

Before Getting Started...

V12 Tutorial: Fixed Formatting

Forced "U.S.-centric" settings

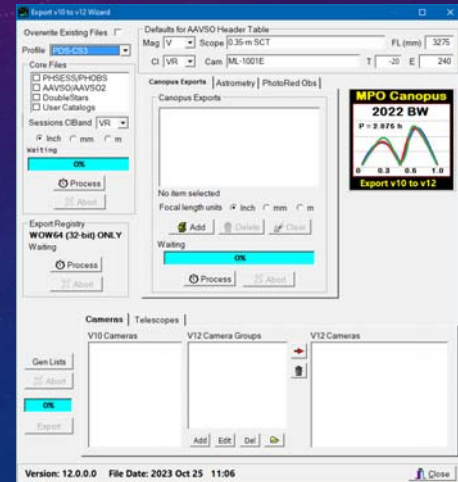
Ini (text) files are used; mixing formats can cause problems.

- Time separator ':' colon (also used as RA/Dec separator)
RA: 12:45:22.6 Dec: +05:32:57.9 UT: 04:52:30 (leading zeros/24-hour)
- Date separator '-' dash Date order yyyy-mm-dd
May 12, 2023: 2023-05-12 (leading zeros)
- Decimal point '.' period
Value = -0.45587 (leading zero for $|x| < 1.0$, no thousands grouping)
- Millimeters for focal lengths; meters for apertures (30 cm = 0.30 m)

V12 Tutorial: Exporting v10 Data

Download the Program

- If you haven't, download V10to12.zip from <https://bdwpublishing.com/php/downloads>
 - Follow the instructions on that page.
 - The result should be
 - Four AAVSO Files in \MPO\Common.
 - AAVSO_Header/HeaderComps.FF2.
 - AAVSO_Obs/ObsComps.FF2.
 - \MPO\Programs\Convertv10to12.exe.
- "\MPO\" is root directory of v10 installation.**



MPO v12 Tutorial

Exporting v10 Data

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Version 10

Flash Filer

- Third-party library
- No longer supported
- Uses Windows Messaging Layer (Win10/11 unfriendly)
- Separate server application
- Requires "Run as Administrator" rights for client applications
- Uses Windows Registry
- Database Structure
 - <DB Name> points to a Directory
 - Each table a separate file

Version 12

SQLite

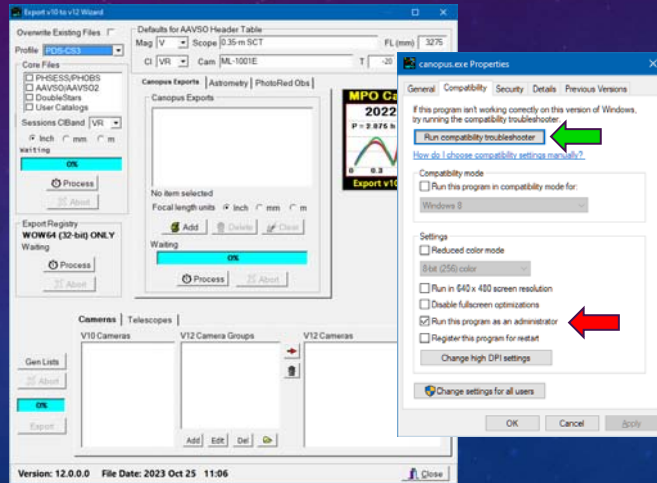
- Open source
- Used extensively in mobile devices and many web sites
- Significantly larger files (~ 1.5x)
- Built-in server
- Can run in any directory accessible by user's account (read/write privileges)
- Use INI (text-based) files to store settings and other user information
- Database Structure
 - <FileName> = <DB Name>
 - All tables in DB in single file



Opening the Program

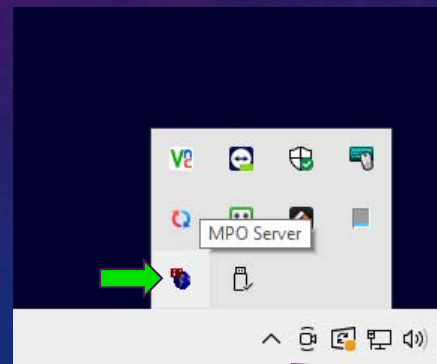
V12 Tutorial: Exporting v10 Data Before Starting the Convertv10to12 Program

- **“Run as Administrator”**
- Open Windows Explorer.
- Navigate to \MPO\Programs.
- Right-click on Canopus.exe.
- Select **“Properties”** from popup menu.
- Click **<Compatibility>** tab.
- Confirm settings.
- Click **<OK>**.



V12 Tutorial: Exporting v10 Data Before Starting the Convertv10to12 Program

- **Check MPO Server**
- Open the icon tray found at the lower-right of the main computer screen.
- Look for FlashFiler Server icon.
- If not found:
 - Start MPO Canopus; wait until it appears.
 - Check icon tray again.
 - If found, close MPO Canopus.

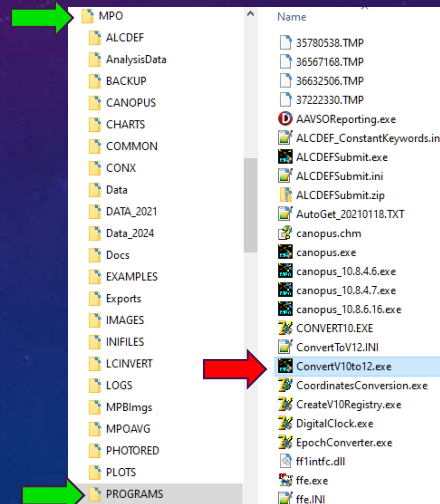


Icon Tray

V12 Tutorial: Exporting v10 Data

Convertv10to12 Program

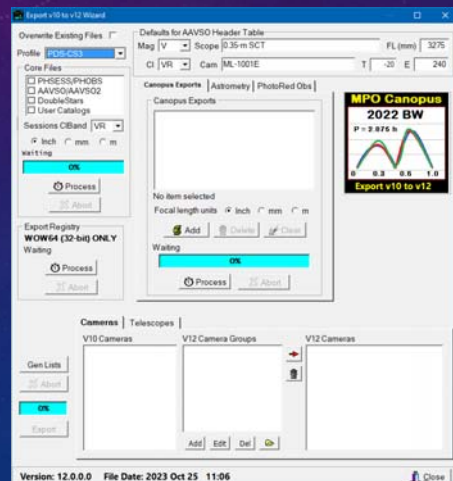
- **Running the Program**
 - Found in \MPO\Programs.
 - Locate in Windows Explorer.
 - Double-click on the icon.
 - The program appears very shortly.



