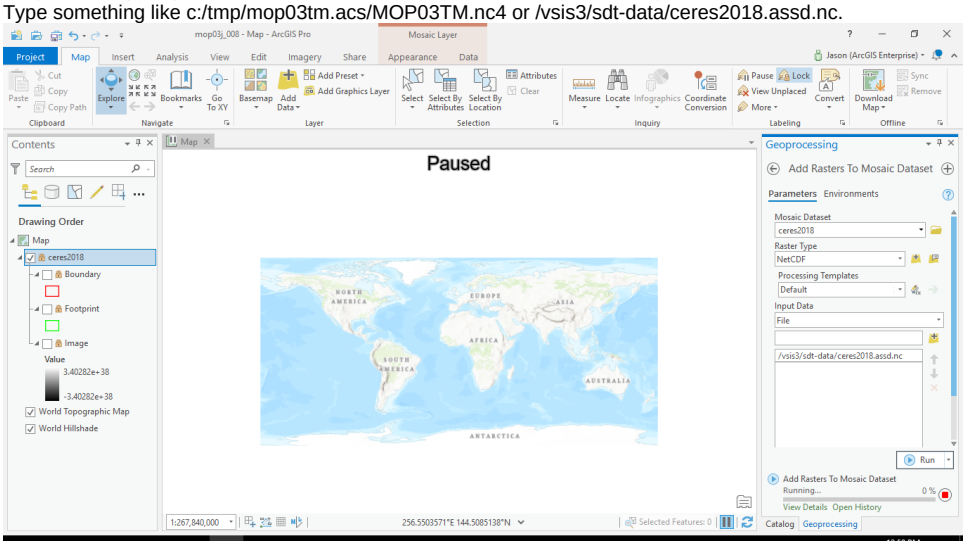
Create Mosaic Dataset using NETCDF

If a netCDF file is well-formed, it is possible to create mosaic dataset directly from netCDF on S3. This is particularly useful if netCDF is already in an aggregated form in one single large file.

Step-by-step guide for ArcGIS Pro 2.5

This method doesn't work on ArcGIS Pro 2.6. Use <Sources><data_path>/vsis3/sdt-data/TF_merged.nc</data_path></Sources> for MDCS input instead.

1. Create AWS S3 connection and save it as <your_name>.acs file.
2. Make sure that you can browse files in your bucket.
    a. Since .nc4 files will not be listed, it's better to put some (fake) .mrf/.he5/.tif/.crf file on the bucket.
    b. If connection file doesn't list any object, something must be wrong. Delete the .acs file and re-create one.
3. Create a new mosaic dataset.
4. Select NETCDF as input type.
5. Select file icon. Since you can't browse the netCDF-4 file under the .acs file, type the filename in the editor box.
    a. It's good to copy & paste netCDF file name and connection file name using editor.
    b. Type something like c:/tmp/mop03tm.acs/MOP03TM.nc4 or /vsis3/sdt-data/ceres2018.assd.nc.

