo

Redo: re-performs the last action removed with the ***Undo*** function.

Add Points / Edit Points

Edit | Add Points / Edit Points...

This opens the ***Add / Edit Points*** dialog bar where a new point can be added or an existing point can be edited. The dialog bar will look slightly different depending on if the ***Pt*** entered is a new point or an existing point. Each variation is outlined below.

Pt Name: is the point number for the point you want to add or edit. The remaining fields will vary depending on if the point exists in the current job or not.

[***Close***] will close the dialog bar. If [***Add***] or [***Apply***] has not been pressed, any changes made will not be stored.

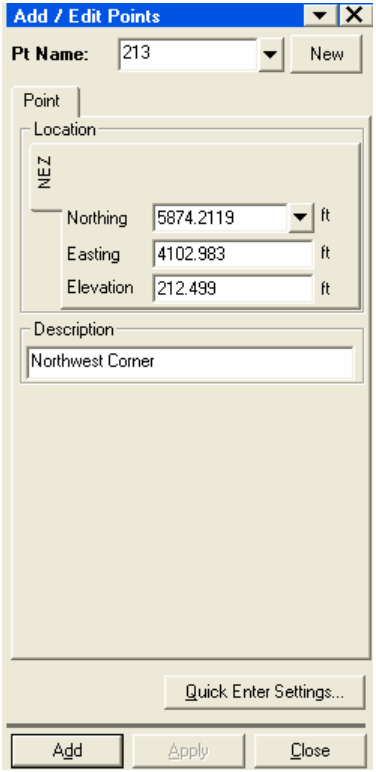
[***Quick Enter Settings...***]: opens the ***Quick Enter Mode Setting*** dialog box (Page 41) where the function of the enter key can be defined for when the ***Add / Edit Points*** dialog bar is open.

Adding a New Point

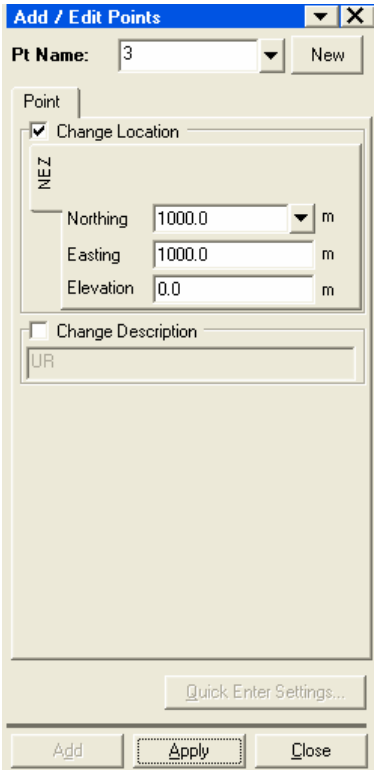
[***New***]: will automatically enter the next available unused point number in the ***Pt Name*** field.

Point: is used to specify the ***Northing***, ***Easting***, and ***Elevation*** for the new point. It is possible to leave the ***Elevation*** field blank, as Connex supports ***2D*** surveys.

Description: is the optional description for the new point.



Editing an Existing Point



Change Location: when checked, you are able to change the coordinates for the specified point.

NEZ: is used to change the ***Northing***, ***Easting***, and ***Elevation*** for the point. Again, the elevation can be eliminated or left blank for ***2D*** surveys.

Change description: When checked, the description for the specified point can be changed.

[***Apply***]: stores the modified point to the current job.

[***Quick Enter Settings...***]: This button opens the ***Quick Enter Mode Setting*** dialog box where you can choose the fields that are selected by pressing [Enter] on the keyboard. (Page 41)

[***Close***] will close the dialog bar. If [***Add***] or [***Apply***] has not been pressed, any changes will not be stored.

Edit Multiple Points

Edit | Edit Multiple Points...

This opens the ***Edit Multiple Points*** dialog bar where the elevation and/or description of multiple points can be changed simultaneously.

Change Location: When checked, you are able to specify an elevation for all the selected points.

NEZ: is used to change the ***Elevation*** for the selected points. This can be left blank for ***2D*** surveys.

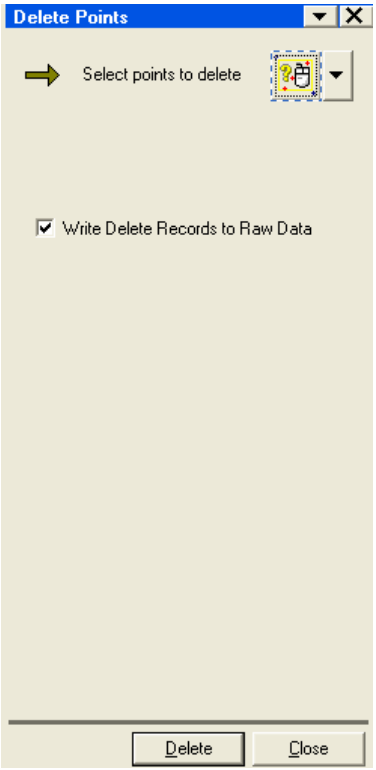
Change description: When checked, the description for all the selected points can be changed.

[***Apply***]: stores the modified point to the current job.

Delete Points

Edit | Delete Points...

The ***Delete Points*** option allows you to delete selected points from the job.



Select points to delete: allows you to select points to be deleted.

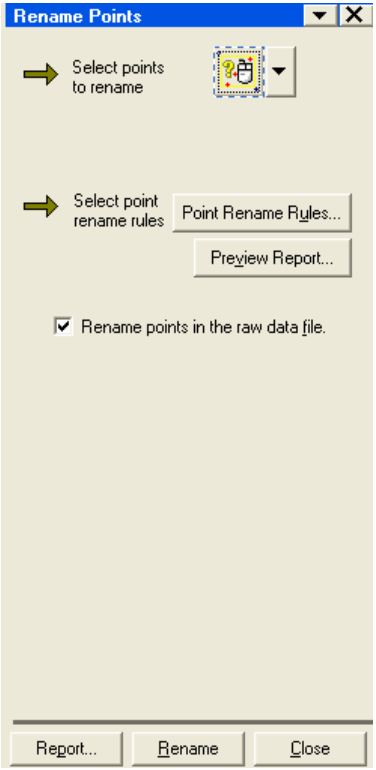
[***Delete***]: deletes the selected points.

[***Close***]: closes the dialog bar.

Rename Points

Edit | Rename Points...

This option will rename the selected points based on the setting in the ***Rename Rules*** preferences (Page 29).



Select points to rename: when active, allows the selecting of points in the Map View.

[***Point Rename Rules***]: will bring up the ***Rename Rules*** preferences (Page 29) where the renaming rules can be adjusted.

[***Preview Report***]: displays a report with information detailing how the points will be renamed.

Rename points in the raw data file: When checked, the points in the raw data file will be renamed to match the new point names.

[***Report...***]: will bring up a report of the renamed points.

[***Rename***]: renames the selected points.

[***Close***]: closes the dialog bar.

2D Points to 3D

Edit | 2D Points to 3D...

This option will assign a specified elevation to all the selected points. This will occur after importing a 2D file from AutoCAD. This routine can also change the existing elevations of the selected points to a specified elevation.

Select points to modify: allows the selecting of points to be changed.

Elevation: is the desired elevation for the selected points.

Apply to missing elevations only: When checked, only the selected points with no elevation will be changed. When this is un-checked, all selected points will be changed.

[***Report***]: opens a report of the changes made.

[***Apply***]: applies the changes.

[***Close***]: closes the dialog bar.

Translate / Rotate / Scale

Edit* | *Translate* / *Rotate* / *Scale...

The ***Adjustments*** dialog bar is used to translate, rotate, or scale any or all of the points in the current job.

Select points to...: allows you to select points to be translate, rotate, or scale.

