

# Negative Surrogate Error Message GRP59927 when extracting from a Group Model

## Summary

At r5.5SP1 93.032 and r6.0 47.011 a fix has been added to re-enable the following error message to be displayed if a group model contains rogue triples with negative surrogates. Message can either be displayed as a dialog or in the message log: -



This will not cause any problems as long as: -

- 1) Plex.ini has option 'Mask negative Surrogates=1'
- 2) The number of Negative Surrogates in the group model remains the same.

In order to understand this message and why it is not a cause for concern please continue to read this document. It is always important to maintain a good back up of your group models, so now would be a good time to review your strategy and make sure you can recover.

## Background

At Plex r5.1 a problem existed where it was possible to update rogue triples to the model with negative surrogates. This was fixed and functionality was added, via INI file settings, to stop these triples from being extracted into the local models and produce an error message either as a dialog or a message log. It was felt that this was better approach than deleting the triples from the model, thus avoiding any risk of removing real triples. Plex.ini file options used are: -

```
[Options]
Show Negative Surrogates Error Dialog=0
Mask Negative Surrogates=1
```

'Show Negative Surrogates Error Dialog' controls how the message is displayed, 0 will display as an error in the message log, whereas 1 will display same message as a dialog (See example under Summary).

'Mask Negative Surrogates' allows the rogue triples to be masked from the local model. If it is set to 0 then the triples are extracted (Although they are not visible in the Object Browser) and if set to 1 they are not extracted to the local model.

At Plex r5.5 the logic that produced this error message was failing due to Visual Studio 2003 .Net Upgrade. This has been fixed for r5.5SP1 Bld93.032, r6.0 Bld47.011 and in forthcoming release r6.1.

## **Surrogate Numbers**

Every object and triple in Plex has a surrogate. In terms of model integrity it is important that all objects have a unique number, however this is not the case for triples but in practice their surrogate id will also be unique. From Plex it is possible to see an objects Surrogate number by highlighting it in the Object Browser or Model Editor, right clicking and choosing 'Object->Information'. This will display a small grid which contains the surrogate number. It is also possible to get a text file containing all surrogate information for objects and triples for the entire model by right clicking in the Object Browser and choosing 'Tools->Output Implementation Names' (This can take some time).

## **Understanding the Surrogate Number**

A surrogate number is a four byte number with the high order byte containing the group model id or it's alias id, and the lower order three bytes containing the unique number. For example surrogate number 207773869 can be converted into Hex 0xC6260AD. Thus the group model id is 0x0C hex or 12 decimal and the surrogate number is 0x6260AD or 6447277. Using this method to store the surrogate number means that the largest surrogate number we can assign is 0xFFFFFFFF or 16777215.

## New Objects

When you create a new object in a local model it is assigned a temporary negative surrogate, if this is a new local model we would expect this to start at -10 (Due to some system objects that are created), however if it is an existing local model that has been updated and re-extracted from the group this will start at -1. Subsequent new objects will decrement this value, eg if you created five new objects and triples in a new local model then they will be assigned -10, -11, -12, -13, -14.

## Updating New Objects to the Group Model

When updating a local to the group model that contains new objects the temporary negative surrogate are converted into permanent form. This process uses a combination of the temporary negative value plus the next surrogate available (Stored in the first line of group model file num.num). For example, if the last surrogate used for a group model was 6447277 and we updated a new object with a negative surrogate of -14 its permanent surrogate number would be  $6447277 + 14$ , ie 6447292 or 0x6260BB. By incorporating the high order group model id example from above we obtain a full surrogate number of 0x0C6260BB or 207773883.

If these rogue triples are extracted to the local model it can affect the negative surrogate value for new objects. For example if we had a rogue triple with a negative surrogate of -3054 that was extracted to the local, the first new objects/triple would be assigned a surrogate of -3055. When this is updated to the group model 3054 permanent surrogates would be skipped.

Over a period of several years this could cause the surrogate system to issue a warning message upon update: -

```
GRP59923 - ***Error, high surrogates detected, 'Num.Num'***.
The group model update is assigning surrogates within
3,000,000 of the known limit, this may indicate problems
within your group model, please contact CA, Inc. Product
Support ASAP. Object ID in Num.num = n; Total shift from
local model = n; Combination exceeds 13,777,215.
```

This is indicating that the surrogate numbering system has fewer than 3 Million available surrogates. This is not a cause for concern but message is displayed so that situation can be monitored. Most large

group models contain less than 500,000 objects and triples, thus before the limit is reached the group model would need to become six times bigger. Even if limit is reached a mechanism exists to assign surrogate values from the gaps. Details of how to do this are contained in the shipped Plex help.