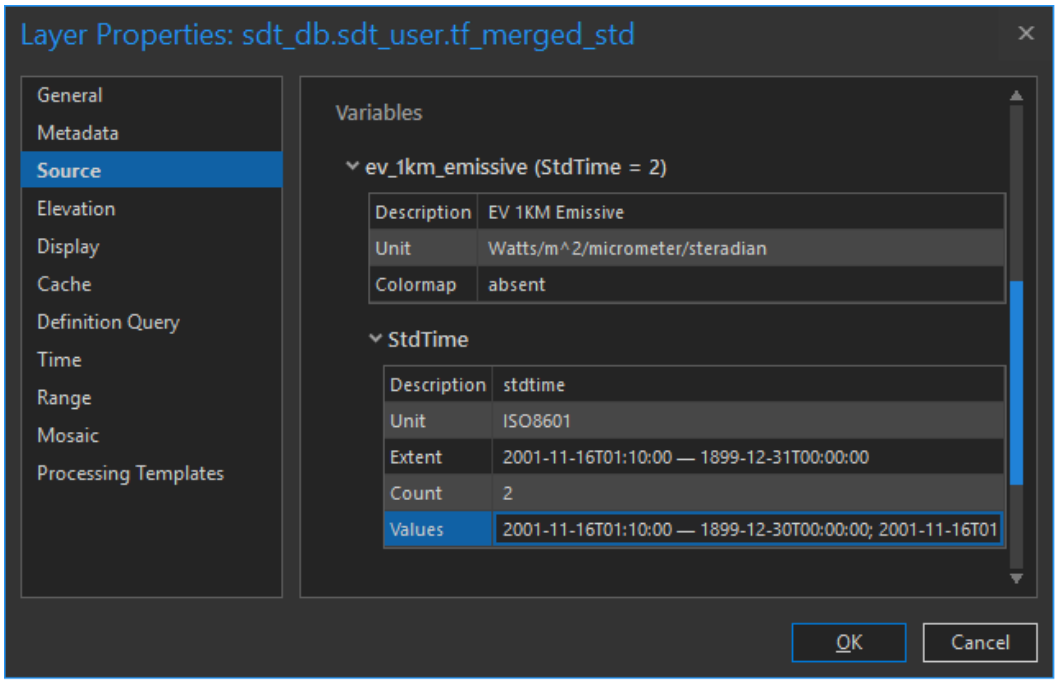


6. Publish the mosaic dataset using "Share as Web Layer."

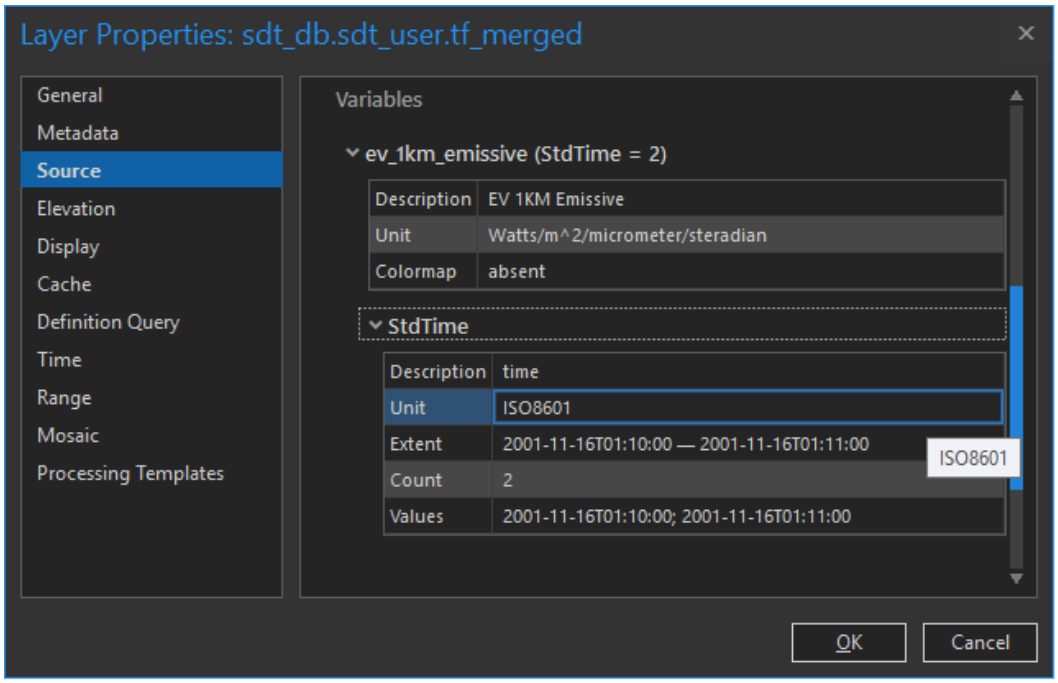
Critical Bug in Handling Time

MDCS doesn't pick up time values properly from this Terra Fusion netCDF-4 file. Time variable has 0 and 5 values (i.e., 5 minutes after first dataset) but mosaic dataset simply says 1 minute after the first record. The data type of time variable is 64-bit integer.

