

## Application: gvSIG desktop - gvSIG bugs #2596

### Problema con la proyección EPSG:21781

06/26/2014 07:21 AM - Francisco Díaz Carsí

<b>Status:</b>	Closed	<b>% Done:</b>	100%
<b>Priority:</b>	Normal	<b>Spent time:</b>	0.00 hour
<b>Assignee:</b>	Joaquín del Cerro Murciano		
<b>Category:</b>	CRS		
<b>Target version:</b>	2.1.0-2248-testing		
<b>Severity:</b>	Minor	<b>Add-on version:</b>	
<b>gvSIG version:</b>	2.1.0	<b>Add-on build:</b>	
<b>gvSIG build:</b>	2239	<b>Add-on resolve version:</b>	
<b>Operative System:</b>		<b>Add-on resolve build:</b>	
<b>Keywords:</b>		<b>Proyecto:</b>	
<b>Has patch:</b>	Yes	<b>Hito:</b>	
<b>Add-on name:</b>	Unknown		

#### Description

Algún problema hay con la definición o con el tratamiento que hacemos de la proyección EPSG:21781 porque gvSIG no es capaz de manejarla.

Ejemplos:

- Si creamos una vista y le decimos que utilice esa proyección muestra un warning en pantalla (lo adjunto) que muestra una excepción:

```
java.lang.Exception: In proj4 projection 'Oblique_Mercator' not allow azimuth close to 90.
```

No adjunto el log porque no aparece nada en él al respecto.

- Si creamos una vista en 4326 y cargamos una capa en esa proyección, no es capaz de crear la transformación. Adjunto log con la misma excepción que esta vez sí lo recoge.

#### Related issues:

Related to Application: gvSIG desktop - gvSIG bugs # 2371: WMS - Can't get pr...	<b>Won't fix</b>	<b>02/24/2014</b>
Related to Application: gvSIG desktop - gvSIG feature requests # 2306: Update...	<b>Closed</b>	<b>02/08/2014</b>
Duplicates Application: gvSIG desktop - gvSIG bugs # 2813: Swiss Oblique Merc...	<b>Closed</b>	<b>09/15/2014</b>

#### History

##### #1 - 06/26/2014 07:30 AM - Francisco Díaz Carsí

He comparado el INSERT que hacemos en la base de datos en el script y no he encontrado diferencias con los datos definidos en <http://spatialreference.org/ref/epsg/ch1903-lv03/>

##### #2 - 06/26/2014 10:42 AM - Antonio Falciano

Exploring the INSERT statements in `gvSIG\plugins\org.gvsig.projection.app.jcrs\db\EPSG.sql` it seems that we are working with the version **6.14 (2007)** of EPSG Geodetic Parameter Registry, instead of **8.4.1 (2014)** (<http://www.epsg-registry.org/>):

```
(41,'2007-09-02','6.14','Version 6.14 release.',",','6.13')
```

That's why we have several open tickets on CRSs and their transformations (#1371, #2306, #2389, #2455 and #2596).

**#3 - 06/27/2014 03:48 AM - Francisco Díaz Carsí**

- Related to gvSIG bugs #2371: WMS - Can't get proj4 string error added

**#4 - 06/28/2014 04:34 PM - Antonio Falciano**

I can confirm this issue. It's not possible to assign EPSG:21781 to a view. It happens with the latest version of EPSG Registry too (#2306). Although, the warning message is different:

```
java.lang.Exception: The projection'Hotine_Oblique_Mercator_(variant_B)' is not a proj4 projection.
```

And again there's not trace of this issue in the gvSIG.log. It looks like the *Hotine\_Oblique\_Mercator(variant\_B)* is not well managed by gvSIG (and GeoTools in the past). For instance, see <http://jira.codehaus.org/browse/GEOT-4438>

