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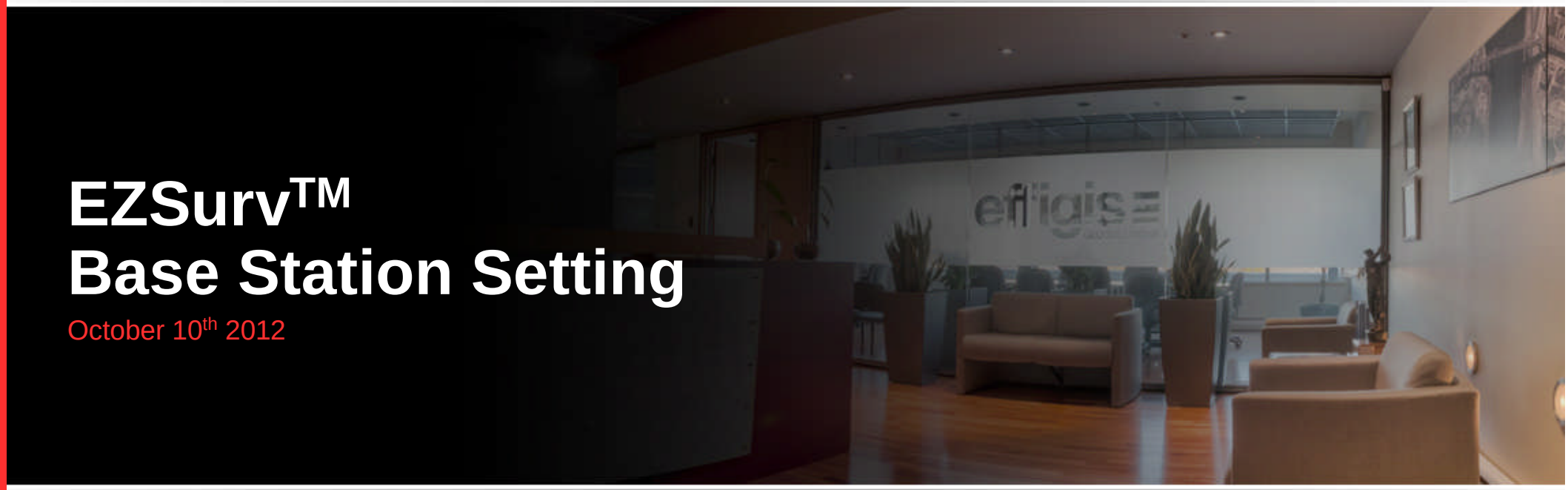

EZSurv™
Base Station Setting

October 10th 2012

2012 - Training documents

What is a Base Station

- *It is a static station, with a known coordinate, that is recording raw GNSS observations (some are also transmitting RTK corrections).*
- Typically, the coordinate of the Base Station has to be errorless. Otherwise all rover positions, computed with respect to this Base Station, will be offset.
- When doing a network of vectors, the concept of Base Station is slightly different since a final network adjustment can correct for small reference error *(by properly fixing reference sites)*

In EZSurv™, the recording data interval can be different at the Base and at the rover

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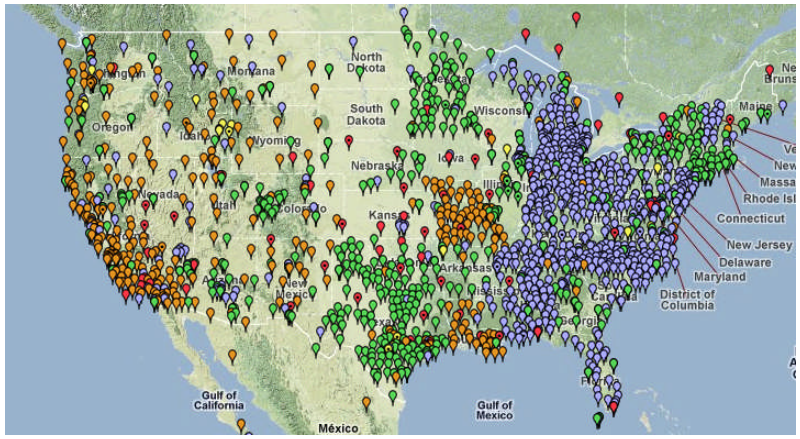
Source of Base Station Data

- ***Private Base Station*** operated by the user on a known marker.

