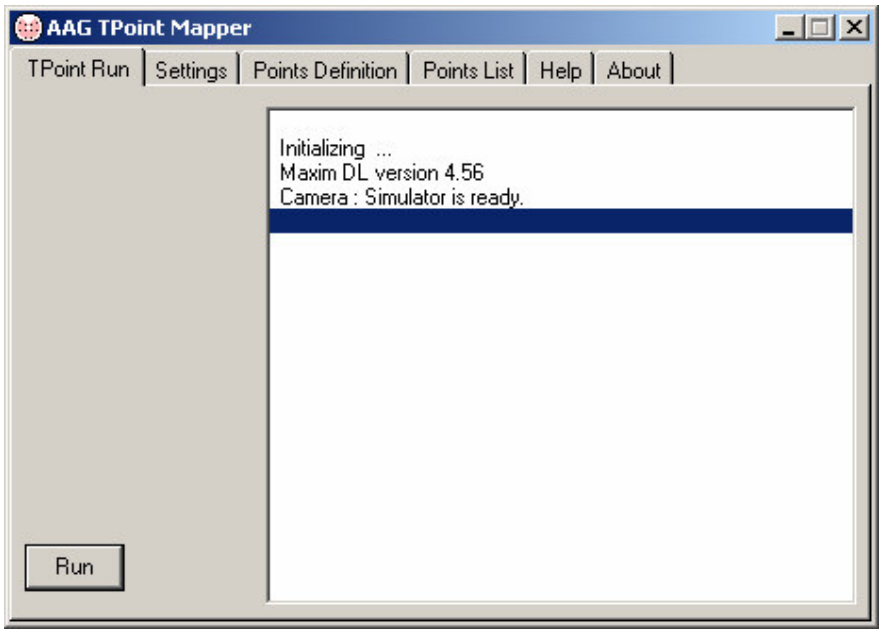
AAG TPoint Mapper
(Version 1.40)

AAG_TPointMapper works together with Maxim DL, Pinpoint, TheSky6 and TPoint to automate the process of building a TPoint model for a GOTO telescope connected to TheSky6.

A TPoint model is built by recording the coordinates reported by the telescope and the exact coordinates of the position to where it is pointing, for a large number of points spread arbitrarily over the sky.

After building a model, TPoint and TheSky6 work together to improve the telescope's pointing accuracy.

Note: One should read the TPoint manual to be able to improve the model by adjusting its mathematical terms.



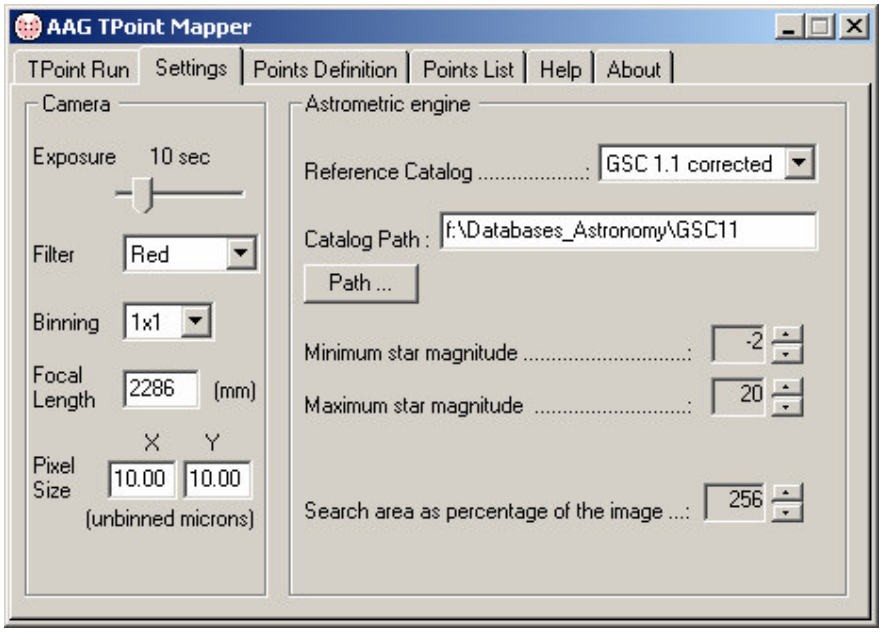
Initial screen - TPoint Run TAB

The following should be checked before running the software:

- The correct camera is selected in Maxim DL and is turned ON;
- The correct telescope is selected in TheSky6 and it has been initialized;
- A TPoint model is available in TheSky6. Note that, if a new model is used in TheSky6, the telescope should be synchronized over a known star;

When running the software for the first time, the Camera and Pinpoint engine parameters should be verified and correctly set under the Settings TAB.