V12 Tutorial: Exporting v10 Data

Convertv10to12 Program

- **During Program Startup**
 - The \MPO\V12Exports\ directory tree is created.
 - **Do not change or move any part of the V12Exports tree.**
 - **Do not change the contents of any of the exported files without *first* checking with tech support.**

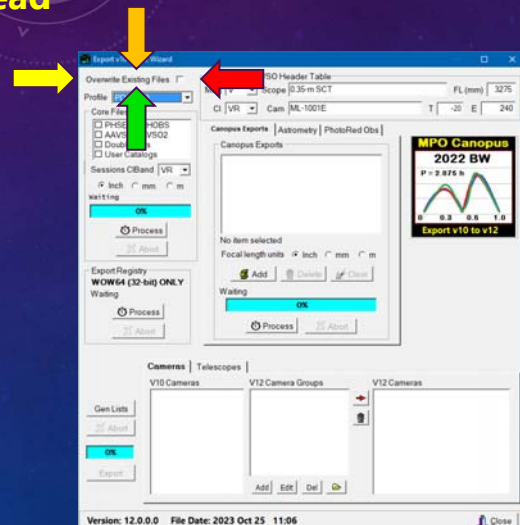


To Keep, or to Overwrite

V12 Tutorial: Exporting v10 Data Danger Ahead

- Beware “Overwrite Existing Files”
- **Checked**
Any existing file with the same name as the to-be exported file is overwritten.
- **Unchecked**
Any existing file with the same name will be skipped, even if the contents have changed.
- AAVSO tables are **always** overwritten because of the need for intermediate, temporary tables.

Make sure the box is set correctly before processing!

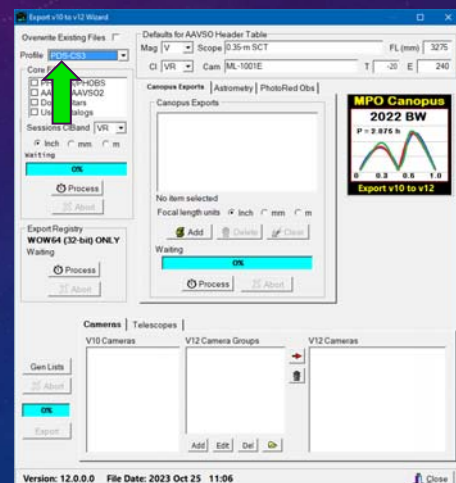


The "Mighty" Five

V12 Tutorial: Exporting v10 Data Exporting the Core Files

- All profile names in the MPO registry are loaded into the combo box. The data for each profile is *not* loaded.
- Select the profile that covers all or the majority of the data to be exported.
 - Profile data are used throughout export process.
 - One and only one profile can be used each time.
 - If not all files, select those covered by the profile.

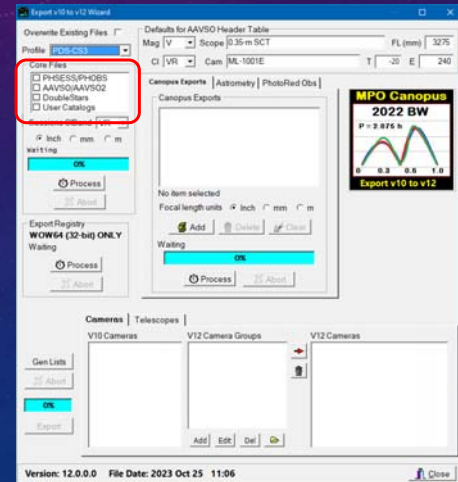
This is not an absolute requirement, but its saves lots of time and effort fixing things in version 12.



V12 Tutorial: Exporting v10 Data

Exporting the Core Files

- **Select the Core Files to be Exported.**
 - **PHSESS/PHOBS**
Exports sessions data and observations from the main photometry tables.
 - **AAVSO/AAVSO2**
Exports variable star data stored in the two AAVSO tables.
 - **DoubleStars**
Exports double star observations data.
 - **User Catalogs**
Exports UserStars and UserElems tables.
Do not include if you have not changed them over time.

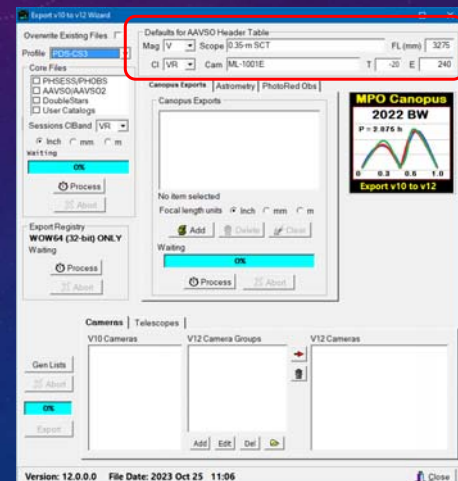


V12 Tutorial: Exporting v10 Data

Exporting the Core Files

Set Default AAVSO Settings

- Used to populate the AAVSO_Header table in v12.
- Particularly important for XO planet observations.
- If exporting AAVSO data, review the default settings.
 - Apertures in meters.
 - Focal length in millimeters.
- Changed as needed.



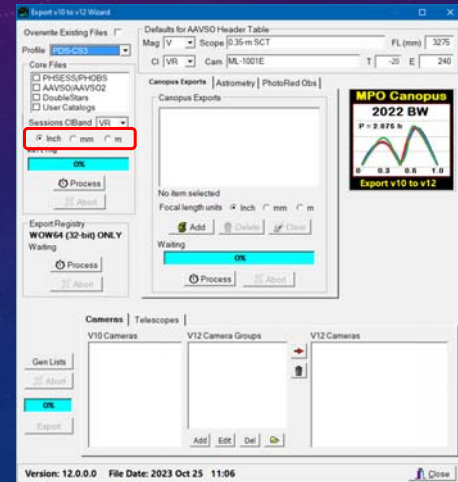
V12 Tutorial: Exporting v10 Data

Exporting the Core Files

Set the Default Focal Length Units

- Focal lengths in v12 are always in millimeters.
- The selected unit value is for the focal length given in the v10 session records.
- Used to convert to millimeters as needed during export.