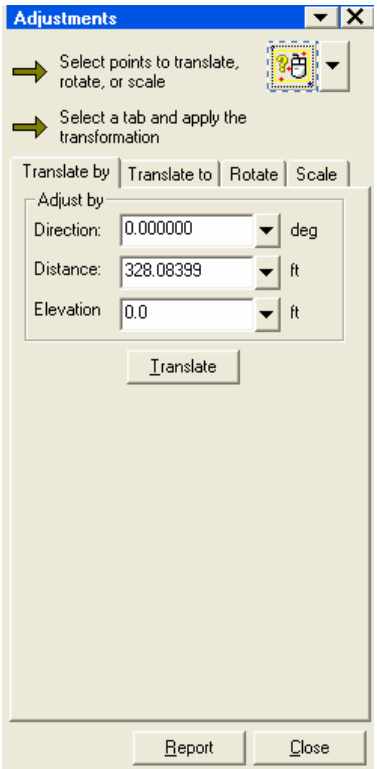
[***Report***]: generates a report detailing the adjustment.

Translate By

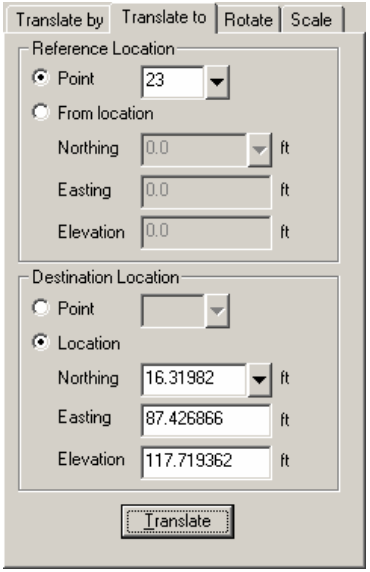
The ***Translate by*** card is used to move the selected points by the specified direction, distance, and elevation.

Adjust by: is where you enter the ***Direction***, ***Distance***, and ***Elevation*** adjustment to be applied to the selected points. All the points will be moved by the specified amounts. If any of these items should not be adjusted, their respective values should be set to zero.

[***Translate***]: performs the adjustment.



Translate To



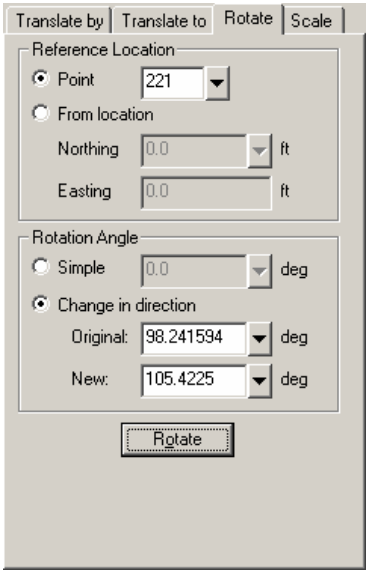
The ***Translate to*** card is used to adjust all the selected points by the difference between two known points or locations. Once the adjustment is performed, the reference point or location will have the same coordinates as the destination point or location.

Reference / Destination Location: This can be defined by an existing ***Point***, or a known ***Northing***, ***Easting*** and ***Elevation***.

Note: A reference point will only be adjusted if it is included with the selected points.

[***Translate***]: performs the adjustment.

Rotate



The ***Rotate*** card will rotate the selected points around a reference point or location by a specified angle.

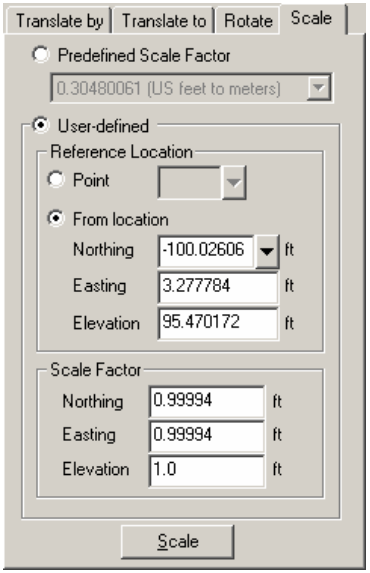
Reference Location: This can be defined by an existing ***Point***, or a known ***Northing*** and ***Easting***. All the selected points will be rotated around this point or location.

Simple: defines the rotation angle in degrees.

Change in direction: computes the rotation angle from the difference between an ***Original*** azimuth and a ***New*** azimuth.

[***Rotate***]: performs the rotation.

Scale



The ***Scale*** card is used to scale the distances and elevations between any selected points and a reference point or location.

Predefined Scale Factor: This can be used to quickly scale all coordinates using a scale factor chosen from a predefined list. When using this method, the reference location is the origin.

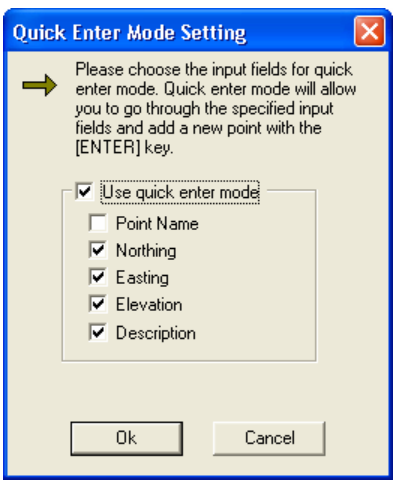
Reference Location: This is the point or location that all the selected points are scaled from. (The scale factor is applied to the distances between this reference location and each selected point.)

Scale Factor: defines the scale factors that you want to apply to each component. Usually the Northing and Easting components of the scale factor will be the same, but they can also be defined independently. (A scale factor of 1.0 will result in no change to the distance for that component.)

[***Scale***]: scales the distances as configured in this dialog bar.

Quick Enter Mode Setting

Available from any dialog bar with a [***Quick Enter Settings...***] button.



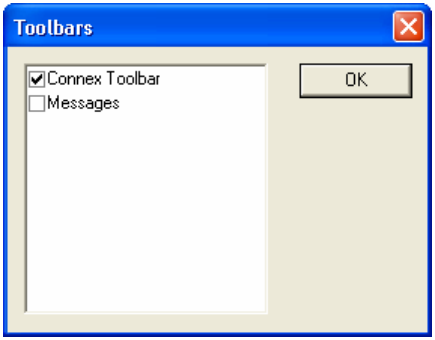
The ***Quick Enter Mode Setting*** dialog box is used to specify which fields in a dialog bar will be selected each time the [Enter] key is pressed. This allows you to quickly cycle through the desired fields in any dialog bar that contains those fields.

View Menu

The ***View*** menu contains tools for altering the main view of Connex and for controlling the zoom levels in the Map View. Each tool is briefly explained below.

Toolbars

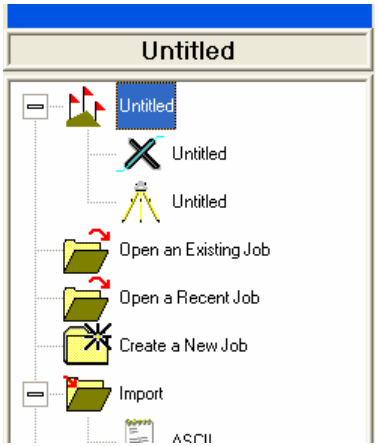
View | Toolbars



This option allows you to hide or unhide items of the Connex user interface. Select the checkboxes for the items you want to display and de-select the checkboxes for the items you want to hide. Tap [***OK***] to exit the dialog box and implement the changes.

Shortcuts

View | Shortcuts



This option will make the ***Shortcuts*** dialog bar (Page 9) visible when it is covered by another dialog bar.

Clear Dialog Bar

View |Clear Dialog Bar

When selected, this option closes all dialog bars except the Shortcuts dialog bar.

Message Bar

View | Message Bar

The ***Message Bar*** displays report data from a completed function. For instance, if an inverse is measured from the ***Cogo | Inverse Point to Point*** routine, a report with the results will appear in the ***Message Bar***.