Settings TAB



Settings TAB

The Camera parameters **Exposure**, **Filter** and **Binning** parameters are used by Maxim DL to obtain sky images.

Note:

- shorter exposures time and higher binning will decrease the total image acquisition time;
- a clear filter (or no filter) will improve the image signal;
- these parameters may be adjusted while the model is being built;
- the image quality must be sufficiently good for Pinpoint to be able to calculate its center's coordinates;

Focal Length (mm) corresponds to that of the telescope setup being used.

Pixel Size (microns) corresponds to the physical dimensions of the CCD pixels.

The program uses the Pinpoint Astrometric Engine to calculate the exact coordinates of the image center.

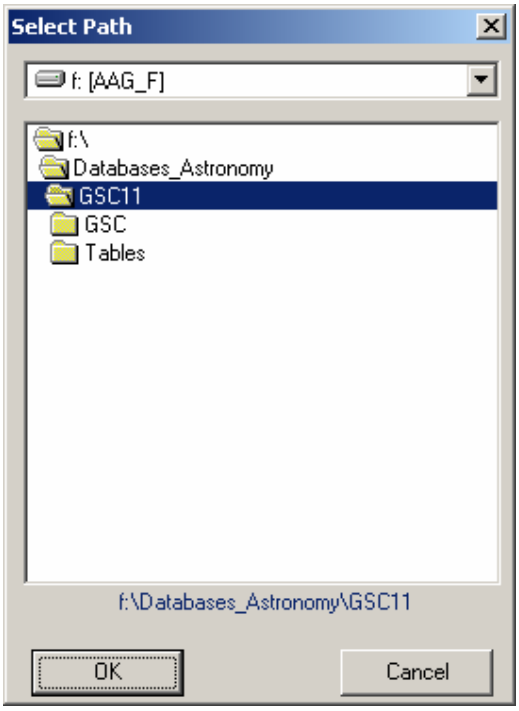
Note: The Pinpoint full version must be installed seeing that the version LE automatically installed with Maxim DL, is limited in its capabilities.

The full version can be obtained from http://pinpoint.dc3.com/ and it is distributed as a shareware program with full capabilities for a 60 day trial period.

Reference catalog to be used must be defined as well as the directory containing the respective catalog files.

Note: The GSC v1.1 (corrected) catalog usually produces faster results. It can be obtained via internet from http://gsc.dc3.com/ .

Catalog path may be entered directly in the respective field or, alternatively, through the button **Path** which will display the ***Select Path*** window to choose the directory:



Select Path window

The default values for the star magnitudes correspond to the largest range available in Pinpoint, i.e. from -2 to 20.

The default **Search Area** corresponds to the image area increased by a surrounding border corresponding to 30% of the image dimensions as illustrated below. This border dimensions can go up to a maximum of 80% of the image dimensions yielding a search area corresponding to 676% of the image area.

