

GISEYE Map Projection ActiveX Control

GISEYE Map Projection ActiveX is the stand-alone ActiveX component to set up user-defined map projection parameters or to select it from the list, representing over 2000 standard map projections.

GISEYE Map Projection ActiveX has a user-friendly program interface enabling to specify a projection as PROJ4 or WKT line. Also GISEYE Map Projection ActiveX includes Cartographic projection library, enabling the user to recalculate coordinates from one map projection into another. This Active X component can be used for creation of software in a variety of environments based on different programming languages, including the possibility to integrate into Web-pages.

System requirements

- Microsoft Windows 2000/XP/Vista or higher
- Intel Pentium-III processor or higher
- 128Mb of RAM
- Displaymode 640x480 TrueColor

Software GUI description

Graphical interface of GISEYE MapProj ActiveX component (fig. 1,2,3) consists of a list of projection parameters, which number and type can be changed depending on mapprojection. A toggle button is located on top of the list allowing the user to change the projection parameters display type.

The figure displays three screenshots of the GISEYE Map Projection ActiveX control interface, showing different display modes for projection parameters.

Map Projection Parameters (List)

Coord.Sys.	User Defined
Projection	Universal Transverse Mercator (UTM)
Zone	Zone 31
Hemisphere	North
Ellipsoid	Andrae 1876 (Den., Iceland.)
Datum	User Defined
Shift in meters (x,y,z)	-58.0 0.0 -44.0
Semi major axis (meters)	6377104.4299999997
Semi minor axis (meters)	6355847.4152300004

Map Projection Parameters (PROJ4)

```
+proj=utm
+ellps=andrae
+towgs84=-58.00,0.00,-44.00,0.0,0.0
+zone=31
+units=m
```

Map Projection Parameters (WKT)

```
PROJCS["UTM Zone 31, Northern Hemisphere",
GEOGCS["Andrae 1876 (Den., Iceland.)",
DATUM["unknown",
SPHEROID["andrae",6377104.43,300],
TOWGS84[-58.0,-44.0,0.0,0.0],
PRIMEM["Greenwich",0],
UNIT["degree",0.0174532925199433]],
PROJECTION["Transverse_Mercator"],
PARAMETER["latitude_of_origin",0],
PARAMETER["central_meridian",3],
PARAMETER["scale_factor",0.9996],
PARAMETER["false_easting",500000],
PARAMETER["false_northing",0],
UNIT["Meter",1]]
```

Map projection parameters names are located in the left part of the control with their fields colored in dark grey and unavailable for the user to edit. To the right of the name of each parameter there is a field containing its value. Depending on the projection the parameter value field can be marked editable

(white background color) or uneditable (dark background color). In the latter case these parameters are only for reference.

Use «Up» and «Down» keyboard arrows to move through the list of parameters for editing. The name of the active parameter will be highlighted. Uneditable parameter cannot become active. Any available map projection parameter can be activated by clicking with left mouse button on the field with the parameter name or on its field for editing.

Parameters, describing map projection, can be separated into several groups. The first group covers parameters that can take on a limited set of fixed values. Such parameters' values can be changed using the drop-down list that becomes available for the user when the parameter is active. For example, the coordinate system parameter – Coord. Sys.

The second group of parameters covers real type parameters. When this parameter is active, its field for editing becomes valid and one may use mouse or “left-right” arrow buttons to browse. For example – False Easting (meters).

The third group of parameters is the one containing the latitude or longitude values. The user has two options for editing and displaying this type of parameters – to edit the parameter as a floating point number (degree), or as represented in degrees, minutes and seconds. Toggling between the parameters types is done with the button, located on the right of the parameter field. The toggle button becomes available to the user when this parameter is active. When other projection parameter is active or when the entire control element is out of focus, the button disappears and the data is displayed in the latest format selected. An example of such a parameter is Origin Latitude.

Depending on the type of the user-defined map projection and ellipsoid, the number of displayed parameters can be changed, as well as the number of parameters available for editing by the user. The upper part of the control element has a header in form of a button, describing the current geo-projection presentation format. Use left mouse button on the header to change the type of projection parameters presentation. The user may preview map projection parameters in three presentation formats: as a list of parameters (described above), as WKT (Well Known Text) line and as PROJ4 line. Map projection parameters can be edited by the user only in the list mode.

Not all the lists with parameters, describing map projections (e.g. if the user specifies his own non-standard projections) can be associated with WKT or PROJ4 line. In such cases the user will see blank control element in WKT or PROJ4 display modes.