**#5 - 06/29/2014 07:35 AM - Antonio Falciano**

Further info: if I search 21781 code in the EPSG repository of "New CRS" dialog and then click on the Info button, I can see that is not available the PROJ.4 string and then this error appears in the console of log messages:

```
Can't get proj4 string. org.gvsig.crs.CrsException: java.lang.Exception: The projection'Hotine_Oblique_Mercator_(variant_B)' is not a proj4 projection.
```

```
org.gvsig.crs.Proj4.exportToProj4(Proj4.java:3170)
org.gvsig.crs.Crs.getProj4String(Crs.java:706)
org.gvsig.crs.gui.panels.InfoCRSPanel.createPage(InfoCRSPanel.java:561)
org.gvsig.crs.gui.panels.InfoCRSPanel.inicializate(InfoCRSPanel.java:171)
org.gvsig.crs.gui.panels.InfoCRSPanel. (InfoCRSPanel.java:133)
org.gvsig.crs.gui.panels.EPSGpanel.actionPerformed(EPSGpanel.java:786)
[...]
```

So this projection should be remapped as "Oblique Mercator" in order to be translatable in PROJ.4 format.

**#6 - 06/30/2014 03:49 AM - Álvaro Anguix**

- Related to gvSIG feature requests #2306: Update the EPSG database added

**#7 - 07/01/2014 09:30 AM - Antonio Falciano**

'Hotine\_Oblique\_Mercator\_(variant\_B)' is a new alias of 'Oblique Mercator' (see EPSG:9815). So, in order to remap 'Hotine\_Oblique\_Mercator\_(variant\_B)' as 'Oblique Mercator', I believe that we should add a new alias of 'Oblique Mercator' in the *org.gvsig.crs.Proj4* class:

```
String[] projectionName = { "Oblique_Mercator" };
this.projectionNameList.add(count, projectionName);
addProjectionName(count, "Oblique Mercator");
addProjectionName(count, "9815");
addProjectionName(count, "CT_ObliqueMercator");
addProjectionName(count, "Hotine_Oblique_Mercator_Azimuth_Center");
```

```
addProjectionName(count, "Rectified_Skew_Orthomorphic_Center");
addProjectionName(count, "Hotine Oblique Mercator");
addProjectionName(count, "Hotine_Oblique_Mercator");
addProjectionName(count, "Hotine_Oblique_Mercator_(variant_B)"); // <-----
```

This one should be the trick to recognize the projections (different from Web Mercator) with new alias which cause the "Can't get proj4 string" (e.g. #2371) kind of errors.

#### **#8 - 07/02/2014 11:27 AM - Joaquín del Cerro Murciano**

Muchas gracias por el aporte... en el proximo build de jcrs estara

gvSIG-jcrs:r245

#### **#9 - 07/02/2014 11:27 AM - Joaquín del Cerro Murciano**

- Target version set to 2.1.0-2259-rc3
- Assignee set to Joaquín del Cerro Murciano
- Status changed from New to Fixed

#### **#10 - 07/27/2014 09:42 PM - Joaquín del Cerro Murciano**

- Target version changed from 2.1.0-2259-rc3 to 2.1.0-2239-testing

#### **#11 - 07/28/2014 05:16 AM - Álvaro Anguix**

- Status changed from Fixed to Closed

#### **#12 - 07/28/2014 05:17 AM - Álvaro Anguix**

- Status changed from Closed to New
- File 21781.png added

Aparece un warning y aunque el CRS está disponible no deja aplicarlo.

Adjunto imagen del Warning

#### **#13 - 07/28/2014 05:18 AM - Álvaro Anguix**

- gvSIG build changed from 2229 to 2239
- Target version deleted (2.1.0-2239-testing)

#### **#14 - 07/28/2014 09:49 AM - Antonio Falciano**

This is an old problem in gvSIG, as documented here:

<http://osgeo-org.1560.x6.nabble.com/Problems-with-EPSSG-21781-td4111081.html>

The CRSException "In proj4 projection 'Oblique\_Mercator' not allow azimuth close to 90" occurs because there's a strict check of projection parameters in the org.gvsig.crs.Proj4 class, in detail:

```
if (gtParameterName.equalsIgnoreCase("azimuth"))
{
    valueAlpha = Double.parseDouble(gtParameterValues[j]);
    if (Math.abs(valueAlpha - 90.0) < 0.0001)
```

```

{
    throw new CrsException(new Exception("In proj4 projection 'Oblique_Mercator' not allow azimuth close to 90"));
}

```

It happens because the azimuth of EPSG:21781 is equal right to 90°. Consequently the Proj4 class can't generate its Proj4 format...