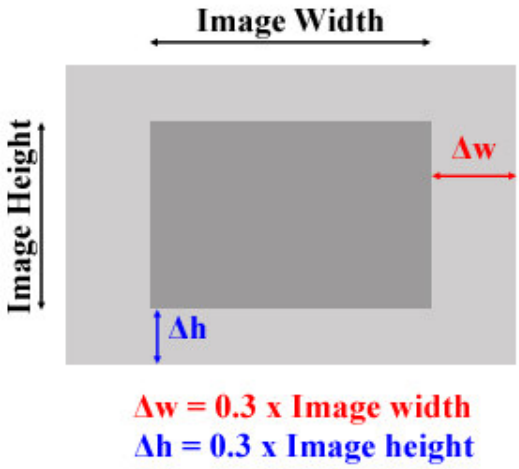
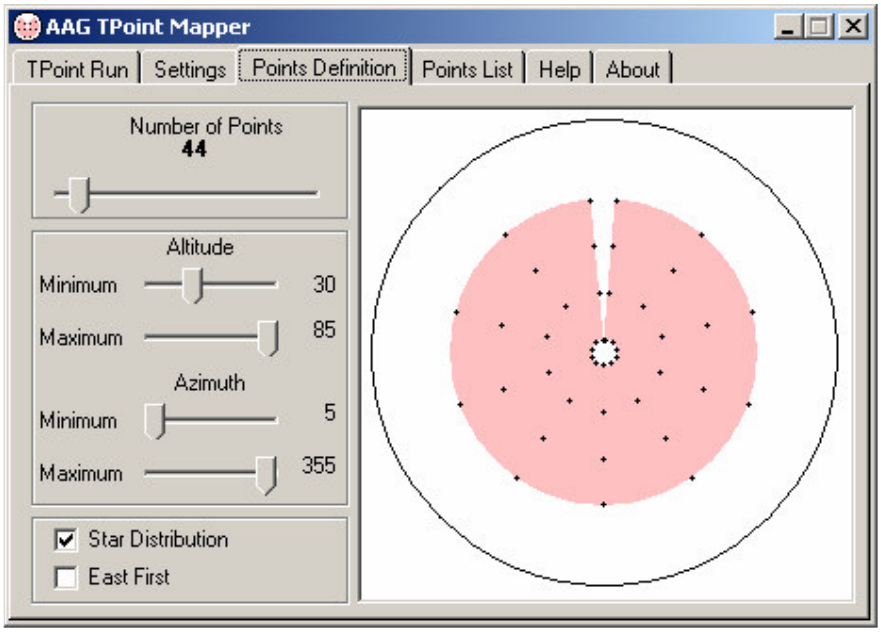


Diagram illustrating the Pinpoint Search Area (light gray area)

Points Definition TAB



Points Definition Screen

Points Definition TAB is used to define the set of points to build the TPoint model.

The **Number of Points** are spread over a region (highlighted in pink) delimited by

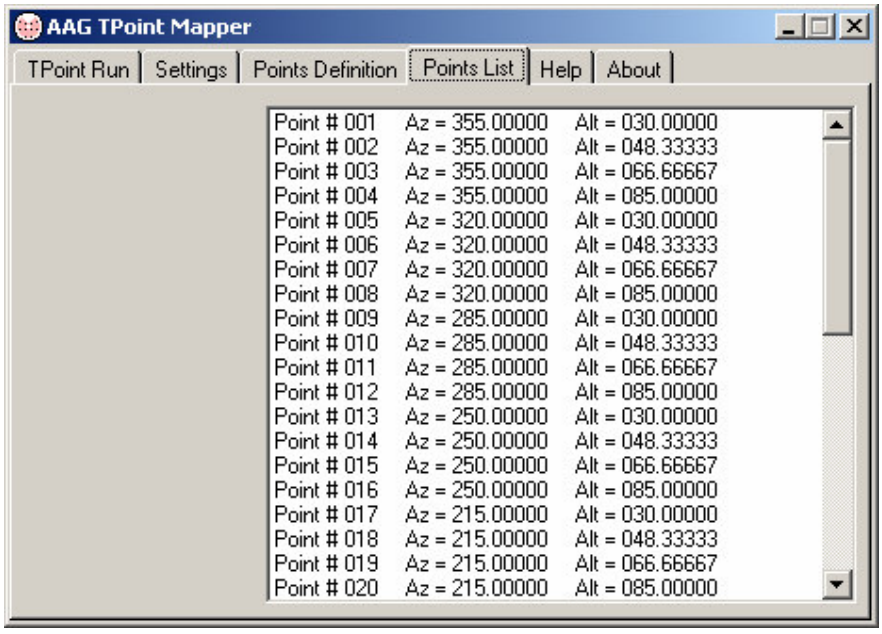
- **Minimum** and **Maximum Altitudes**
- **Minimum** and **Maximum Azimuths**

The **Star Distribution** option forces the points to be spread over lines of equal azimuth producing a radial star pattern. The distribution is based on the fact that the angular separation between adjacent points is identical in altitude and in azimuth.

When not checked, the distribution is based on the criteria that the arc separation (i.e. distance) between adjacent points is identical in altitude and in azimuth.