Point 1	Point 2	Distance	Direction	Northing	Easting	Elevation	Slope Distance	Grade (%)
13	14	111.132	137°42'24"	-82.206	74.784	1.403	111.141	1.262%
12	32	135.599	40°33'50"	103.012	88.179	2.803	135.628	2.067%
31	32	106.267	250°57'13"	-34.678	-100.450	-2.494	106.297	-2.347%
29	32	150.580	291°54'12"	56.173	-139.710	-4.381	150.644	-2.909%
30	32	158.229	241°49'00"	-74.731	-139.469	-3.134	158.260	-1.980%
17	32	308.168	210°24'29"	-265.777	-155.980	0.053	308.168	0.017%

Point Labels

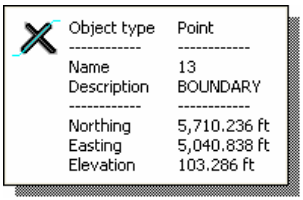
View | Point Labels

Selecting ***Point Labels*** will toggle the visibility of the point labels for each point on the Map View. When this option is enabled (point labels are visible), a check mark will be displayed next the menu item.

Identify Points

View | Identify Points

Selecting ***Identify Points*** toggles a point information box on and off, which becomes visible when you hover the pick box over a point in the Map View. This can also be toggled on and off from the ***General*** preferences card (Page 27) using the ***Display Identify Object tooltips*** item.

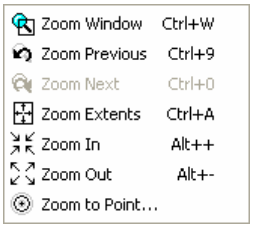


The ***Identify point*** tool is on when a check mark is displayed next the ***Identify Point*** menu item.

Zoom

View | Zoom ▸

Zooming is defined as changing the scale of the Map View.



Connex offers several methods for zooming, they are all quite simple, and are designed to provide you flexibility. Most zoom options have alternative key combination controls to activate the particular zoom. If you use a wheel mouse, the wheel can be used for zooming in and out. Also, if the wheel is pressed down, activating a wheel click action, you can use your mouse to pan. Panning continues until the mouse wheel button is released.

Zoom Window

or [Ctrl]-W

View | Zoom ▸ Zoom Window

Zoom Window allows you to use your mouse to define a rectangular area to zoom into. Once the ***Zoom Window*** button is pressed, you click once in one corner of the rectangle and once in the opposite corner to define the area you want to zoom to. The ***Zoom Window*** tool can also be activated by selecting the ***Zoom Window*** button on the ***Zoom*** toolbar.

Zoom Previous

or [Ctrl]-9

View | Zoom ▸ Zoom Previous

Zoom Previous moves the zoom setting to what it was prior to your last change. Zoom previous works off a list of previous zoom settings so you can keep toggling back through the list for as many zooms that you have done. The ***Zoom Previous*** tool, can also be activated by selecting the ***Zoom Previous*** button on the ***Zoom*** toolbar.

Zoom Next

or [Ctrl]-0

View | Zoom ▸ Zoom Next

Zoom Next is the same as zoom previous, but moves through the list of zoom settings in the opposite direction. The ***Zoom Next*** tool can also be activated by selecting the ***Zoom Next*** button on the ***Zoom*** toolbar.

Zoom Extents

or [Ctrl]-A

View | Zoom ▸ Zoom Extents

Zoom Extents scales the view so that all the points that are in the job are contained within the viewing area. The ***Zoom Extents*** tool can also be activated by selecting the ***Zoom Extents*** button on the ***Zoom*** toolbar.

Zoom In

View | Zoom ▸ Zoom In
or [Alt]-[+]

This zooms the view in by a specified percentage. In order to set the percentage of zoom, click ▼ within the button on the toolbar. Each time the zoom button is pushed, the view will zoom in by the specified percentage.

Zoom Out

View | Zoom ▸ Zoom Out
or [Alt]-[–]

This zooms the view out by a specified percentage. In order to set the percentage of zoom, click ▼ within the button on the toolbar. Each time the zoom button is pushed, the view will zoom out by the specified percentage.

Zoom to Point

View | Zoom ▸ Zoom to Point
This will prompt you for a point name. Enter a point name and the job view will zoom to where the point is centered within the view and an animated graphic will show you where the point is located.

Realtime Zoom

View | Realtime Zoom
or [Ctrl]-Q

Realtime Zoom uses the mouse to set the zoom level. To use it, first click on the zoom realtime button, then click and drag anywhere on the drawing area. Dragging up causes the view to zoom in and dragging down causes the view to zoom out. ***Realtime Zoom*** will redraw as you zoom in or out. The ***Realtime Zoom*** tool can also be activated by selecting the

button on the ***Zoom*** toolbar. You can also use ***Realtime Zoom*** anytime the cursor is over the Map View by turning the wheel on a wheel mouse.

Realtime Pan

View | Realtime Pan

Panning moves the drawing from side to side and up and down to facilitate viewing the job. ***Realtime Pan*** is controlled using the mouse much like ***Realtime Zoom***. To use the tool, click and drag on the drawing area. Dragging left causes the view to shift left and so on for all the directions.

A wheel mouse can also be used for panning. Click and hold the mouse wheel (it can act like a button) and drag the mouse in the direction you desire to pan. Release the mouse wheel when done. You can also roll the mouse wheel while it is depressed causing zoom and pan at the same time.

Redraw

View | Redraw

The ***Redraw*** option will redraw the map and all its contents. Sometime residual graphics will appear in the Map View after performing certain routines. Selecting ***Redraw*** will redraw the entire map so that it is current and clear. (You can also press [F5] to redraw.)

Erase Scratch Lines

View | Erase Scratch Lines

Selecting ***Erase Scratch Lines*** will erase all scratch or construction lines from the Map View.

Scratch or construction lines are lines automatically drawn by the program to graphically show an operation that just took place. For instance, when an inverse between points is done, a construction line will be drawn to show the results.

Transfer Log

View | Transfer Log

Connex maintains a .log file that contains a log of all data transfers between the computer running Connex and another computer or PDA. The ***Transfer Log*** displays a WordPad report of this log data.

Clear Transfer Log

View | Clear Transfer Log

This will delete all entries in the transfer log file.

Last Modified Log

View | Last Modified Log

Connex maintains a log of all data modifications done to the current job. This option opens the log for viewing.

Clear Last Modified Log

View | Clear Last Modified Log

Connex maintains a log of all data modifications done to the current job. This option opens the log for viewing.

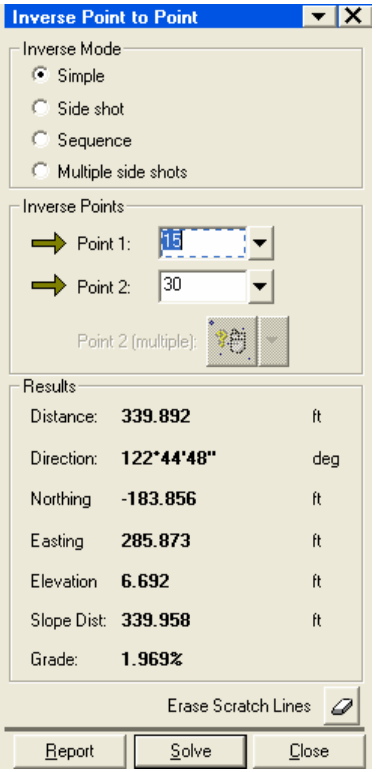
Cogo Menu

The ***Cogo*** menu accesses routines to perform coordinate geometry.

Inverse Point to Point

Cogo | Inverse Point to Point

The ***Inverse Point to Point*** routine will compute the distance and direction between two points. Select the desired ***Inverse Mode*** (explained below), and then select the two points that you want to inverse between. Click the [***Report***] button to generate a report for the last inverse performed.



Inverse Mode: The following inverse modes are available and will determine how the inverse is performed.