So a workaround (aka not elegant solution) could consist into bypass the above mentioned strict check of projection parameters and hardcode in some manner the Proj.4 string of this CRS. Any other idea?

#### #15 - 08/20/2014 06:25 AM - Antonio Falciano

From GeoTools javadocs (<http://docs.geotools.org/latest/javadocs/org/geotools/referencing/operation/projection/ObliqueMercator.html>):

Azimuth values of 0.0 and ±90.0 degrees are allowed (and used in Hungary and Switzerland), though these cases would usually use a Mercator or Transverse Mercator projection instead. Azimuth values > 90 degrees cause errors in the equations.

So the strict check reported above should be formulated differently. For instance:

```

if (gtParameterName.equalsIgnoreCase("azimuth"))
{
    valueAlpha = Double.parseDouble(gtParameterValues[j]);
    //if (Math.abs(valueAlpha - 90.0) < 0.0001)
    if (valueAlpha > 90.0)
    {
        //throw new CrsException(new Exception("In proj4 projection 'Oblique_Mercator' not allow azimuth close to 90"));
        throw new CrsException(new Exception("In proj4 projection 'Oblique_Mercator' azimuth values > 90 are not allowed"));
    }
}

```

If this doesn't work as expected because of calculation errors (e.g.  $\tan 90^\circ$  is infinite), we can set **valueAlpha = 89.9999** as suggested here: <http://osgeo-org.1560.x6.nabble.com/Problems-with-EPSG-21781-td4111081.html>

#### #16 - 09/01/2014 01:39 PM - Antonio Falciano

I've just attached a cumulative patch of Proj4 class in #2738 that allows to set EPSG:21781 as a view CRS. Unlocking this feature, other issues appear, like the Proj4 string that is not right.

#### gvSIG Proj4 String:

```
+proj=omerc +lat_0=46.95240555555556 +lonc=7.439583333333333 +k=1.0 +x_0=600000.0 +y_0=200000.0 +ellps=bessel
```

#### GDAL Proj4 string:

```
+proj=somerc +lat_0=46.95240555555556 +lon_0=7.439583333333333 +k_0=1 +x_0=600000 +y_0=200000 +ellps=bessel
+towgs84=674.4,15.1,405.3,0,0,0,0 +units=m +no_defs
```

**#17 - 09/08/2014 03:34 AM - Antonio Falciano**

- % Done changed from 0 to 100
- File Proj\_EPSG21781.patch added

After gvsig-jcrs:r263, I attach another patch in order to have the right Proj4 string of EPSG:21781, as described in the previous note. It allows to set EPSG:21781 as view or layer CRS and also apply the EPSG transformations correctly.

**#18 - 09/09/2014 03:45 AM - Álvaro Anguix**

- Has patch set to Yes

**#19 - 09/15/2014 12:14 PM - Antonio Falciano**

I've extended the correction of the proj4 strings to all the Swiss Oblique Mercator CRSs (not only EPSG:21781) in #2813, so don't consider Proj\_EPSG21781.patch attached here. Consequently this ticket is followed by #2813.

**#20 - 09/15/2014 12:34 PM - Antonio Falciano**

- Status changed from New to Fixed

**#21 - 09/15/2014 01:03 PM - Antonio Falciano**

- Status changed from Fixed to New

**#22 - 10/06/2014 07:58 AM - Joaquín del Cerro Murciano**

- Duplicates gvSIG bugs #2813: Swiss Oblique Mercator CRSs issue added

**#23 - 10/06/2014 07:59 AM - Joaquín del Cerro Murciano**

- Target version set to 2.1.0-2248-testing
- Status changed from New to Fixed

Por lo que he entendido el arreglo se ha generalizado a otros sistemas de referencia en el ticket #2813, así que cierro este.

**#24 - 10/07/2014 11:21 AM - Antonio Falciano**

- Status changed from Fixed to Closed

**Files**

EPSG_21781.png	8.73 KB	06/26/2014	Francisco Díaz Carsí
gvSIG.log	368 KB	06/26/2014	Francisco Díaz Carsí
21781.png	9.27 KB	07/28/2014	Álvaro Anguix
Proj_EPSG21781.patch	2.6 KB	09/08/2014	Antonio Falciano