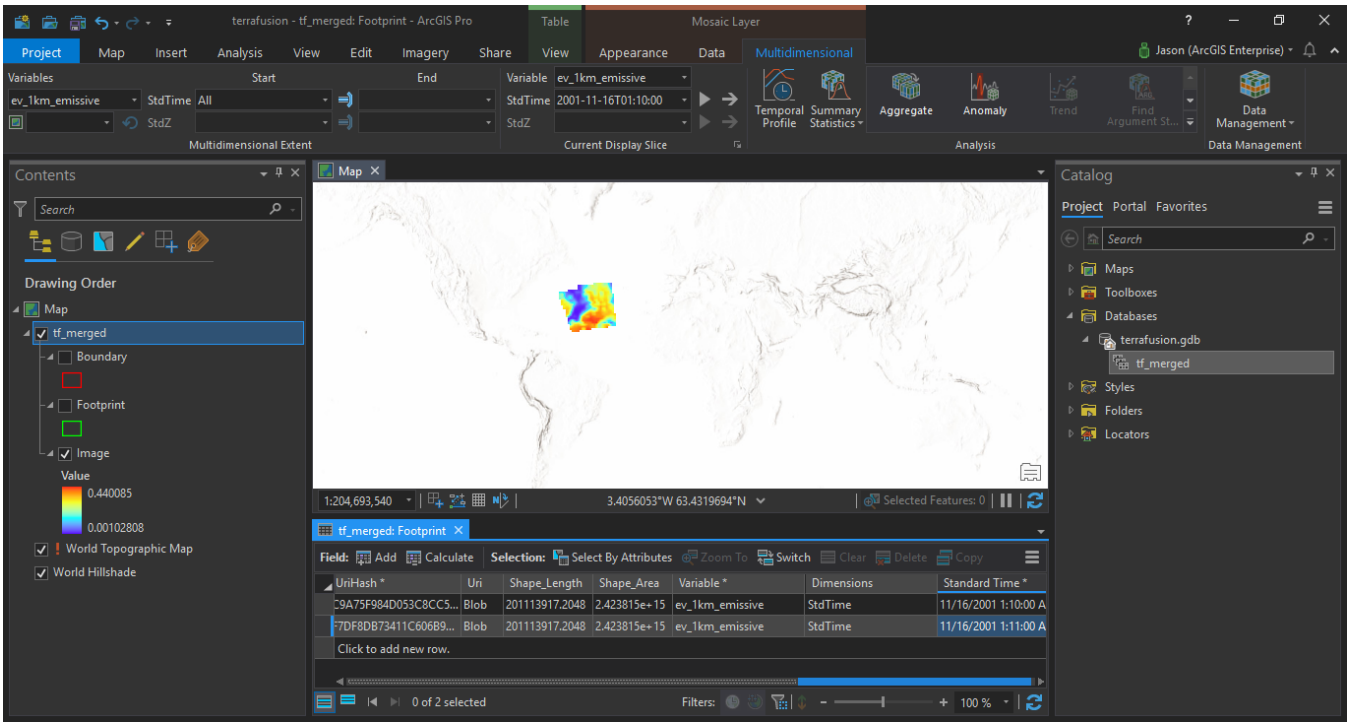
The blow is when **stdtime** is used as dimension name and variable.



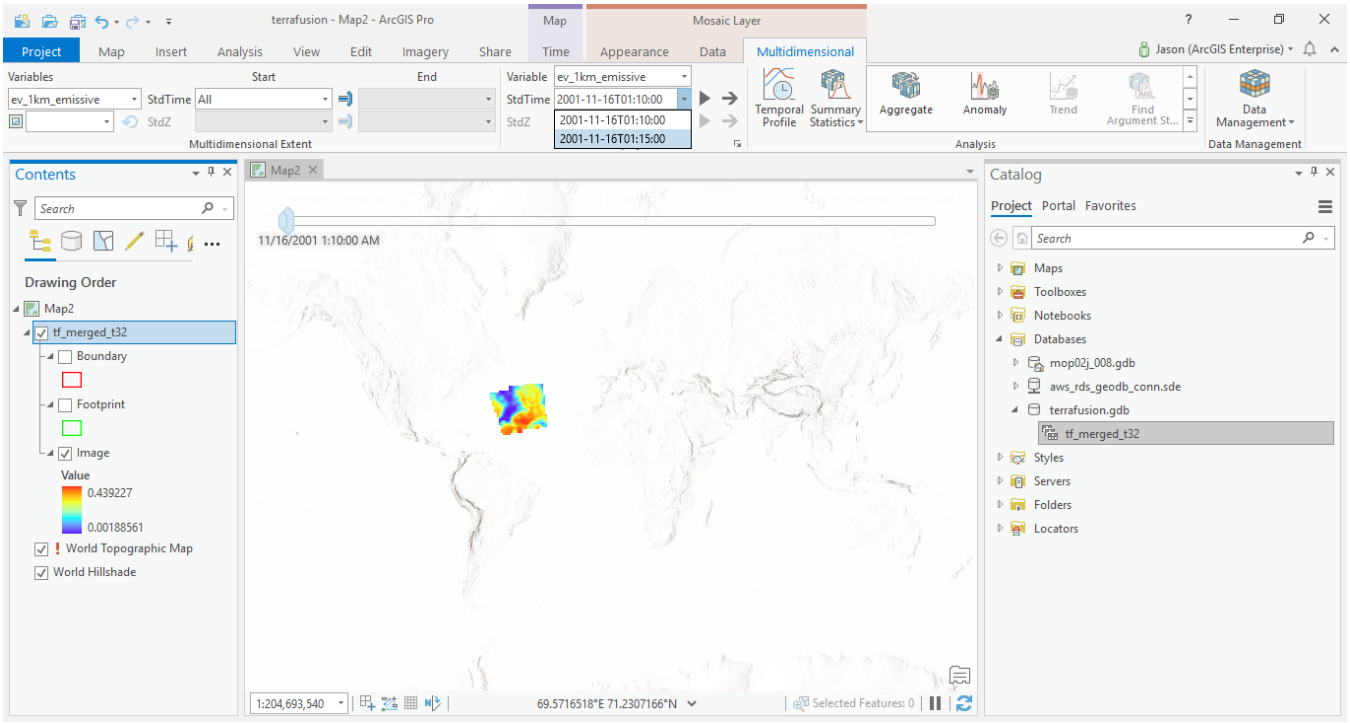
The below is when **time** is used as dimension name and variable.