- ***Simple***: This mode will perform an inverse on two specified points. Once finished, you can enter two new points for a new report, and so on.
- ***Side Shot***: The only difference between ***Side shot*** and ***Simple*** modes is that once ***Point 2***: is filled in and the results computed, the focus will stay in the ***Point 2:*** field allowing you to get a radial report of multiple points from the same first point by continuing to click on points.
- ***Sequence Mode***: After an inverse is performed in this mode, the previous Connex point (***Point 2:***) becomes the current occupy point (***Point 1:***). You can think of ***Sequence*** as being similar to a traverse operation.
- ***Multiple Side shot Mode***: This mode is the same as ***Side shot*** mode except you can use the select features of Connex to select multiple points based on description, layer, color etc.

Point 1: The point you are inversing from.

Point 2: The point you are inversing to.

Erase Scratch Lines: Erases any existing scratch lines. (Page 46)

[***Report***]: Opens a report in a new window showing the details of all the point to point inverses performed.

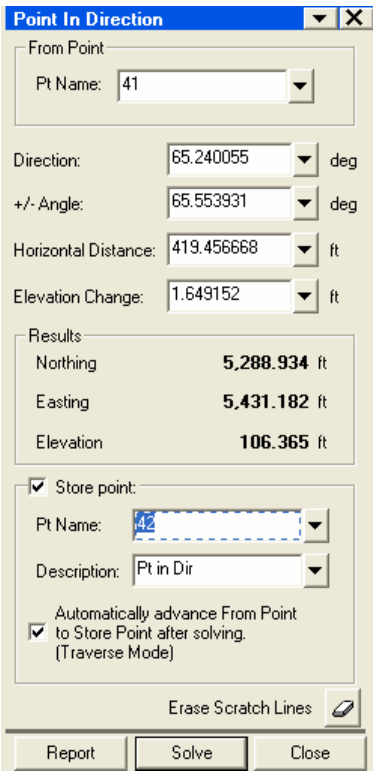
[***Solve***]: Computes the results of the inverse.

[***Close***]: Closes the dialog bar.

Point in Direction

Cogo | Point in Direction

The ***Point in Direction*** routine will compute and optionally store a new point based on a specified distance and direction from an existing point.



Pt Name: is the existing point that all direction and distance information will be referenced from.

Direction: is the direction from the reference point to the new point.

+/- Angle: is an optional horizontal angle that will be added to the ***Direction***.

Horizontal Distance: is the horizontal distance from the reference point to the new point.

Elevation Change: is the difference in elevation from the reference point to the new point.

Results: displays the computed coordinates for the new point after clicking [***Solve***].

Store Point: When selected, the new point will be stored to the current job. When unselected, the location of the new point is computed, but not stored.

Pt Name: is the name used when storing the new point.

Description: is the description used when storing the new point.

Automatically advance...: When selected, the new point will automatically become the reference point for the subsequent point in direction computation, if performed.

Erase Scratch Lines: Erases any existing scratch lines. (Page 46)

[***Report***]: Opens a report in a new window showing the details of all the point in direction computations.

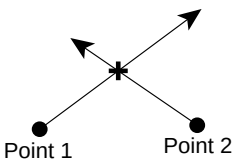
[***Solve***]: Computes the location of the new point and stores it if the ***Store Point*** checkbox was checked.

[***Close***]: Closes the dialog bar.

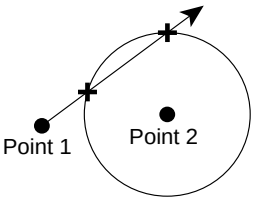
Intersection

Cogo | Intersection

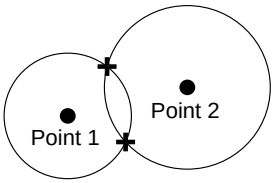
The ***Intersection*** routine computes the intersection(s) of two lines given the direction(s) and/or distance(s) from two existing points. (See illustration below.) Once solved, the intersection points can be viewed from the Map view and optionally stored. The computed points will be stored as 2D points.



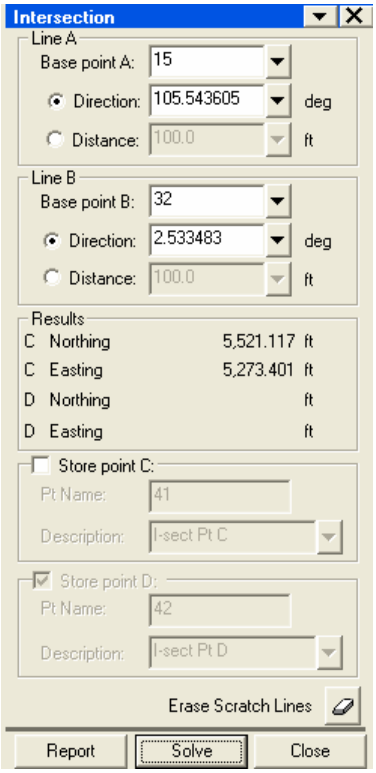
Direction - Direction Intersection



Direction - Distance Intersection



Distance - Distance Intersection



Base point A: is the first reference point.

Base point B: is the second reference point.

Direction: When selected, is the direction from the corresponding reference point that intersects with the other reference distance or direction.

Distance: When selected, is the distance from the corresponding direction that intersects with the other reference distance or direction.

Results: Displays the northing and easting for the computed intersecting point(s).

Store point C: When checked, a point will be stored for the intersection computed from the information provided above.

Store point D: When checked, a second point will be stored for the other intersection computed from the information provided above.

[***Report***]: Creates a report in TDSEdit detailing the computed intersection, which can then be saved and/or printed.

[***Solve***]: Computes the location of the intersection(s).

[***Close***]: Closes the dialog bar.

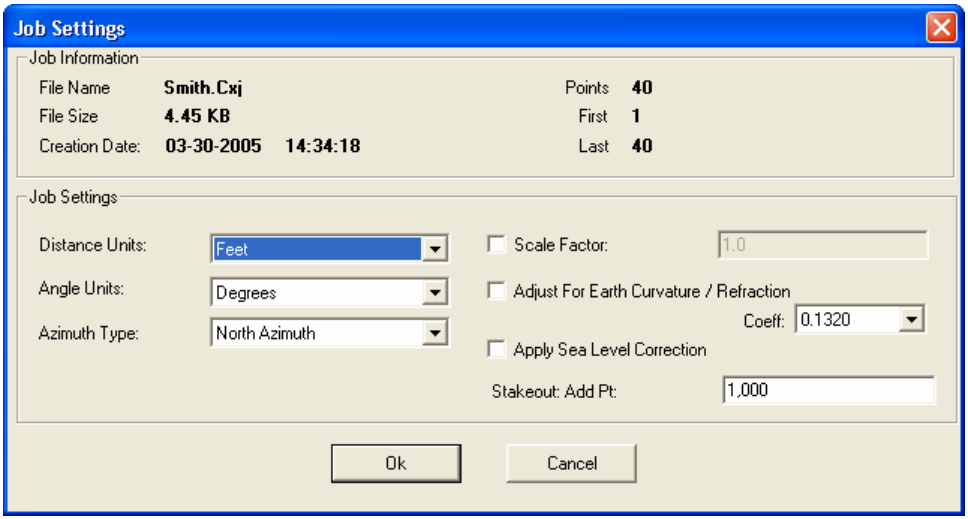
Job Menu

Job Settings

Job | Job Settings

The ***Job Settings*** dialog box displays the current job settings and allows you to change them. (Job settings are typically configured when the job is created. See ***New Job*** on Page 10.)

If the job settings are changed, any existing raw data will retain their original settings and any new raw data will reflect the new settings. Coordinate data will always change to reflect the current settings.



File Name: the name of the current job.

File Size: is the size of the job file.

Creation Date: is the date the job was created.

Points: the number of points in the current job.

First: is the lowest point number in the current job.

Last: is the highest point number.

Distance Units: defines the units used for distances as ***Meters***, ***Feet***, or ***US Survey Feet***.

Angle Units: defines the units used for angles as Degrees or Grads / Gons.

Azimuth Type: defines if you are using a North Azimuth or a South Azimuth.