When **East First** option is checked, the telescope moves from East to West in azimuth, after mapping points of identical azimuth. Otherwise, the telescope will move from West to East, after mapping points of identical azimuth.

Points List TAB



Points List Screen

The Points List TAB simply displays the full set of points arranged in order of execution.

Note that all the parameters are recorded in the file **AAG_TPointMapper.dat** in the directory where the AAG_TPointMapper.exe file is installed and they will become the default values in the subsequent use of the program.

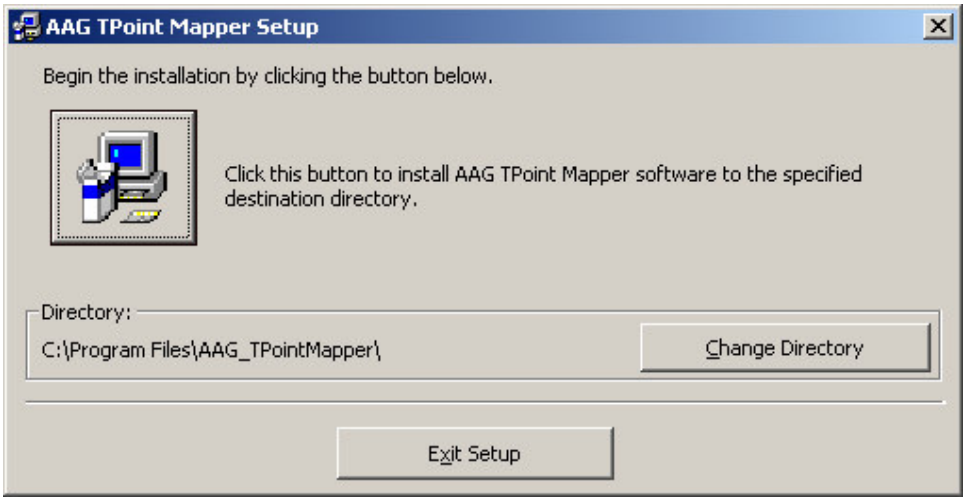
The positions of the different program windows are also recorded in this file.

The **AAG_TPointMapper.dat** file can be deleted to reset the default values to those present after the program is installed for the first time.

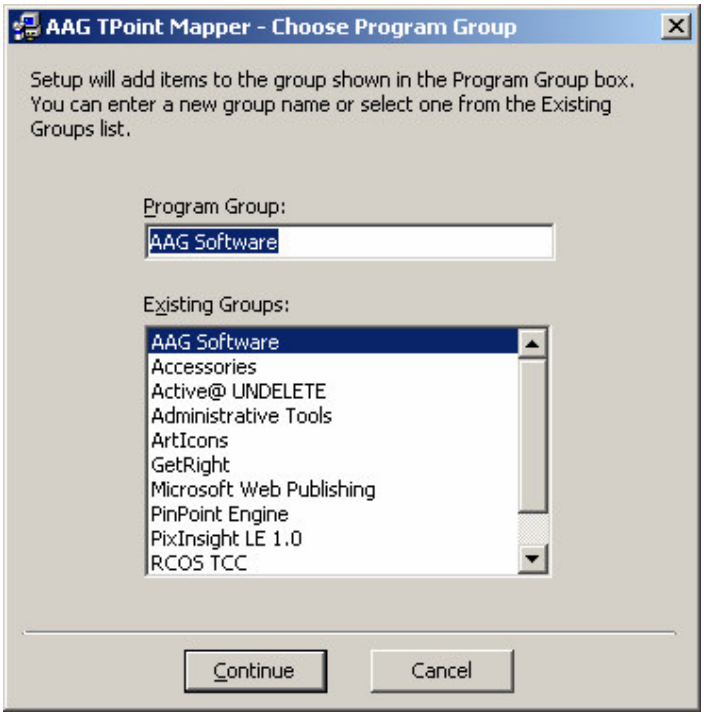
Setup procedure

Run *Setup.exe*

Welcome screen



The default directory where the files will be installed, is
c:\Program Files\AAG_TPointMapper