Not critical but another time-saver in version 12.

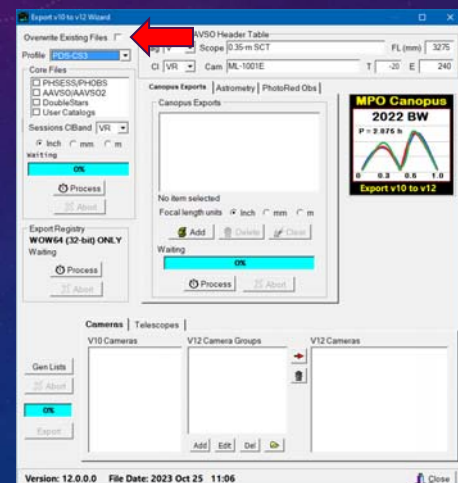


V12 Tutorial: Exporting v10 Data

Exporting the Core Files

Processing time can 1 hour, or more

- **PHSESS/PHOBS**
Depends mostly on the number of sessions and observation.
- **AAVSO**
Data table structure in v12 is very different. V10 data must be off-loaded to temporary tables that are then exported for the final step. A large number of observations takes even longer.
- **DoubleStars/User Catalogs**
Depends on number of entries in each table.



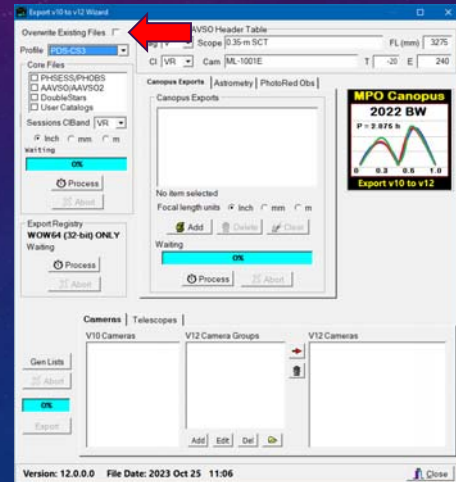
V12 Tutorial: Exporting v10 Data

Exporting the Core Files

Let Slip the Bytes of Conversion

- Click <Process> when ready to begin.
- Progress bar updates the process for each selection, not the overall process.
- Name of active file appears just above the progress bar.
- Click <Abort> and confirm request to stop processing.

Don't start if a reboot is pending or another CPU-intensive program is running.



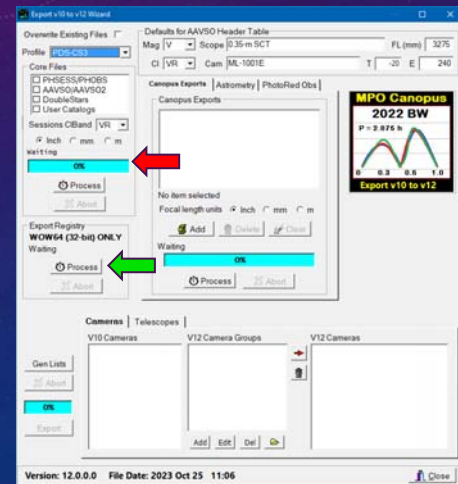
User Profiles Export

V12 Tutorial: Exporting v10 Data

Exporting User Profiles

Extract User Profiles from the Registry

- Click <Process>.
- Profiles are written in INI (formatted text) files.
- Even a large number of profiles should be exported in less than a minute.
- Progress and current profile are shown by the progress bar and message in the Core Files section.



Canopus Export Sets (v10)

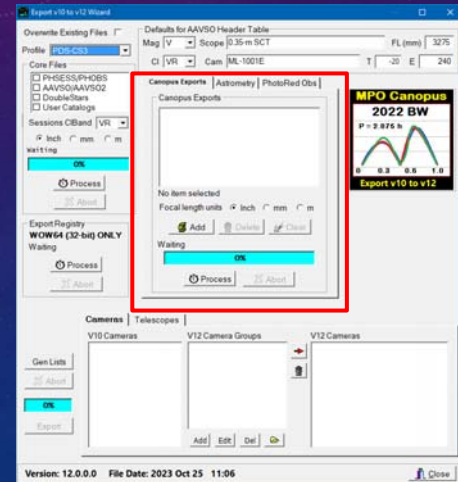
(*_SESS/*_OBS.FF2)

V12 Tutorial: Exporting v10 Data

Exporting Canopus Export Sets

The Same, Only Different

- Same principles (and time expense) as for the PHSESS/PHSESS.
- V12 export sets will be a single SQLite file that contains four tables:
 - phsess, phsesscomps, phobs, phobscomps.
 - Tables can contain data for a single or multiple objects.
 - Comp data and observations are stored in separate tables to allow for a variable number of comp stars.
- Some data may be changed or skipped.



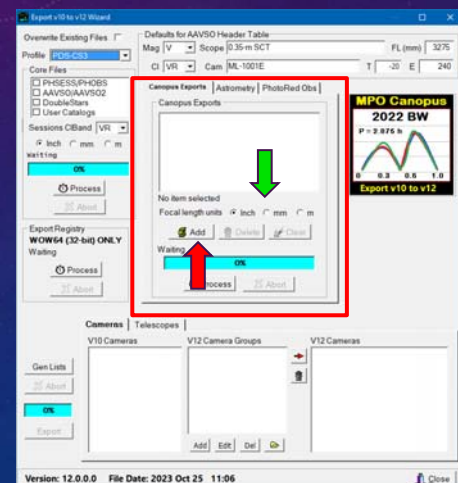
V12 Tutorial: Exporting v10 Data

Exporting Canopus Export Sets

Adding Export Sets

- Set Focal length units to those used in the v10 sessions. Values can be edited later using the v12 SessionsManager.
- Click <Add> to display a file open dialog.

Do not include PHSESS from the common directory!

