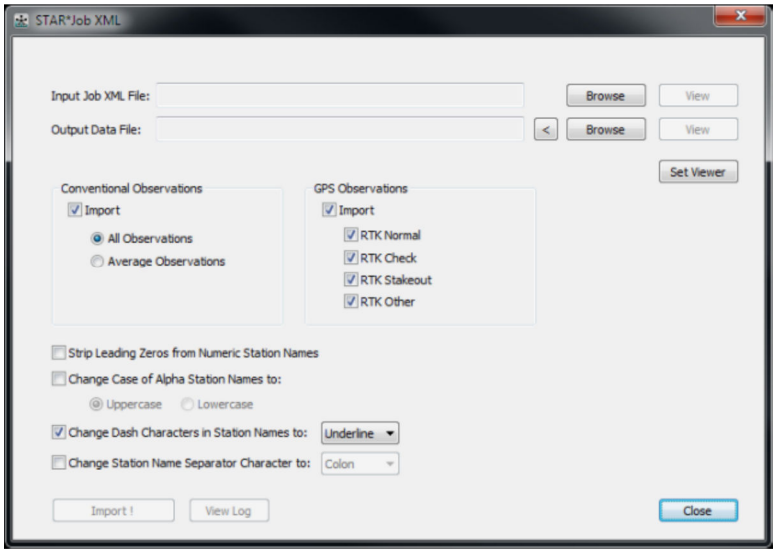
# STAR*NET CONVERSION UTILTIES

## STAR*JOBXML CONVERSION UTILITY

STAR*JobXML converts Trimble JobXML “jxl” data files to STAR*NET input data format.




Running the program is easy. First browse for the JobXML file to convert, then browse for an output file (a new or existing file), set desired options and press the “Import” button. If errors or warnings are found, they are listed in a Log file - review by pressing “View Log” button. When errors are found, data will not be created in the output file. In this case, review the errors listed in the Log File, edit the raw file to make necessary corrections and re-import. The end of the Log file will list any converted data up to the first error, which may be helpful in finding problems.

When browsing for the output file, you can press one of two buttons. The standard “Browse” button opens the output file dialog in the same directory as the raw field file and offers the same file name as the raw field file, but with a “dat” extension. Of course you can modify the offered name to whatever you wish. The smaller “<” button opens the output file dialog in the same directory already shown in the field to the left – useful when you’ve stored output in a different directory during the previous run, and you want to output to that directory again.

A “View” button, next to each of the input and output file fields, brings up an editor. So besides viewing a file, you can also edit it. By default, the editor assigned is Windows “Notepad,” but just as in the STAR*NET program, you can set an editor of your choice by pressing the “Set Viewer” button and browsing for the editor program you prefer.

### Selecting Processing Options

- Import Conventional Observations - Enable or disable the collection of conventional observations from the JobXML file into STAR*NET direction sets.
  - All Observations - All individual observations are collected from the JobXML file.
  - Average Observations - All meaned observations are collected from the JobXML file.
- Import GPS Data - Enable or disable the collection of GPS observations from the JobXML file into STAR*NET vector data.
  - RTK Normal - All GPS RTK shots with Classification "Normal" are collected.
  - RTK Check - All GPS RTK shots with Classification "Check" are collected.
  - RTK Stakeout - All GPS RTK shots with Classification "Stakeout" are collected.
  - RTK Other - All GPS RTK shots are with any other Classification value besides Normal, Check, Stakeout are collected.
- Strip Leading Zeros from Numeric Station Names – This option is in the GPS Importer utility in STAR*NET-PRO and is included in this utility for compatibility since the Trimble devices can collect both GPS vectors and conventional observations. You would obviously want to use the same options for importing both vectors and conventional.
- Change Case of Alpha Station Names to – This option, as with the one above, is in the GPS Importer utility in STAR*NET-PRO and is included in this utility for compatibility.
- Change Dash Characters in Station Names to – This option, as with the one above, is in the GPS Importer utility in STAR*NET-PRO and is included in this utility for compatibility.
- Change Dash Station Separator Character to – By default, the dash is used for station name separators (i.e. 121-120-122). If some of your station names already contain dashes and you wish to keep them, this option allows you to change the separator to some other character.
- Angle Data Station Order – This is simply an output preference. Some surveyors prefer to see angular observations shown as At-From-To, others as From-At-To.

### Notes on Input and Output

The program assumes that JobXML files have a “jxl” extension. If you have a JobXML file with a different extension, choose “All Files (*.*)” from the “File of type” field in the file selection dialog and then select the file you wish to convert from the complete list.

Manually entered coordinates are copied to the data file as comments, lines beginning with a “#” character. To use one of these points in STAR*NET data, uncomment the data line and edit-in the appropriate fixity codes. Example: C 25 10000.000 10000.000 500.000 ! ! !

The output data file created by this routine can be moved (using Windows Explorer) into your project directory for use by STAR*NET. The entire data file can be added to the project using the “Input Data Files” dialog (see the STAR*NET manual), or using a text editor you can copy and paste parts of the file contents into a data file that already exists as part of your STAR*NET project.

