

# Run MDCS on ArcGIS Linux Server

ArcGIS Enterprise Marketplace Linux image comes with ArcPy. Thus, it is possible to run MDCS script (in theory).

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## Step-by-step guide for Table / Raster Catalog

1. Copy the entire contents of <https://github.com/Esri/mdcs-py/blob/master/scripts/> to working directory.
2. Modify **raster\_type** section of MDCS.xml.

```
<!-- AR - Add Rasters-->
<AddRasters>
  <AddRaster>
    <dataset_id>power</dataset_id>
    <raster_type>Table / Raster Catalog</raster_type>
```

3. Specify table (in CSV) location.

```
<Sources>
  <data_path>Z:\home\arcgis\data\LC08.csv</data_path>
</Sources>
```

4. Edit the **Raster** column of input table .csv file. **It must be local and a raster proxy**. You can test a sample raster proxy file from [2]. You can use VRT file here if you'd like to use MRF in S3.

```
OBJECTID,Variable,StdTime,StdTime_Max,StdZ,Raster
0,ALL_SFC_SW_DN,2018-01-01 00:00:00,2018-01-01 00:59:59,2,"Z:
\home\arcgis\data\LC08_L1TP_160043_20180326_20180404_01_T1\LC08_L1TP_160043_20180326_20180404_01_T1_B1.
TIF"
```

5. If you want to visualize mosaic dataset with ArcGIS Pro on windows machine, set the path that exists in both Windows Server and Linux Server. You can keep adding more VRT files as long as object id and time is unique.

```
OBJECTID,Variable,StdTime,StdTime_Max,StdZ,Raster
0,ALL_SFC_SW_DN,2018-01-01 00:00:00,2018-01-01 00:59:59,2,"C:\Users\hyoklee\Downloads\test1.vrt"
1,ALL_SFC_SW_DN,2018-01-02 00:00:00,2018-01-02 00:59:59,2,"C:\Users\hyoklee\Downloads\test2.vrt"
```

6. To make visualization work, make sure that the Windows Server has S3FullAccess role attached in the EC2 instance first. Then, check that **Source** value in VRT file starts with vsis3/.

```
<SimpleSource>
  <SourceFilename relativeToVRT="1">/vsis3/sdt-data/ceres/synldeg/terra-aqua-mo\
dis_edition4a/init_all_sfc_sw_dn/mrf/CER_SYNldeg_1Hour_Terra_Aqua_MODIS_Edition4A_4\
06406.20180101.INIT_ALL_SFC_SW_DN.mrf:MRF:Z0</SourceFilename>
  <SourceBand>1</SourceBand>
  <SourceProperties RasterXSize="360" RasterYSize="180" DataType="Float32" Bloc\
kXSize="360" BlockYSize="180" />
  <SrcRect xOff="0" yOff="0" xSize="360" ySize="180" />
  <DstRect xOff="0" yOff="0" xSize="360" ySize="180" />
</SimpleSource>
```

## Step-by-step guide for Raster Data Set

This is useful for creating a mosaic set from a set of TIF files that resides in a directory.

1. Copy the entire contents of <https://github.com/Esri/mdcs-py/blob/master/scripts/> to working directory.
2. If you use **Raster Dataset** for **rasterType**, you can create mosaic from MRFs. Put MRF files under the **data\_path**.

```
<!-- AR - Add Rasters-->
<AddRasters>
  <AddRaster>
    <dataset_id>power</dataset_id>
    <raster_type>Raster Dataset</raster_type>
    <Sources>
      <data_path>Z:\home\arcgis\data\cermrf</data_path>
    </Sources>
    <filter>*</filter>
  </AddRaster>
</AddRasters>
```

3. Disable **DF** and **AI** in MDCS.xml if you don't use **Table / Raster Catalog** for **rasterType**.

```
<Application>
  <Name>CERES_Hourly_Solar</Name>
  <!-- Command>CM+AR+SP+AF+CV+CC+BF+DF+CS+AI</Command -->
  <Command>CM+AR+SP+AF+CV+CC+BF+CS</Command>
```



MDTools\_Setup.exe cannot be installed. MDTools is a set of command line tools that simplifies some common management tasks when working with rasters in a mosaic dataset.

## Error 999999

Arcpy throws an error when it adds an item. This is a known issue for **Linux platform** according to Abhijit at Esri. It doesn't happen on Windows.

```
2020-01-28T17:26:58.118: Synchronizing items associated with raster type instan\
ce 'Table / Raster Catalog' [ID: 1].
2020-01-28T17:26:58.124: Error: 80042019: Could not build mosaic dataset item. \
[ID: 1, URI: 'Z:\home\arcgis\data\CERES.csv|0']
2020-01-28T17:26:58.127: Error: 80042019: Could not build mosaic dataset item. \
[ID: 2, URI: 'Z:\home\arcgis\data\CERES.csv|1']
2020-01-28T17:26:58.129: Error: 8004205e: 2 mosaic dataset items could not be b\
uilt.
...
log-msg: Command:AR->Add rasters/data to a mosaic dataset.
log-msg: Adding rasters:
log-msg:      Using mosaic dataset/ID:CERES_Hourly_Solar/power
log-msg:      Using ART for CERES_HOURLY_SOLAR: Table / Raster Catalog
log-msg: Adding items..
log-warning: Args less than required, filling with default (#)
log-msg: Calling (arcpy.AddRastersToMosaicDataset_management)
log-critical: ERROR 999999: Something unexpected caused the tool to fail. Conta\
ct Esri Technical Support (http://esriurl.com/support) to Report a Bug, and ref\
er to the error help for potential solutions or workarounds.
Failed to execute (AddRastersToMosaicDataset).
```

## Installing Missing Packages

1. conda install pip
2. "z:\home\arcgis\bin\Python\envs\test\Scripts\pip.exe" install logger

## Use of py cache (.pyc) files and Python version

Use of solutionsLib.pyc is not compatible with Python3 [1]. Always use source <https://github.com/Esri/mdcs-py/blob/master/scripts/solutionsLib.py>.

```
Z:\home\arcgis\src\SDT-56>"z:\home\arcgis\bin\Python\envs\test\python.exe" MDCS.py
Traceback (most recent call last):
  File "MDCS.py", line 34, in <module>
    import solutionsLib # import Raster Solutions library
ImportError: bad magic number in 'solutionsLib': b'\x03\xff3\r\n'
```

## Troubleshooting

If MDCS hangs, try to restart server using the startup scripts under /arcgis/server/.

## 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](#)
- [Install ArcGIS Linux Server on AWS](#)

## References

1. <https://github.com/Miserlou/Zappa/issues/854>
2. <https://www.esri.com/arcgis-blog/products/arcgis-pro/imagery/optimizerasters-2-released-available-for-download/>