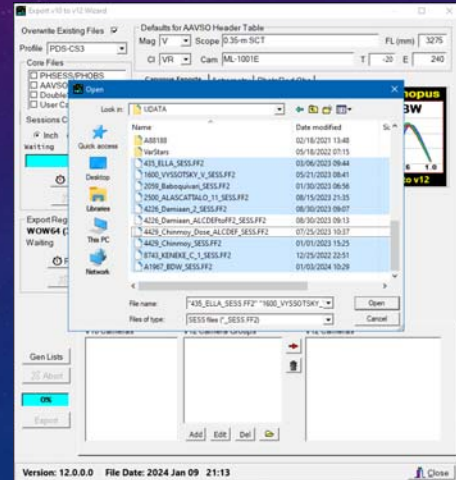


V12 Tutorial: Exporting v10 Data

Exporting Canopus Export Sets

Adding Export Sets

- Navigate to a directory with export files and select all the files that you want to export.
- Click <Open> to add the files to the processing list.
- To add files from different directories, for each directory, click <Add> and select files in that directory.

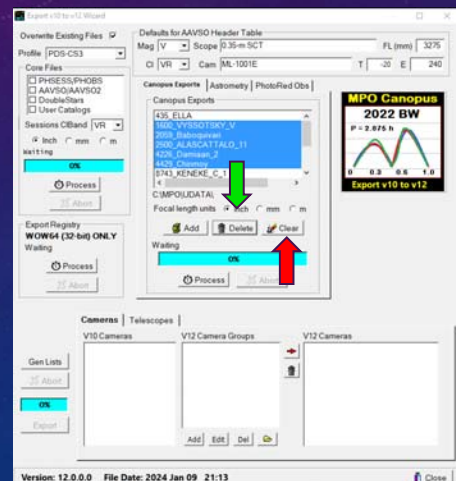


V12 Tutorial: Exporting v10 Data

Exporting Canopus Export Sets

Adding Export Sets

- **Delete Files**
 - Click on one or items in the list. You can use Ctrl+Click and Shift+Click as you would in any Windows list box.
 - Click <Delete> and confirm the request.
- **Clear List**
 - Click <Clear> and confirm the request. All files, selected or not, are removed from the list.

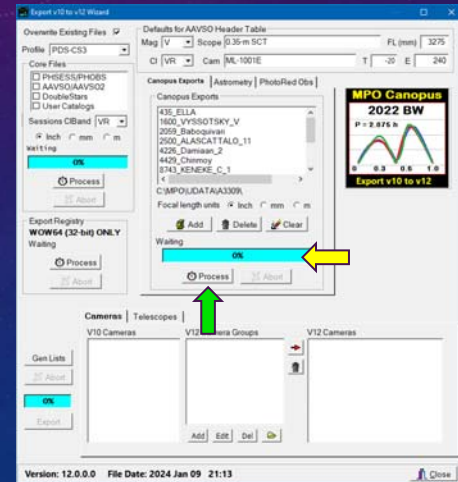


V12 Tutorial: Exporting v10 Data

Exporting Canopus Export Sets

More Slipping of Bytes

- One or more files must be in the list.
- Click <Process> to start.
 - Progress bar keeps track of the percent of exports sets processed.
 - The active session file name is displayed above the progress bar.
 - Processing time is dependent of number of export sets and number of sessions and observations, but should be faster than the core files export.



Astrometry Data Export

(*AST)

V12 Tutorial: Exporting v10 Data

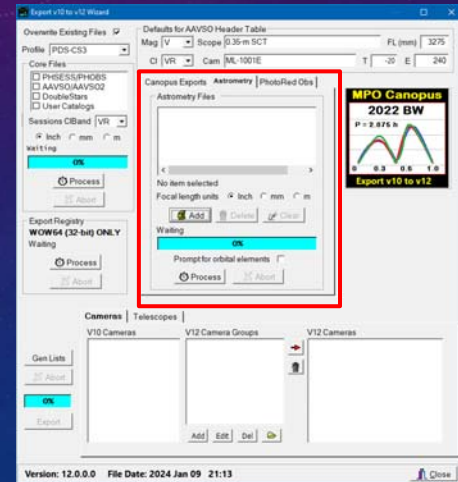
Exporting Astrometry Data

V10 Astrometry Files

- Stored X/Y, catalog positions, and magnitudes for reference stars along with needed target values so that results could be revised with new orbital elements.
- Binary, not text.
- Changed over versions 6 to 10 to allow for more information and reference stars, with maximum in v10.8 of 75 references.

V12 Astrometry Files

- Same information, plus catalog used – if available.
- Stored in INI (text) files.

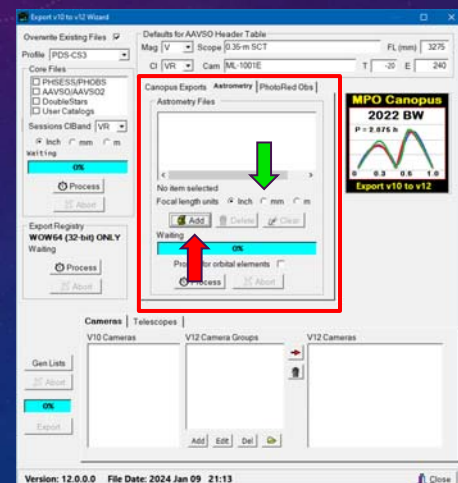


V12 Tutorial: Exporting v10 Data

Exporting Astrometry Data

Adding Astrometry Data

- Set Focal length units to those used in the v10 data files. The v10 recorded astrometry focal lengths were almost always inches.
- \MPO\Canopus\ASTFILES\ was the v10 default directory, but they may be in other places, too.
- Click <Add> to display a file open dialog.

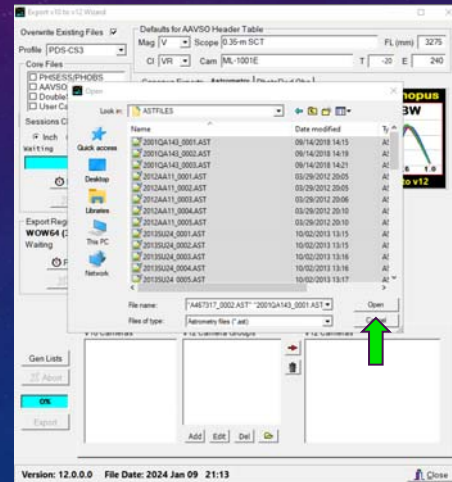


V12 Tutorial: Exporting v10 Data

Exporting Astrometry Data

Adding Astrometry Data

- Navigate to a directory with astrometry files and select all those files to be exported.
- Click <Open> to add the files to the processing list.
- To add files from different directories, for each directory, click <Add> and select files in that directory.