If the user is working in post-processing, the position of the marker could be unknown at the moment of the survey. The position of the marker could be calculated at the post-processing step.



- ***Base Station data as available from different Providers*** all around the world (the CORS network is an example of such a Provider)

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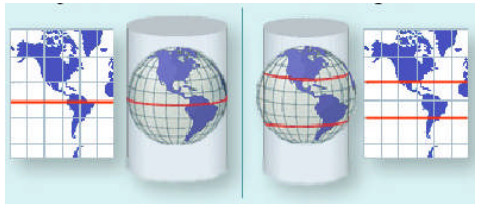
Importing Private Base Station Data

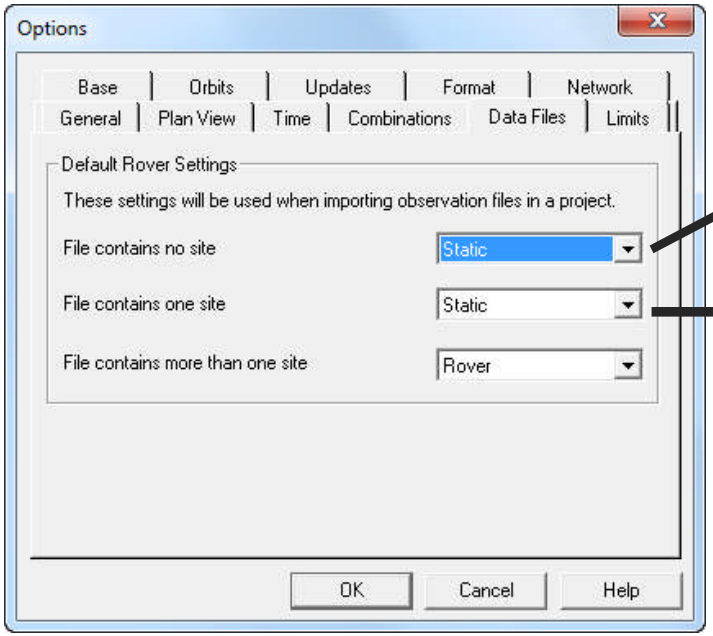
Before importing data from a private Base station, proceed to the following:

- Set your Antenna Model (see Default parameter module)
- Set your Mapping System along with the proper datum (see Mapping System module)
- Set your Geoid model (see Default Parameters module)
- Make sure you have a reliable antenna height from the field



Importing Private Base Station Data

Before importing data from a private Base station, set the file status as follow:



To generate a «Static» file with GNSS observations without any site information (typical raw binary file)

To generate a «Static» file with a GNSS observations file that includes one site occupation (typical RINEX file)

These settings will make sure that your files are imported as static data (if not, this could be changed manually in the Project manager windows)

Importing Private Base Station Data

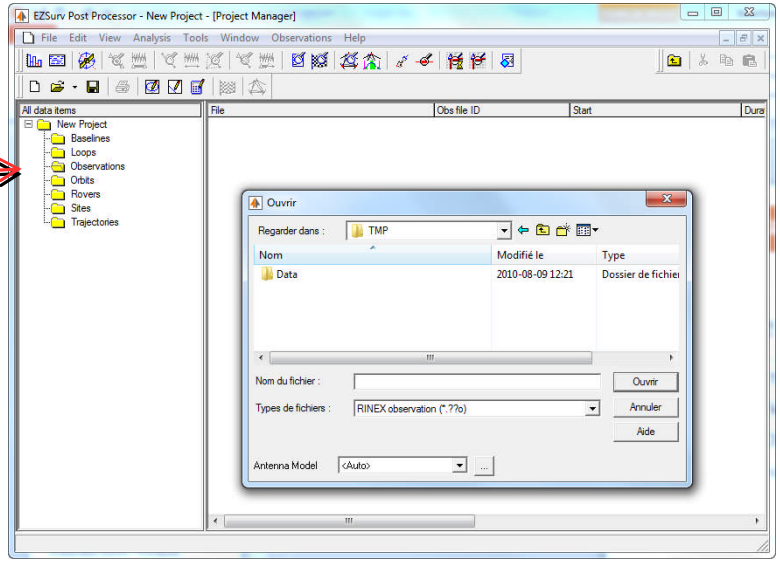
There are two ways to import data files:

Go to View/Project Manager (or F3)

- *Select Observations folder (~~this is the default~~)*
- *Right click and select Import*

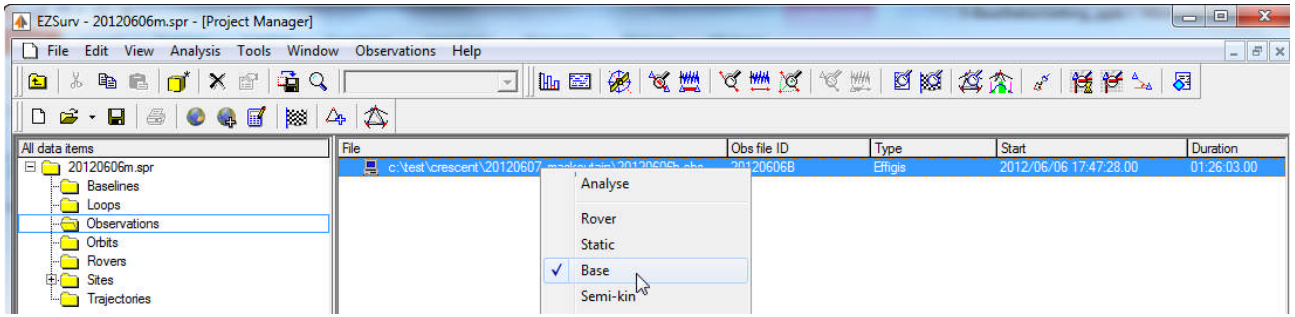
You can also simply «drag and drop» your file in the Observations Folder

When importing RINEX observations file, orbit files are automatically imported



Private Base Station – Settings

After importing your private Base Station data, Go to View/Project Manager (or F3), select your Base Station file in the Observations Folder, right click and set it as «Base»

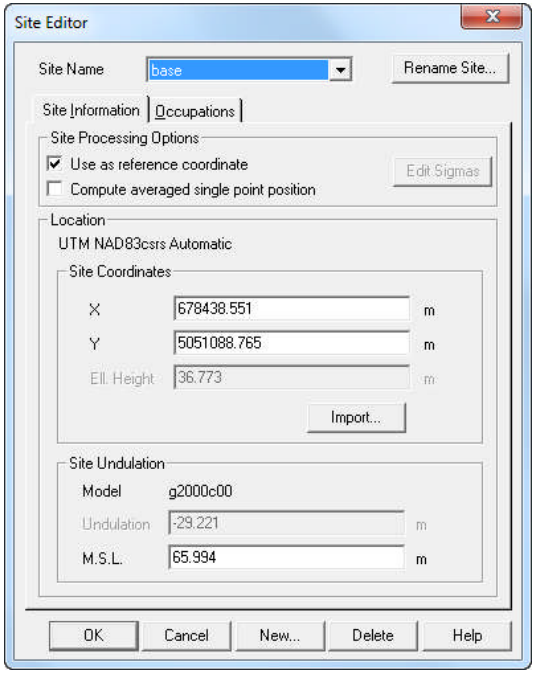


- **Base Status**: Static data file with a know coordinates. Can be used to reference a baseline or a kinematic in differential mode. You cannot calculate a baseline between two Bases.
- **Static Status**: Static data file that are used to compute baseline. You can have «Base-Static» or «Static-Static» baseline combinations

Private Base Station – Coordinates

Go to Edit/Site, and select the site use as Base Station, from there you can:

- If required, change the name of your site *(when using RINEX file, it happens that the file name is used as site name)*;
- Fix its proper coordinate in the predefined mapping system (or import it from the Global Data Base)
- Fix its MSL height (if you are using a geoid) or fix its ellipsoidal height if you are not using a geoid
- In the **Occupation** Tab, you can change the Antenna model if needed as well as the antenna height



Now your private base station is set

Private Base Station – Unknow Position

- If you are not working in RTK but in post-processing, you can setup your base station on a unknown marker and compute its position at the office before processing your kinematic data
- You can compute your marker position using data from a Base Station Provider. That will ensure that your position is in a proper reference system.
- Consult the module **Processing Baselines** to see how to compute a baseline between your marker and a Base from your Provider
- When this calculation is done, in the Observations Folder, simply change the status from «Static» to «Base»

