POMM DOCKER QUICK START

Documentation:

1) Refer to the POMM_AFIDS User Guide for a description of the POMM (Planetary Orbital Mosaicking and Mapping) toolset.
https://github.com/NASA-AMMOS/AFIDS-POMM/blob/main/documentation/POMM_AFIDS_User_Guide_v1a.pdf

2) Refer to the VICAR User Guide for general use of VICAR and AFIDS software.
https://github.com/NASA-AMMOS/VICAR/blob/master/vos/docsource/vicar/VICAR_guide_4.0.pdf

The POMM software was created on an RHEL8 linux OS system as a "podman" (or "docker") container. The benefit of a container distribution is that it can be implemented across multiple computer systems. The information below is for operation on a linux system, with the docker/podman desktop environment *already installed*. On Apple and Window machines, there are several Open Source and commercial container environments that can be selected, including Docker Desktop, Podman Desktop, and Rancher Desktop, but a search of the web will find many additional options. (NASA/Caltech/JPL do not endorse any third party tools or products. Refer to the License for details.)

Loading and Using the Docker:

Step 1: Copy the docker tar.gz file to your working directory.

Step 2: From within your container environment, load and verify the docker:

```
docker load -i  afids-docker-1.32.tar.gz
```

then verify the installation:

```
docker images
```

which displays all available dockers:

```
REPOSITORY        TAG          IMAGE ID      CREATED        SIZE
localhost/afids   1.32         5ad8f9336fa7  25 hours ago   6.61 GB
```

The docker and support files are placed in a directory (in your local path) called "pomman_containers".

Step 3: Create an interactive "docker_run" script:

Using your text editor, create a basic bash script (or tcsh script) for launching an interactive AFIDS/POMM environment:

Script Name: docker_run_pomm_interactive.sh

```
docker run -it \
  -v /<directory-path>/docker_tst:/root/docker_tst:Z \
  localhost/afids:1.32 /bin/bash
```

Then:

```
source /opt/afids/setup_afids_env.sh
```

Where:

"<directory-path>" – Path to the directory to-be-shared between the docker and external OS.
"/root/<shared-directory>:Z" – Permits docker to write files in the shared directory.

A more complex version with multiple input directories and image display options:

```
docker run -e DISPLAY -it \
  -v /<directory-path>/docker_tst:/root/docker_tst:Z \
  -v /<directory-path>/pomm_data/planet_dem:/pommosdata/planet_dem \
  -v /<directory-path>/isis_data:/isis_data \
  -v /<directory-path>/pomm_data/testcases:/pommosdata/testcases \
  -v /tmp/.X11-unix:/tmp/.X11-unix \
  --security-opt label=type:container_runtime_t \
  --volume="$HOME/.Xauthority:/root/.Xauthority:rw" \
  --net=host/ afids:1.32 /bin/bash
```

Where:
"<directory-path>" – Path to the directory to-be-shared between the docker and external OS.
"/root/<shared-directory>:Z" – Permits docker to write files in the shared directory. Directories without the "Z" are docker "read-only."
"-e DISPLAY" – This parameter, along with the security and volume information are required to permit x11 screen display (xvd; ctv2). The parameters will differ between host OS systems.
"dem and isis" directories – Instructions for acquiring these external data directories is provided separately. They are only required for POMM Map Projection functions (not for mosaic/co-reg).
The syntax (above) shows how to access external directories within the docker.
"testcases" directory – This external directory is for optional testing purposes.
Then:

```
source /opt/afids/setup_afids_env.sh          [Sources AFIDS/VICAR]
cd /docker_tst/workdir/mosaic                 [Move to shared working directory]
vicarb go_run_mosaic >& xxlog.log &           [Execute POMM script with output log]
```

Step 4: Create a batch "docker_run" script:
Using your text editor, create a basic bash script (or tcsh script) for launching an AFIDS/POMM batch script:
Script Name: docker_run_pomm_batch.sh

```
docker run -e DISPLAY -it \
  -v /<directory-path>/docker_tst:/root/docker_tst:Z \
  -v /<directory-path>/pomm_data/planet_dem:/pommosdata/planet_dem \
  -v /<directory-path>/isis_data:/isis_data \
  -v /<directory-path>/pomm_data/testcases:/pommosdata/testcases \
  -v /tmp/.X11-unix:/tmp/.X11-unix \
  --security-opt label=type:container_runtime_t \
  --volume="$HOME/.Xauthority:/root/.Xauthority:rw" \
  --net=host/ afids:1.32 /bin/bash \
  /root/docker_tst/run_pdf.sh \                    [Execute "run_pdf.sh" script:]
     /root/docker_tst/workdir/mosaic \             [parameter to Change directory]
      go_run_mosaic.pdf \                          [parameter to execute pdf script]
      /root/docker_tst/workdir/mosaic/xxlog.log &  [parameter to create output log]
```

Where:
"run_pdf.sh" – A shell script (below) in "/docker_tst" that :1) sources vicar; 2) changes the directory to /workdir/mosaic; 3) executes the POMM script "go_run_mosaic.pdf"; and 4) writes the sysout processing log file as /workdir/mosaic/xxlog.log.

```
#!/bin/sh
# script to launch vicar pdf in selected directory, capturing output to log
# mount the directory with a -v option to docker run
echo "cd to $1, run pdf $2, log to $3"
source /opt/afids/setup_afids_env.sh
cd $1
taetm -s "$2" >& "$3"
```

The batch processing can be monitored in a separate window using the “tail” command:

```
tail -f xxlog.log
```