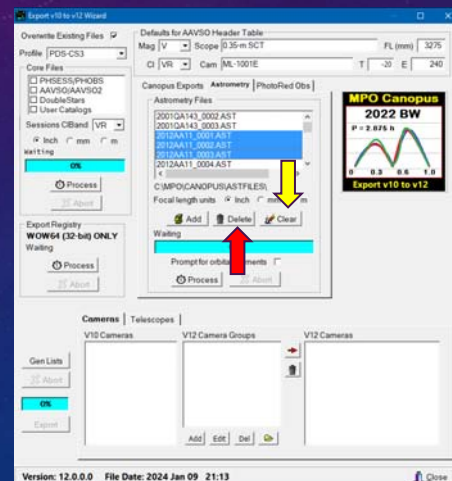


V12 Tutorial: Exporting v10 Data

Exporting Astrometry Data

Adding Astrometry Data

- **Delete Files**
 - Click on one or items in the list. You can use Ctrl+Click and Shift+Click as you would in any Windows list box.
 - Click <Delete> and confirm the request.
- **Clear List**
 - Click <Clear> and confirm the request. All files, selected or not, are removed from the list.

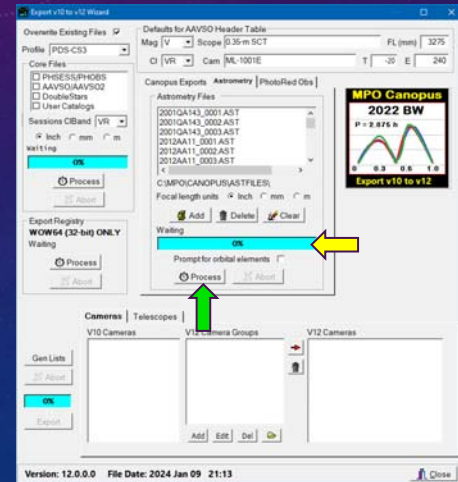


V12 Tutorial: Exporting v10 Data

Exporting Astrometry Data

Slip "Byteing" Away

- One or more files must be in the list.
- Click <Process> to start.
 - Progress bar keeps track of the percent of astrometry files processed.
- The active file name is displayed above the progress bar.
- Unless there are hundreds of files, processing time is very quick.



PhotoRed Observations

(* .obs)

V12 Tutorial: Exporting v10 Data

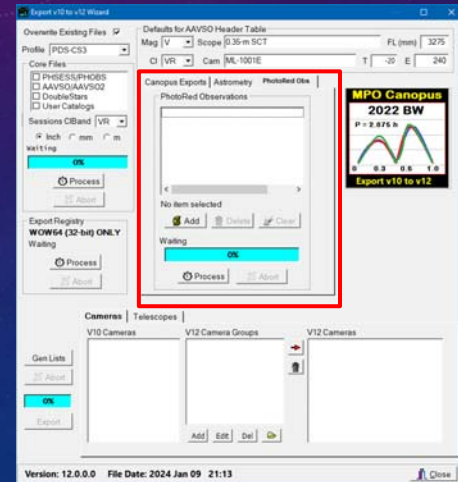
Exporting PhotoRed Data

V10 PhotoRed Files

- Binary, not text.

V12 PhotoRed Files

- Stored in INI (text) files.

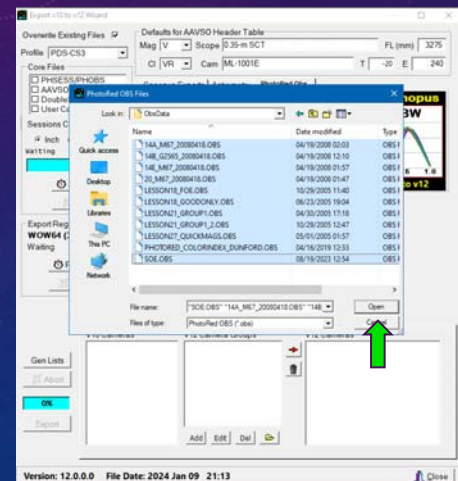


V12 Tutorial: Exporting v10 Data

Exporting PhotoRed Data

Adding PhotoRed Data

- \MPO\PhotoRed\ or \MPO\UData were the v10 commonly-used directories, but they may be in other places, too.
- Click <Add> to display a file open dialog.
- Navigate to a directory with PhotoRed files and select all those files to be exported.
- Click <Open> to add the files to the processing list.
- To add files from different directories, for each directory, click <Add> and select files in that directory.

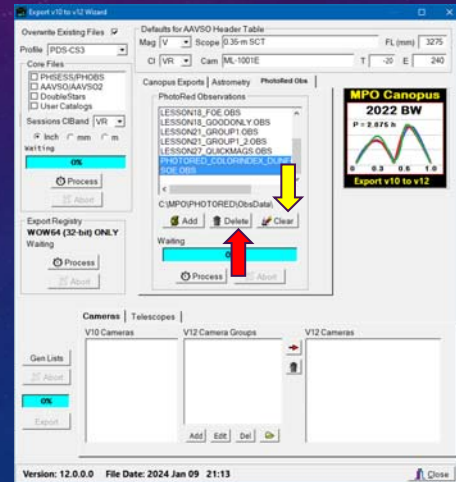


V12 Tutorial: Exporting v10 Data

Exporting PhotoRed Data

Adding Astrometry Data

- **Delete Files**
 - Click on one or items in the list. You can use **Ctrl+Click** and **Shift+Click** as you would in any Windows list box.
 - Click **<Delete>** and confirm the request.
- **Clear List**
 - Click **<Clear>** and confirm the request. All files, selected or not, are removed from the list.

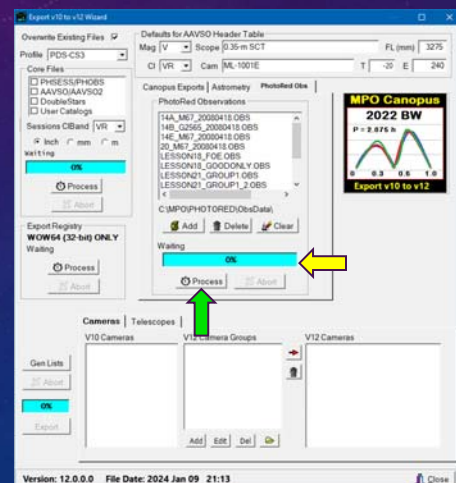


V12 Tutorial: Exporting v10 Data

Exporting PhotoRed Data

Taking Bytes of Observations

- **One or more files must be in the list.**
- Click **<Process>** to start.
 - Progress bar keeps track of the percent of PhotoRed files processed.
 - The active file name is displayed above the progress bar.
 - Unless there are hundreds of files, processing time is close to instantaneous.