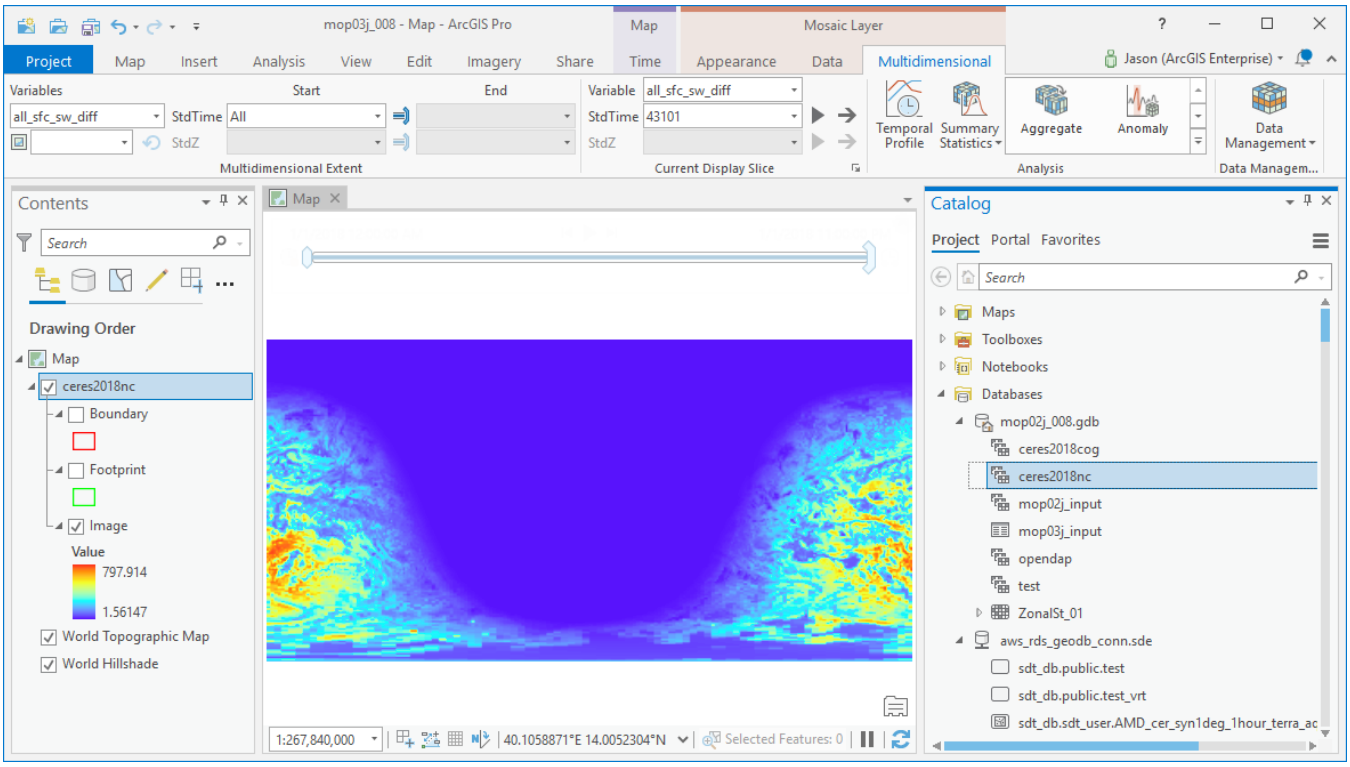
It doesn't matter whether you build mosaic locally using ArcGIS Pro instead of MDCS.