Scale Factor: When checked, all distances will be multiplied by this value.

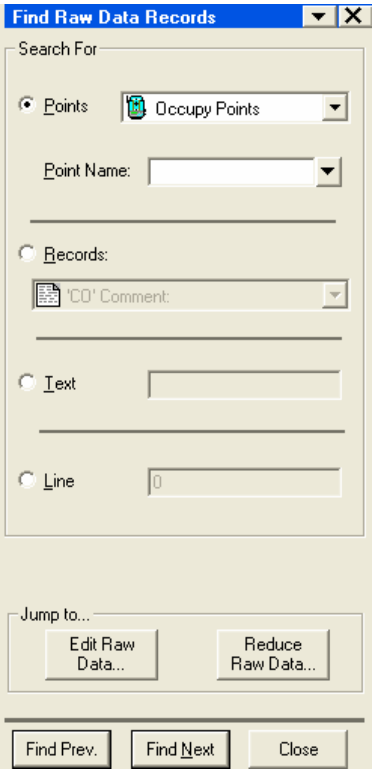
Adjust for Earth Curvature / Refraction: When checked, Connex will adjust the elevation of new points for the curvature of the earth and refraction based on the selected coefficient.

Apply Sea Level Correction: allows for this correction to be applied to the current job.

Stakeout: Add Pt: This value will be added to the point number that is being staked and used as the new point name if the stake point is stored.

Find Raw Data Records

Job | Find Raw Data Records



A raw data file is an ASCII text file that is essentially a log of everything that occurred while working on the job. All activity is recorded such as creating or modifying points and field notes. Raw data files contain a variety of information beyond the simple coordinate positions of logged points. (See Page 55 for a description of each raw data record in the format that it is stored in the raw data file.)

Connex has the ability to search the raw data in your job for a wide variety of information. These tools allow you to quickly sort through the various entries in the raw data file to find the desired data.

When a search is performed, the Raw Data View will open under the Map View and display the results of the search.

Points: When selected, the routine will search for the specified point type and optional point name.

Point Name: the name of the point being searched for that matches the type of point selected above. If no point name is provided, Connex will find the next existing point that matches the selected point type.

Records: When selected, Connex will search for records matching the type specified in the provided drop down list.

Text: When selected, Connex will search for any matching

text in the raw data file.

Line: When selected, Connex will search for the line number entered.

[***Edit Raw Data...***]: opens the ***Edit Raw Data Records*** dialog bar (Page 54).

[***Reduce Raw Data...***]: opens the ***Raw Data Reduction*** dialog bar (Page 58).

[***Find Prev.***]: finds the previous occurrence of the specified search.

[***Find Next***]: finds the next occurrence of the specified search.

[***Close***]: closes the dialog bar.

Edit Raw Data Records

Job | Edit Raw Data Records

You can edit certain lines of raw data from the current job. Using the editor guarantees each raw data record is stored to the raw data file in the correct format. The format for each raw data record in a raw data file is described below.

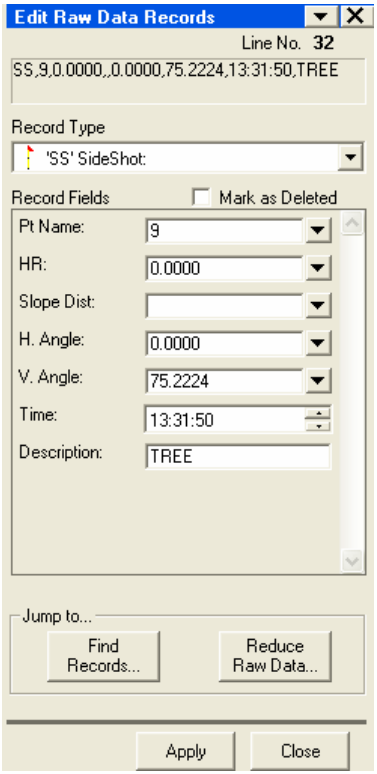
To edit a line of data, double-click on the line of data from the Raw Data View (below the Map View) that needs to be edited. Edit the provided fields. The fields provided will vary depending upon the type of data selected.

[***Find Records...***]: opens the ***Find Raw Data Records*** dialog bar.

[***Reduce Raw Data...***]: opens the ***Reduce Raw Data*** dialog bar.

[***Apply***]: stores the changes.

[***Close***]: closes the dialog bar.



Raw Data Records

This section describes the format for each raw data record as stored in a raw data file. Each raw data record is comma delimited.

Comment/Note Records

`CO,`*`text`*

text = comment or note as described below:

- **2pt-Ref Pt: (pt name) & Pt: (pt name) Az: (value)**
  Stake Line
- **Angle Units: *text***
  Can be Degrees or Gons
- **C & R Adjustment: (Off, On)**
  Earth Curvature Set
- **C & R Coefficient: (0.200, 0.132)**
  Earth Curvature Coefficient
- **Client: *text***
  The file client information
- **Comment: *text***
  The file creation comment
- **Coord Order: *text***
  Can be NEZ or ENZ.
- **Description: *text***
  The file (job) description.
- **Dist Units: *text***
  Can be Feet/Feet INTL, Meters, or Feet US
- **Downloaded *date time***
  Identifies the date and time the data was downloaded.
- **HA Raw Data: *text***
  Can be Azimuth or HA zero to BS
- **Instrument: *text***
  The instrument name and model details.
- **Pathname**
  The full pathname of the file being downloaded
- **Pt:(pt name) SO deltas N:(value) E:(value) Z:(value)**
  Stakeout Deltas

- **Scale Factor: (value)**
  Scale Factor
- **Sea Level Adjustment (Off, On)**
  Sea Level Correction
- **Software: *text***
  The software version currently loaded.
- **Sta=(value) Offset=(value) dZ=(value)**
  Station Offset
- **Temp: *text* Press: *text* Prism: *text Date Time***
  Lists the temperature, pressure, prism constant, date and time before each station (ST) record.
- **Zero Azimuth: *text***
  Can be North or South
- **Zero VA: *Horizon***
  Can be Horizon or Zenith.

Coordinate Records

Record Type,pt,northing,easting,elevation,code

- Record Type = one of the following types:
  - UP (Uploaded Point)
  - MP (Manually input Point)
  - CC (Calculated Coordinate)
  - RE (Resection Point)
  - UC (Uploaded Control Point)
  - MC (Manually input Control Point)
- pt = Point Name
- northing
- easting
- elevation
- code = Feature Code

Station Records

ST,*stnpt,bspt,hi,bsazim,bsha*

- stnpt = Station Point Name
- bspt = Backsight Point Name
- hi = Height of Instrument
- bsazim = Backsight Azimuth
- bsha = Backsight Horizontal Angle

Control Point Records

CP,*pt,ht,sd,ha,va,time,code*

- pt = Point Name
- ht = Height of Target
- sd = Slope Distance
- ha = Horizontal Angle
- va = Vertical Angle
- time = 24 Hour Time Stamp
- code = Feature Code

Sideshot Records

SS,*pt,ht,sd,ha,va,time,code*

- pt = Point Name
- ht = Height of Target
- sd = Slope Distance
- ha = Horizontal Angle
- va = Vertical Angle
- time = 24 Hour Time Stamp
- code = Feature Code

Stakeout Records

SO,*pt,ht,sd,ha,va,time*

- pt = Recorded Point Name
- ht = Height of Target
- sd = Slope Distance
- ha = Horizontal Angle
- va = Vertical Angle
- time = 24 Hour Time Stamp

F1/F2 Records

F#,*pt,ht,sd,ha,va,time*

- F# = Face of Shot (F1 or F2)
- pt = Point Name
- ht = Height of Target
- sd = Slope Distance
- ha = Horizontal Angle
- va = Vertical Angle
- time = 24 Hour Time Stamp

Raw Data Reduction

Job | Raw Data Reduction

The ***Raw Data Reduction*** option redraws the drawing in the Map View based upon the raw data selections made in the ***Raw Data Reduction*** dialog bar.