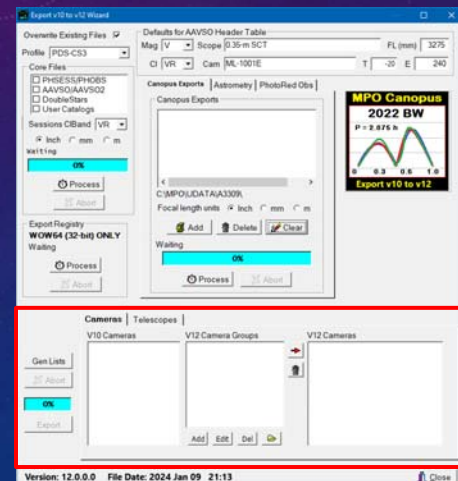
Telescopes & Cameras

(Consolidating Entries - Optional)

V12 Tutorial: Exporting v10 Data Consolidating Camera and Telescope Entries

Cleaning House

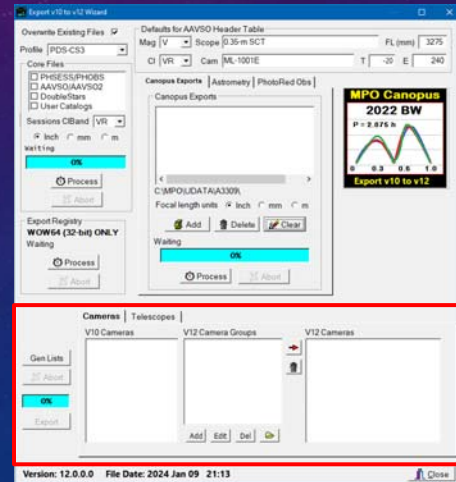
- These steps are *optional*; if you do one list, you must do both.
- Purpose is to consolidate names that all apply to one piece or type of equipment. For example,
 - ST-9, ST-9E, SBIG ST-9, SBIG ST-9E all refer to the same general camera type.
 - This step allows changing all of them to a common name, e.g., SBIG ST-9.
- Results are stored in lookup tables to be used when creating new sessions.



V12 Tutorial: Exporting v10 Data Consolidating Camera and Telescope Entries

Things to Know

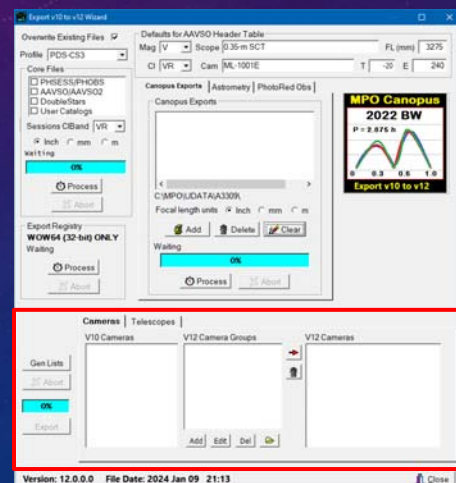
- Both cameras and telescope names must be processed, not just one or the other.
- The v10 names are taken from previously exported session files, so make sure all sessions have been exported.



V12 Tutorial: Exporting v10 Data Consolidating Camera and Telescope Entries

An Exception to the Rule

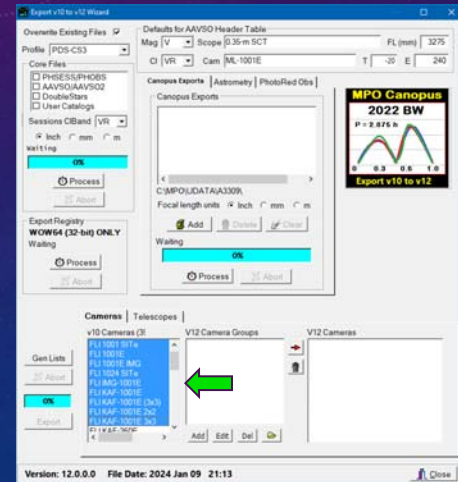
- **Temporarily** move session and observation files from default `\MPO\V12Exports\Exports\` to a **temporary** directory.
- Export additional sessions and observation files to the default directory.
- Run the consolidation again, using the same consolidation names as before.
- Move the files from the temporary directory back to `\MPO\V12Exports\Exports\`, without overwriting the newer files.



V12 Tutorial: Exporting v10 Data Exporting and Consolidating Camera and Telescope Entries

Cameras First

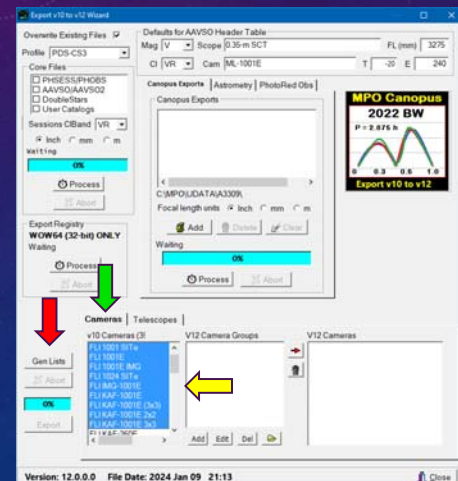
- This section demonstrates only the steps for cameras. They will be the same for when consolidating telescope names.
- Substitute “Camera” with “Telescope” when working on the Telescopes tab.



V12 Tutorial: Exporting v10 Data Exporting and Consolidating Camera and Telescope Entries

Cameras First

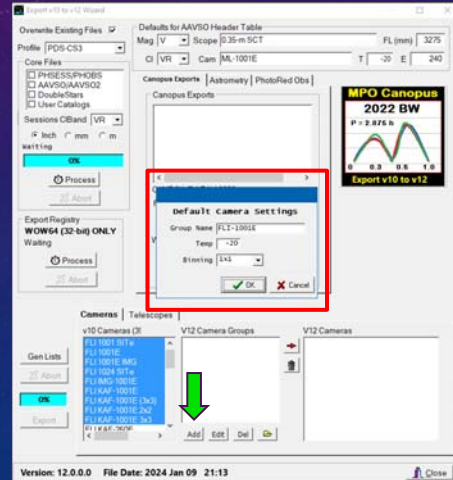
- Click <Cameras> on the tab control.
- Click <Gen Lists>. This creates the v10 lists for cameras *and* telescopes. This does not need to be done when switching to telescopes.
- Scroll through the v10 Cameras list and select all cameras that will be converted to a single name. In this case, any FLI with a 1Kx1K chip will be given the same name.
- This is a Windows list box, so you can use Ctrl+Click and Shift+Click as you would otherwise.