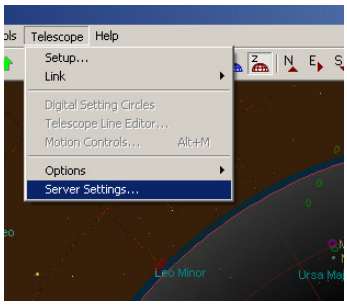
The default program group

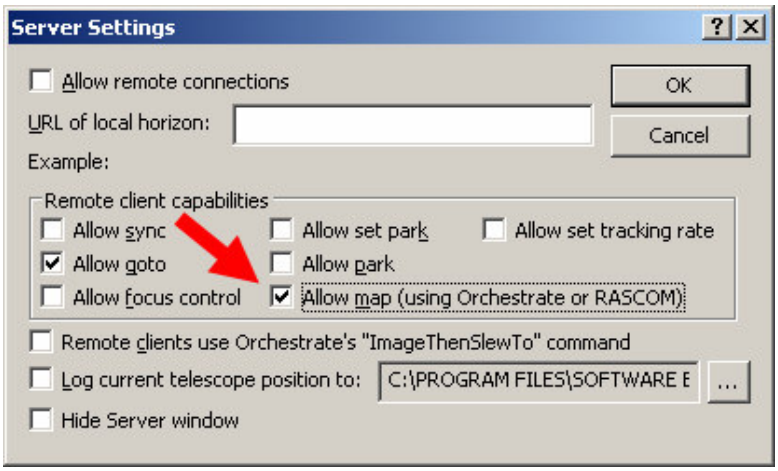
After installation, two new menu options will be available under *AAG Software* in the *Start* / *Programs* menu:

- *AAG_TPointMapper Information*
- *AAG_TPointMapper*

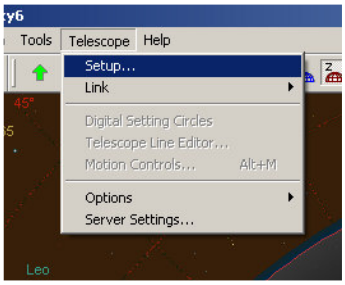
Essential Settings of TheSky6

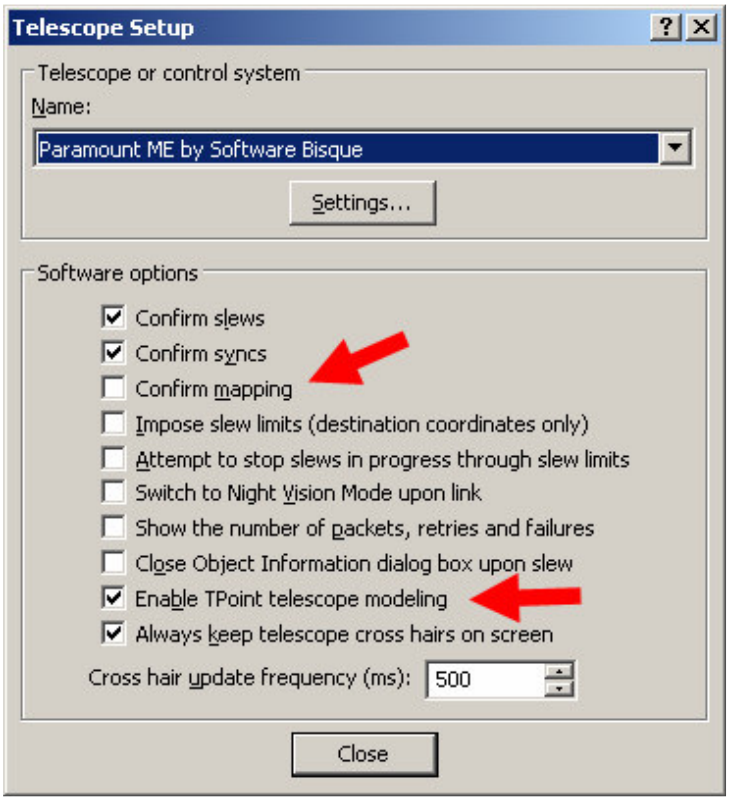
Under menu *Telescope / Server Settings …* option *Allow map (using Orchestrate or RASCOM)* must be checked.





Under menu option *Telescope / Setup …* option *Enable TPoint telescope modeling* must be checked and option *Confirm mapping* must be unchecked.





Under menu option *Edit / Insert New Object … Create New TPoint Model.*