Ignore Store Points: When checked, the redraw will ignore repeated points, that is, only points that are new points will be drawn.

Ignore records marked as deleted: When checked, the redraw will cause deleted points be shown. When deselected, the deleted points are not viewable.

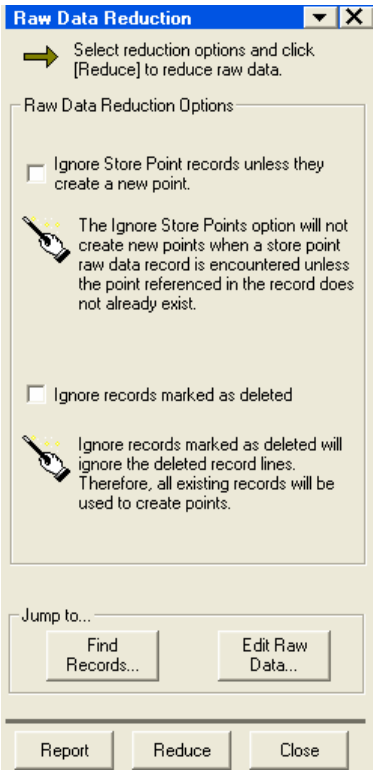
[***Find Records...***]: will open the ***Find Raw Data Records*** dialog bar.

[***Edit Raw Data...***]: will open the ***Edit Raw Data File*** dialog bar.

[***Report***]: creates a report containing the points generated in the drawing.

[***Reduce***]: implements the changes and redraws the map.

[***Close***]: closes the dialog bar.



Raw Data Drawing Options

Job | Raw Data Drawing Options

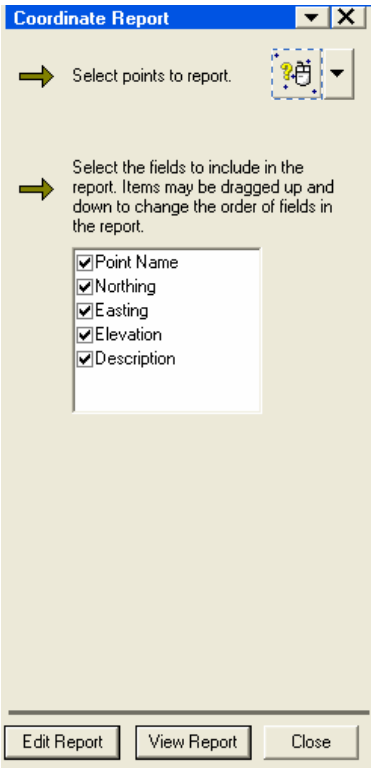
The ***Raw Data Drawing Options*** controls how raw data is presented in the Map View. When a raw data drawing option is selected, the Raw Data view will be displayed under the Map View. Depending upon the option, the relationship between stored points and the occupied point from which the stored point was shot will be displayed. The relationship is generally denoted by a red arrow going from the occupied point to the stored point. There are four display options:

- Don't Draw
  The ***Don't Draw*** option does not display any of the relationships between points.
- Draw Selections
  This option will display the relationship between the point selected in the ***Raw Data*** table and the occupied point that it was shot from. No other relationships will be displayed.
- Progressive
  The ***Progressive*** option will display all the relationships between the selected points.
- Draw Everything
  The ***Draw Everything*** option displays the relationships between all the points regardless of which points are selected.

Coordinate Report

Job | Coordinate Report

A coordinate report is a document opened in TDSEdit that contains information regarding points selected from the current job.



Select points to report: allows the selection of the points that will be included in the report.

Select the fields...: A list of fields that are available to be included or excluded in the report for the selected points. Check any fields you want to include.

[***Edit Report***]: Creates the report in TDSEdit where you can edit it, print it, or save it as an RTF or text document.

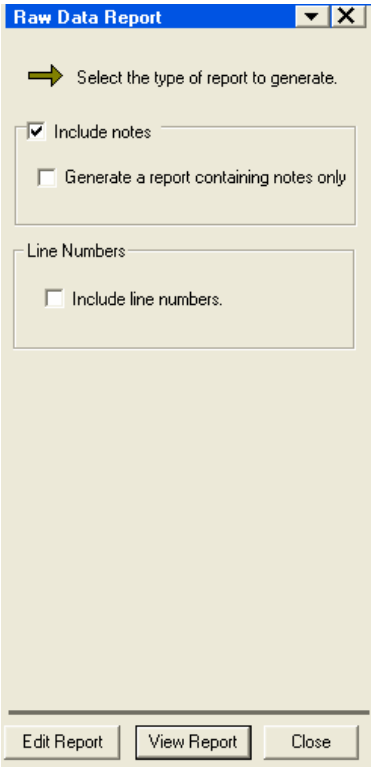
[***View Report***]: opens a read-only report below the Map View.

[***Close***]: closes the dialog bar.

Raw Data Report

Job | Raw Data Report

The ***Raw Data Report*** dialog bar is used to generate a report of all the raw data in the current job.



Include notes: When selected, the note records will be included in the report, otherwise they will be excluded.

Generate a report containing notes only: When selected, only the note records will be included in the report.

Include line numbers: When selected, a separate column of line numbers will be included in the report.

[***Edit Report***]: creates the report in TDSEdit. You can then edit, print, and save it as an RTF or text document.

[***View Report***]: opens a read-only report below the Map View.

[***Close***]: closes the dialog bar.

Cut Sheet Reports

Job | Cut Sheet Report

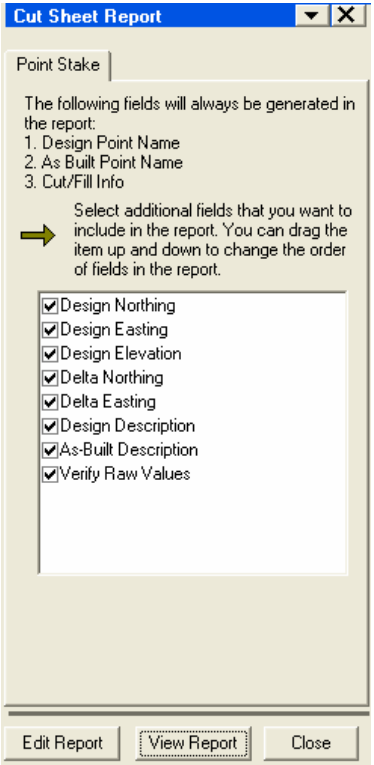
Cut sheet reports are generated from point stake records in the raw data file. The report will automatically have fields for the Design Point Name, As Built Point Name and Cut/Fill Info.

Select the check boxes for the items to be included in the report. The order of the items in the list can be rearranged by dragging them. The items will appear in the report in the order set here.

[***Edit Report***]: creates a cut sheet report as shown below and opens it in TDSEdit where it can be edited and saved.

[***View Report***]: opens a read-only cut sheet report below the Map View.

[***Close***]: closes the dialog bar.