V12 Tutorial: Exporting v10 Data Exporting and Consolidating Camera and Telescope Entries

Name That Group

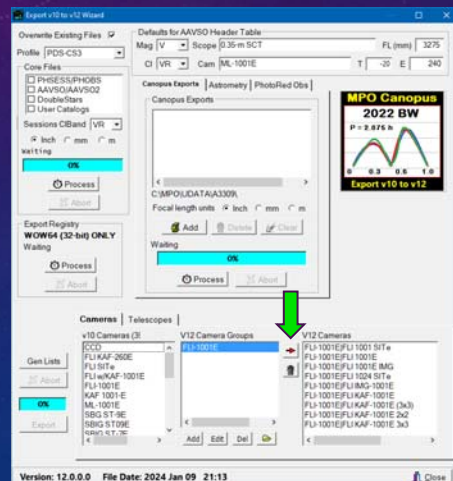
- Click <Add> below the v12 camera groups list.
- Enter the name for the group, or consolidation name. All selected names will be changed to this name.
- Enter a default temperature, which is used if a session didn't store a value.
- Enter the binning. 1x1 – 4x4, and Other are the choices.
- Click <OK> to transfer the entry to the V12 Camera Groups list.



V12 Tutorial: Exporting v10 Data Exporting and Consolidating Camera and Telescope Entries

Populate The Group

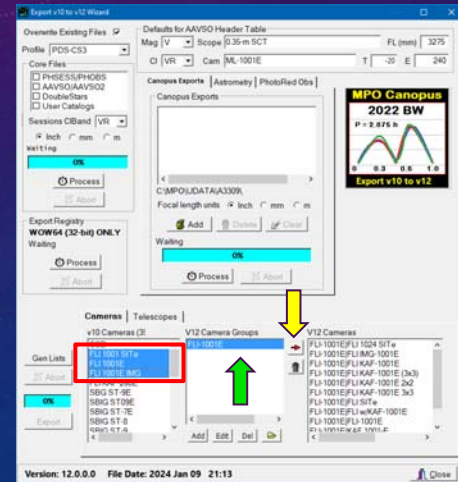
- Click <Right-arrow> to transfer all the selected items to the V12 Cameras list. They are removed from the v10 cameras list so that they cannot be used again.



V12 Tutorial: Exporting v10 Data Exporting and Consolidating Camera and Telescope Entries

Add More Cameras to Existing Group

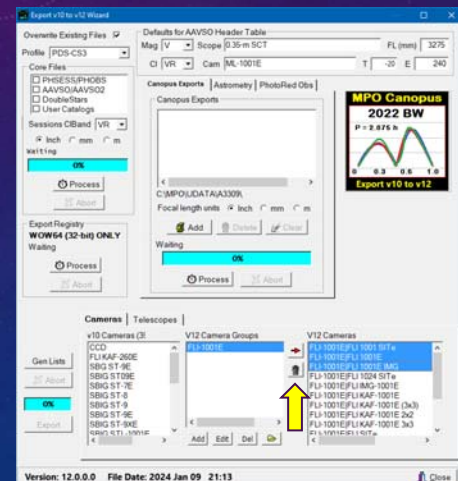
- Select one or more v10 Cameras.
- Click on an existing group in the V12 Camera Groups List.
- Click <Right-arrow>.



V12 Tutorial: Exporting v10 Data Exporting and Consolidating Camera and Telescope Entries

Remove Cameras from V12 Cameras

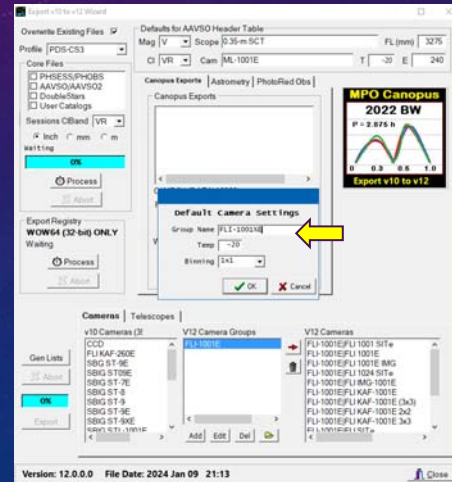
- Select one or more items in the V12 Cameras list.
- Click <trashcan>.
- Confirm the request to remove the cameras from the V12 list and transfer them to the V10 list.



V12 Tutorial: Exporting v10 Data Exporting and Consolidating Camera and Telescope Entries

Edit a V12 Group Definition

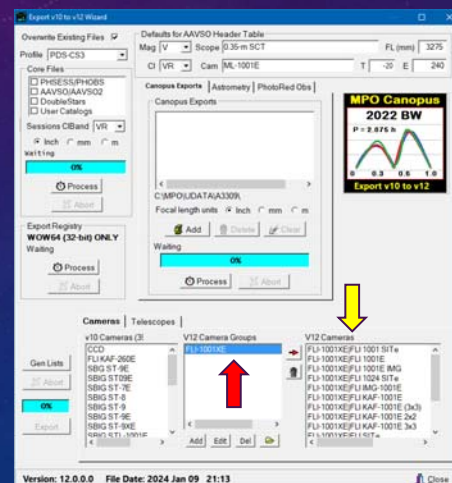
- Select an item in the V12 Camera Groups list.
- Click <Edit>.
- Change the information in the popup form and then click <OK> on that form.