All fields and option settings shown on the STAR*JobXML dialog are stored in the registry when you close the program and are restored the next time you run the program.

The “Log File” is an important file that is created during a run. It lists any errors and warnings produced during the run and references actual line numbers in the field file. The log file has the same name as the input field file but with a “log” extension and it is always created in the same directory as the input file. Review it by pressing the “View Log” button.

### Notes on JobXML Data

The JobXML file is a plain-text, human-readable XML file that can be viewed with any text editor (Notepad, etc) or XML viewer (Internet Explorer, etc). All of the JobXML data is stored within one <JOBFile /> element, which is itself broken up into its three primary <FieldBook />, <Reductions />, and <Environment /> elements which are parsed for various data.

Manually entered coordinates are found by parsing the <Reductions /> section of the JobXML file for any <Point /> elements containing <SurveyMethod>KeyedIn</SurveyMethod>. Any Point elements without a SurveyMethod or with a SurveyMethod other than KeyedIn will be skipped. These KeyedIn coordinates are copied to the data file as commented #C records.

All conventional observations are found by parsing the <FieldBook /> section of the JobXML file for any <PointRecord /> elements containing valid <Circle /> and <MTA /> data, depending on the option to use All Observations or Averaged Observations. Terrestrial observations may be found in a PointRecord with various <Method /> values including AngleOnly, HorizontalAngleOnly, DirectReading, AverageMeasurements, AngleOffset, HorizontalAngleOffset, VerticalAngleOffset, DistanceOffset, DualPrismOffset, CircularObject, RemoteObject, or MeanTurnedAngle. Some of these data types have not yet been encountered during development and testing of this utility so please check all conversions and notify MicroSurvey Software Inc. if you have any problems.

All distance values are stored internally in the JobXML file in meters, but will be scaled and output as either meters, international feet, or US survey feet based on parsing the <FieldBook /> section of the JobXML file for a <UnitsRecord /> element which contains <DistanceUnit /> and <HeightUnit /> child elements. If there are multiple UnitsRecord elements in the file, the last one will "win" and all others will have no effect. If the DistanceUnit and HeightUnit values differ, the DistanceUnit will "win" and a warning message will be generated and written to the log file.

All raw terrestrial observations are stored internally in the JobXML file with no corrections applied to them. Atmospheric corrections and prism constants are parsed separately and applied to the exported EDM distances. Curvature and refraction corrections are not applied to the exported data, as they will be applied by STAR*NET itself during adjustment.

All GPS vectors are found by parsing the <FieldBook /> section of the JobXML file for any <PointRecord /> elements containing a valid <ECEFDeltas /> element. ECEFDeltas may be found in a PointRecord with various <Method /> values including GpsStaticObservation, GpsRtkControlPoint, GpsRtkQuickMark, GpsCalibrationPoint, GpsContinuousDistancePoint, GpsContinuousTimePoint, or GpsContinuousDistanceAndTimePoint, all with a <SurveyMethod /> value of Fix. The four Import checkboxes on the dialog allow some filtering based on the PointRecord's <Classification /> element, with provisions defined for Classification values of Normal, Check, and Stakeout. GPS vectors with any other Classification value can be filtered via the "RTK Other" checkbox, thus allowing this utility to handle any valid Classification types not yet encountered during development and testing of this utility, as well as any Classification values that Trimble may add to the JobXML schema in the future.

Any points or observations which contain a <Deleted>true</Deleted> element will not be converted to STAR*NET data.

### Example Input Field File

The following is a snippet from the start of a sample JobXML file. All data has been removed, due to the large number of lines necessary for even a very simple example. Please refer to your Trimble documentation for more details on the JobXML format.

```
<?xml version="1.0" encoding="UTF-8"?>
<JOBFile jobName="Test" version="5.2" product="Trimble Survey Controller" productVersion="12.42" productDBVersion="1240-59" TimeStamp="2009-07-21T10:50:
         xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xsi:schemaLocation="http://www.trimble.com/schema/JobXML/5_2 http://www.trimble.com/schema/JobXML/5_2/JobXMLSchema-5.2.xsd">

    <FieldBook>

        <!--
        # This section is parsed to find any conventional and/or GPS data.
        # Leveling data is not currently supported by this utility.
        -->

    </FieldBook>

    <Reductions>

        <!--
        # This section is parsed to find any manually entered coordinates, like:
        -->

        <Point>
            <ID>00000001</ID>
            <Name>1</Name>
            <Code>HUB</Code>
            <SurveyMethod>KeyedIn</SurveyMethod>
            <Classification>Normal</Classification>
            <Grid>
                <North>1000</North>
                <East>1000</East>
                <Elevation>100</Elevation>
            </Grid>
        </Point>

    </Reductions>

    <Environment>

        <!--
        # This section is not parsed.
        -->

    </Environment>

</JobFile>
```