0207stak.JOB March 25, 2003

Point Stake Cut Sheet Report

Design Pt	As Built Pt	Cut(-)/Fill(+)	Design N	Design E	Design El	Delta N	Delta E	Design Desc	As-Built Desc
1413	8797	-175.181255	10290.958100	11212.095800	0.000000	-0.016970	-0.001941	DLAT-71	SETHUB-LAT
1412	8798	-175.574190	10289.911000	11152.105000	0.000000	-0.044253	0.054674	DLAT-72	SETHUB-LAT
1411	8799	-175.503280	10288.863800	11092.114100	0.000000	-0.015171	0.026571	DLAT-72	SETHUB-LAT
1410	8800	-175.544923	10288.689300	11082.115600	0.000000	-0.012504	0.037156	DLAT-73	SETHUB-LAT
1409	8801	-175.364706	10297.189200	10994.694900	0.000000	-0.011723	0.020970	DLAT-74	SETHUB-LAT
1427	8855	-3.604932	10646.481800	11456.796000	170.940000	-0.028240	0.013672	IE10"OUT	SETHUB-TACK
1436	8869	-177.222178	10597.846400	11260.268200	0.000000	-0.042931	0.009095	DLAT-60	SETHUB-LATHE
1437	8870	-176.564403	10598.893500	11320.259100	0.000000	0.015844	-0.017888	DLAT-59	SETHUB-LATHE
1438	8871	-177.183108	10663.500200	11307.568700	0.000000	0.029282	-0.018853	DLAT-58	SETHUB-LATHE

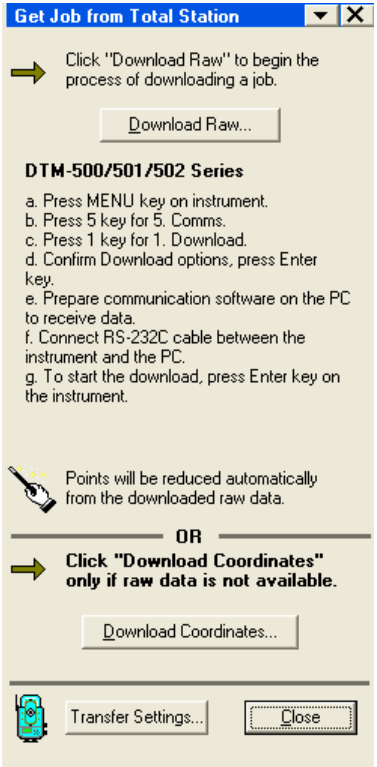
Transfer Menu

The ***Transfer*** menu contains routines to transfer jobs from, or transfer selected data to a variety of Nikon total stations.

Get Job from Total Station

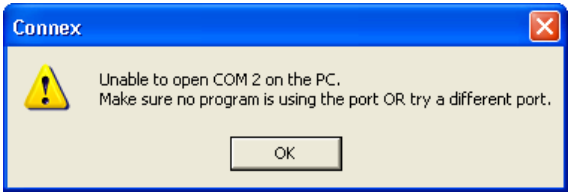
Transfer | Get Job from Total Station...

The ***Get Job from Total Station*** dialog bar is used to transfer the active job from a Nikon total station to a PC. Step-by-step instructions to start the transfer for the selected total station are written within the dialog bar.



[***Download Raw...***]: Opens the ***Receiving From Total Station*** dialog box (Page 64) where you would then start the transfer of a Raw file on the total station. The data will appear in this dialog box once the transfer begins.

[***Download Coordinates...***]: Opens the ***Receiving From Total Station*** dialog box (Page 64) where you would then start the transfer of coordinates from the total station. The data will appear in this dialog box once the transfer begins.



Note: If you get a warning that Connex is unable to open the COM port and you are running ActiveSync, open the *ActiveSync Connection Settings* and un-check the Allow serial cable or infrared connect to this COM port checkbox.

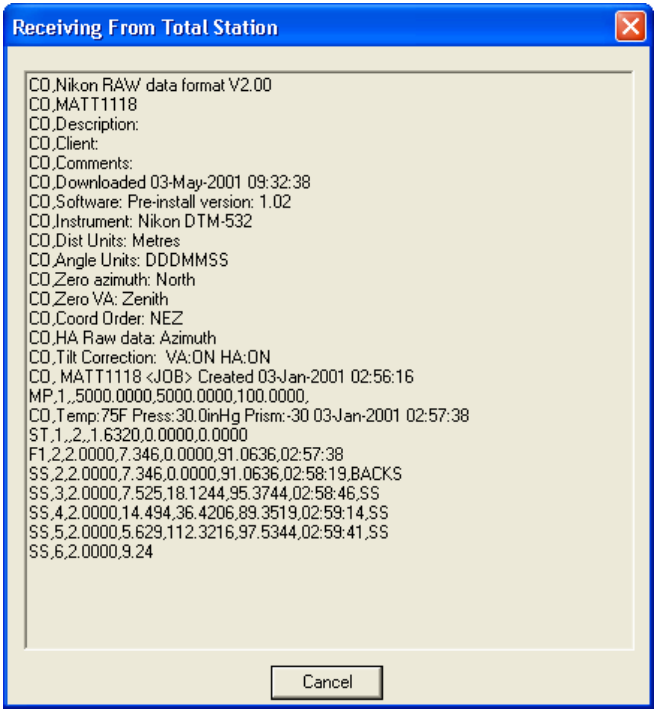
[***Transfer Settings...***]: opens the ***Transfer Preferences*** screen described on Page 24.

[***Close***] closes the dialog bar.

Receiving From Total Station

Transfer | Get Job from Total Station... | [***Download Raw...***] or [***Download Coordinates...***]

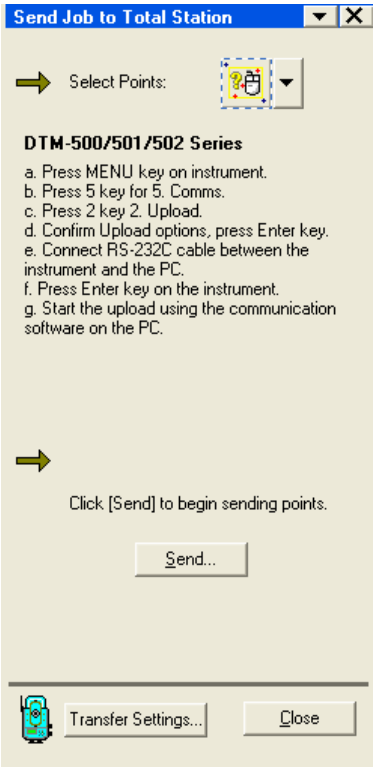
The ***Receiving From Total Station*** dialog box indicates the PC is ready to receive data from a total station. Once the transfer is started on the total station, the received data will scroll within this dialog box. When the transfer is finished, the ***Save Download As*** dialog box will open where you can save the downloaded data to a file. The downloaded data will then become the current job.



Send Job to Total Station

Transfer | Send Job to Total Station...

The ***Send Job to Total Station*** dialog bar is used to send selected coordinates from the current job in Connex to the active job on a total station. Step-by-step instructions to start the transfer for the selected total station are written within the dialog bar.



Select Points: allows you to select the points from the current job to send to the total station.

[***Send...***]: Sends the selected points to the total station. This should only be pressed after you have prepared the total station to receive data.

[***Transfer Settings...***]: opens the ***Transfer Preferences*** screen described on Page 24.

[***Close***] closes the dialog bar.

Transfer Settings

Transfer | Transfer Settings...

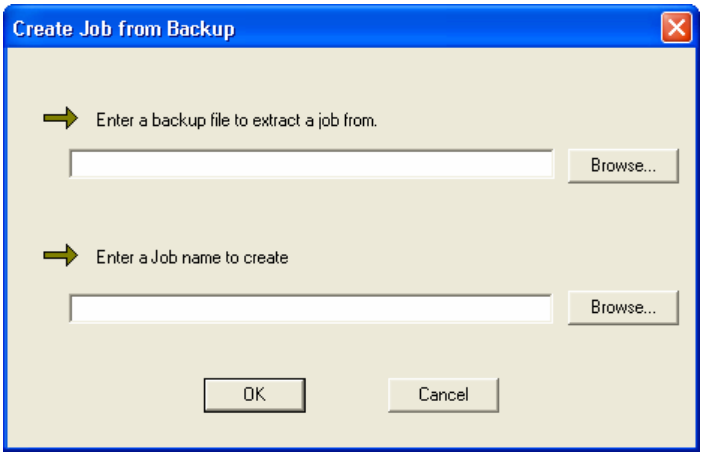
This is a shortcut to the ***Transfer Preferences*** screen described on Page 24.

Tools Menu

Create Job from Backup

Tools | Create Job from Backup

The ***Create Job from Backup*** dialog box is used to extract a job that was backed up when it was downloaded and store it as a new job. (See the ***Backup all total station downloads*** item in the ***General Preferences*** dialog box on Page 27 for more information on creating backups.)