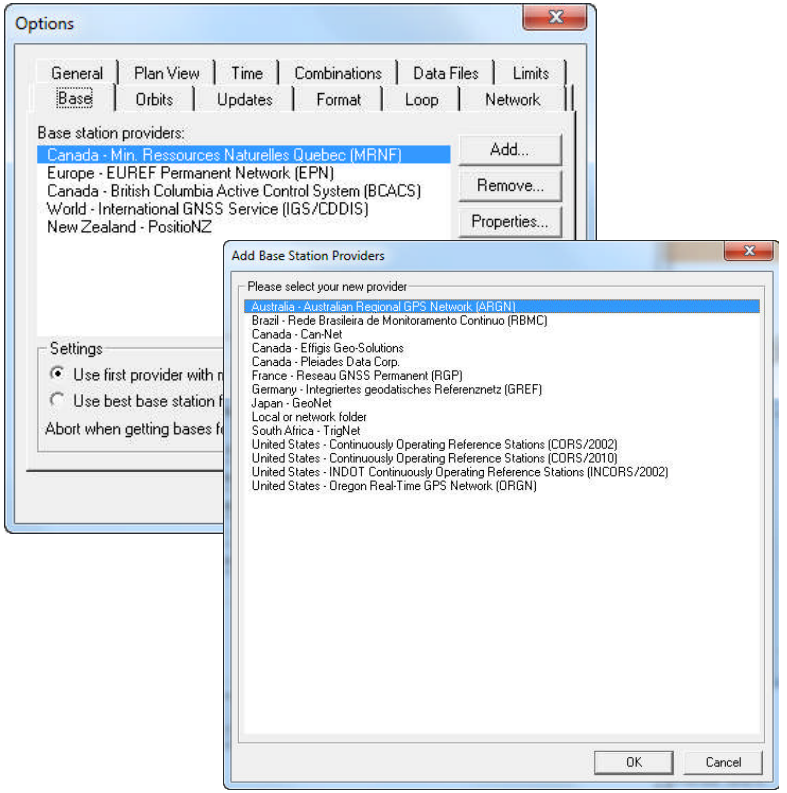
Base Station Providers – An overview

- Base Station Providers are typically managed by government agencies or by private corporation. The first one is usually free of charge whereas the second one usually require an annual subscription *(then it requires username and password).*
- Base Station data are usually maintained on an FTP server
- Data files are managed as hourly or daily files
- Data rates are typically ranging from 1-second to 30-second interval *(this is not an issue since EZSurv™ interpolates the data)*
- If the required Base Station provider is not available in the post-processor, just contact us, we will make it available *(we do not have to release a new version to do this)*

Base Station Providers – Setting

- The Providers setting is done through Tools/Option and Base Tab
- Use the «Add» button to add your base station provider
- If it is a commercial network, you will be prompt to input a username and password *(you get them from your provider manager)*
- You can get the provider properties by clicking on the «Properties» button *(list of stations and coordinates)*

Your Base Station provider is now set



Base Station Providers – General considerations

- It is up to the user to make sure the Providers is operational
- If the field job is not located within the range set in **Tools/Option** Combination Tab *(Maximum distance to match Base Station)*, the processor will not find any Base Station data.
- If the user try to process its data too quickly *(ex.:hourly, or daily Base Station files are not yet available),* the processor will not find any Base Station data.
- The Post-processor will associate a proper antenna model to the data set if the model is properly described in the Rinex file and if the model is in the NGS list *(the antenna height is also extracted from the RINEX file).*
- Base Station data availability can be monitored using the GNSS Analyser

Base Station in short

- If you are using a ***private Base Station*** (using always the same receiver), the only setting to do at every single process will be fixing the Base coordinate and its antenna height *(mapping system, geoid and antenna model are set only once)*
- When you are working with ***Base Station Providers***, the settings is done only once (assuming that you are working in the same area/country). This make all your processing much more easier.
- Referencing your survey is then a very easy task in EZSurv™


IF YOU HAVE ANY QUESTION PLEASE CONTACT US
onpozsupport@effigis.com