If time's type is **int32**, ArcGIS Pro can handle the value properly.



If there are missing/fill values in time variable, ArcGIS Pro can't handle them properly although type is int32. If you look at the figure below, you can see 43101 in StdTime.



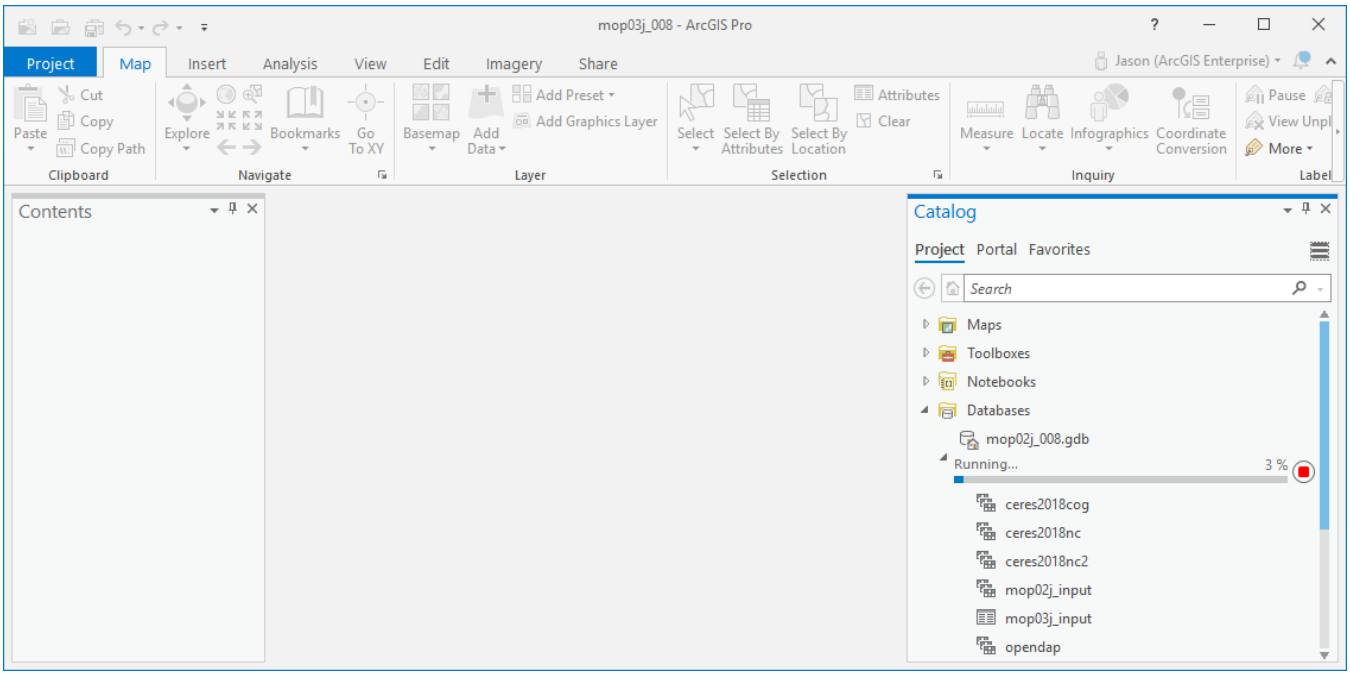
Bad Performance for Building Mosaic Dataset from netCDF-4 on S3

It takes more than 6 hours to handle 200 rows from a merged netCDF-4 that has 8,670 time values.

> You don't have to run Multidimensional Tool on the mosaic dataset. Time dimension will be identified automatically.

System Hangs for Copying Mosaic Dataset from a large netCDF-4

You can't copy mosaic dataset. ArcGIS Pro 2.6 hangs at 3%.



Related articles

- Build Multi-dimensional Information
- Publish ArcGIS Mosaic Dataset Image Service with Server
- Run arcpy on ArcGIS Windows
- Install xarray on ArcGIS Notebook Server
- Measure the performance of Image Services