Enter a backup file to extract a job from: Use the corresponding [***Browse***] button to select the desired *.Cxb job backup file.

Enter a Job name to create: Use the corresponding [***Browse***] button to specify the name and location for the new job.

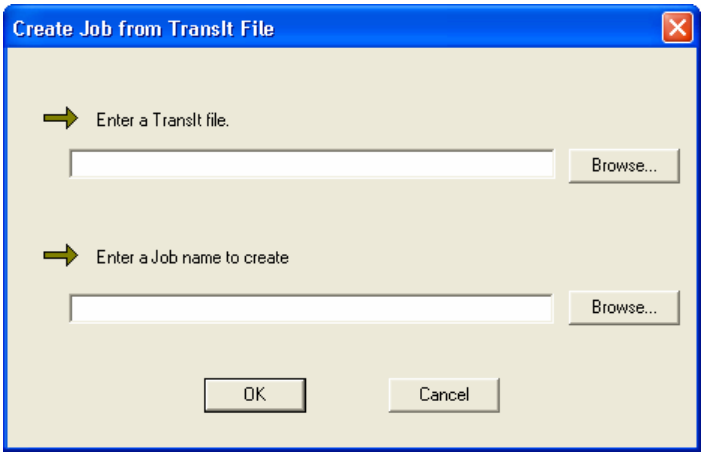
[***OK***]: Creates the new job from the backup.

[***Cancel***]: Closes the dialog box without creating a new job.

Create Job from TransIt File

Tools | Create Job from TransIt File

The ***Create Job from TransIt File*** dialog box is used to extract a job from a TransIt file (*.TRN or RAW extension).



Enter a TransIt file: Use the corresponding [***Browse***] button to select the desired file.

Enter a Job name to create: Use the corresponding [***Browse***] button to specify the name and location for the new job.

[***OK***]: Creates the new job from the TransIt file.

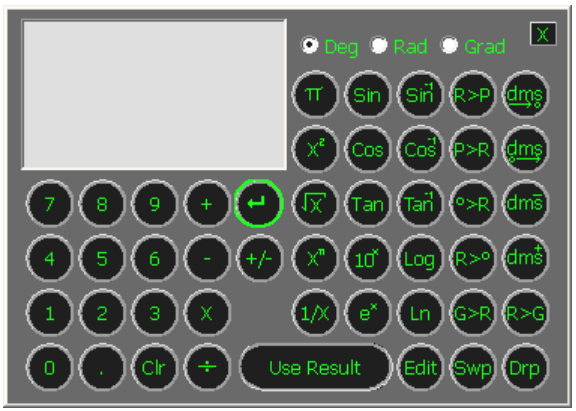
[***Cancel***]: Closes the dialog box without creating a new job.

Scientific Calculator

Tools | Scientific Calculator

The ***Scientific Calculator*** behaves exactly like any other RPN-format calculator. It consists of a stack that can contain any number of values, and buttons that perform various operations. When a value is being entered from the keypad, it is displayed in a special area called the active area. This value is then placed in Level 1 of the stack after tapping the Enter key.

Tapping a button on the display performs the corresponding operation on either the last value in the display, or the last two values, depending on the operation. Each button is explained below where the value in Level 1 is *x* and the value in Level 2 is *y*.



Use Result: pastes the value in *x* to the active field of the dialog box from where the calculator was accessed.

+: Adds *x* and *y*.

×: Multiplies *x* and *y*.

Swp: Swaps positions of *x* and *y* in the stack.

–: Subtracts *y* from *x*.

÷: Divides *y* by *x*.

Drp: Drops (removes) *x* from the stack.

↵: Moves the active value to Level 1 of the stack, or duplicates Level 1 if there is no active value.

±: Changes the sign of *x*.

Clr: Clears the stack.

Edit: Moves the value in Level 1 to the active area where it can be edited.

π: Enters 3.141592654 to the stack.

x^2: Squares *x*.

√x: Square root of *x*.

x^n: Raises y to the power of *x*.

1/x: Inverse of *x*.

Sin: Sine of *x*.

Cos: Cosine of *x*.

Tan: Tangent of *x*.

10^x: Raises 10 to the power of *x*.

e^x: Raises 2.718281828 to the power of *x*.

Sin^{-1}: Arc sine of *x*.

Cos^{-1}: Arc cosine of *x*.

Tan^{-1}: Arc tangent of *x*.

Log: Common logarithm (base 10) of *x*.

Ln: Natural logarithm (base e) of *x*.

R>P: Converts the rectangular coordinates (*y*,*x*) to polar coordinates.

P>R: Converts the polar coordinates (*y*,*x*) to rectangular coordinates.

°>R: Converts *x*, in decimal degrees to radians.

R>°: Converts *x*, in radians to decimal degrees.

G>R: Converts *x*, in Grads to radians.

dms→°: Converts *x*, in degrees.minutes-seconds to decimal degrees.

°→dms: Converts *x* in decimal degrees to degrees.minutes-seconds.

dms –: Subtracts *x* in degrees.minutes-seconds from *y* in degrees.minutes-seconds.

dms +: Adds *x* in degrees.minutes-seconds and *y* in degrees.minutes-seconds.

R>G: Converts *x*, in radians to Grads.

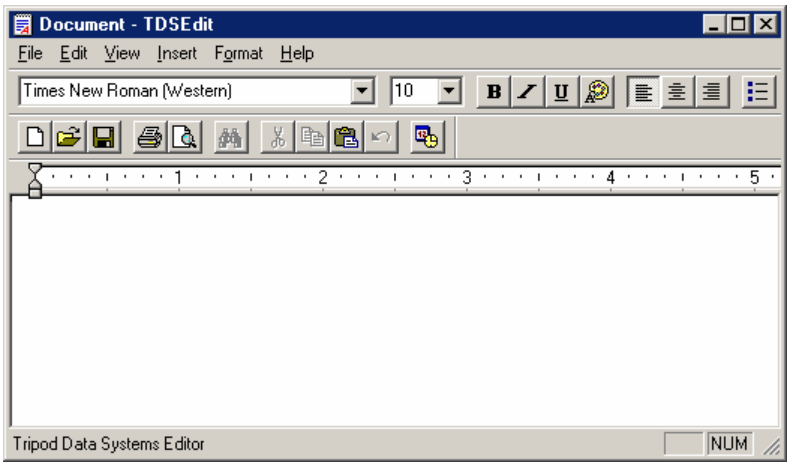
TDSEdit

Tools | TDSEdit...

TDSEdit is a stand-alone basic word processor that can be used to generate and save any type of document when working within Connex.

Whenever a report is generated in Connex, it is opened in TDSEdit, where it can be viewed, modified, and saved.

The usage of a word processor is beyond the scope of this manual.



Help

The ***Help*** menu contains useful information regarding your Connex software.

Getting Started with Connex

Help | Getting Started with Connex

This will launch the Connex Getting Started Manual in the Adobe Acrobat Reader. From here you can print the manual, run a word search, or simply browse the manual for answers to your questions. You must have Adobe Reader 5.0 or higher installed on your machine. Adobe Reader is included on the CD you received from TDS.

View Manual

Help | View Manual

This will open the Connex Reference Manual in the Adobe Acrobat Reader in the same manner as the previously mentioned Connex Getting Started Manual.

Technical Support

Help | Technical Support

This dialog box explains all the options to receive technical support.

[***Close***]: closes the dialog box.

TDS on the Web

Help | TDS on the Web | TDS Homepage

Help | TDS on the Web | Technical Support

Help | TDS on the Web | E-mail Technical Support

The ***TDS on the Web*** option provides shortcuts to TDS' Internet resources. There are links to the TDS technical support page and the TDS home page. There is also is also a shortcut for sending e-mail to the TDS tech support team.

About Connex

Help | About Connex

The ***About*** dialog box contains information regarding the version of your Connex software. This information is important to include when contacting the TDS technical support team. The ***About*** dialog box also contains some copyright and trademark information.

[***OK***]: closes the dialog box.

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