V12 Tutorial: Exporting v10 Data Exporting and Consolidating Camera and Telescope Entries

Edit a V12 Group Definition

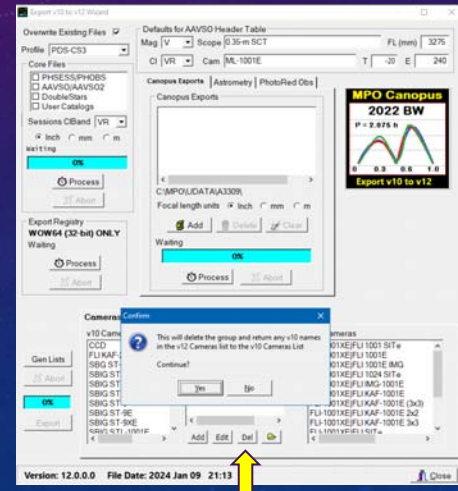
- The group name in V12 Camera Groups has changed to "FLI-1001XE".
- Note that all the items in the V12 Cameras list that were tied to "FLI-1001E" are now tied to "FLI-1001XE".



V12 Tutorial: Exporting v10 Data Exporting and Consolidating Camera and Telescope Entries

Delete a V12 Group

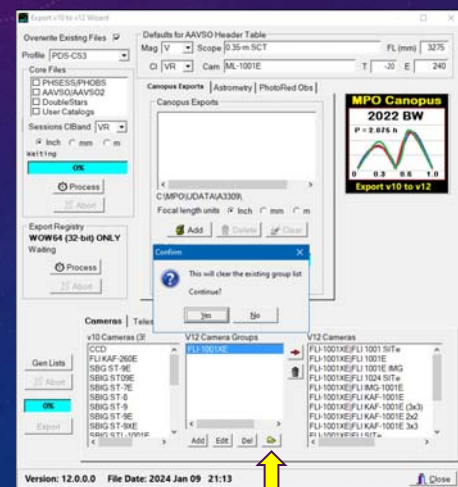
- Select an item in the V12 Camera Groups list.
- Click .
- Confirm the request to undo all the work you did defining a group and its cameras.



V12 Tutorial: Exporting v10 Data Exporting and Consolidating Camera and Telescope Entries

Delete All V12 Groups

- Click <Folder>.
- Confirm the request to undo all the work you did defining *everything* about v12 Camera groups and move all the cameras back to the v10 list.

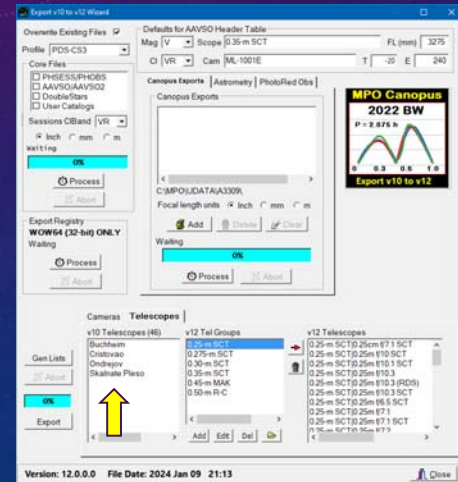


Are you sure about this?


V12 Tutorial: Exporting v10 Data Exporting and Consolidating Camera and Telescope Entries

Half-way Home

- Any remaining cameras in the V10 Cameras list will not be processed and keep their original names in the session tables.
- Follow the same steps for the telescopes list after clicking <Telescopes> on the tab sheet.
- At least one Telescope group with at least one telescope must be defined before <Export> is enabled.
- Any remaining telescopes in the v10 Telescopes list will also keep their original names.
- Click <Export> to process. It takes only a second.

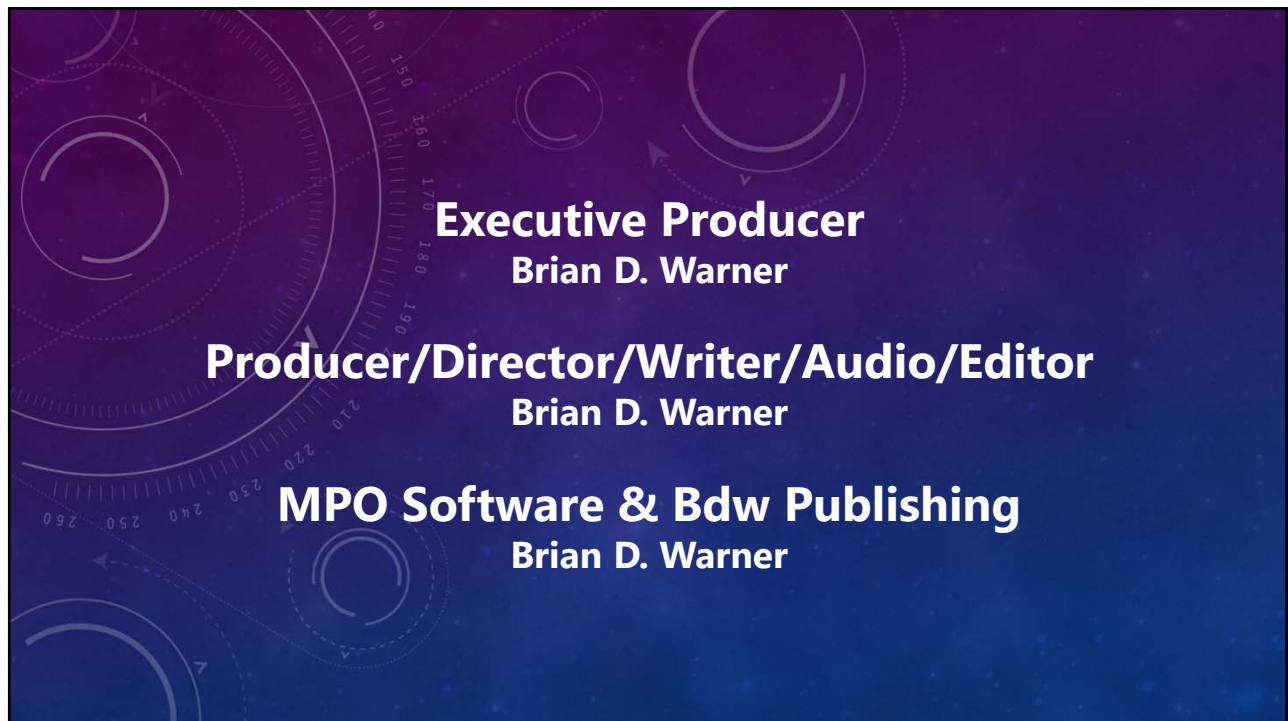


MPO Canopus v12 Tutorial Exporting v10 Data



YouTube Channel
<https://youtube.com/@8734Warner>

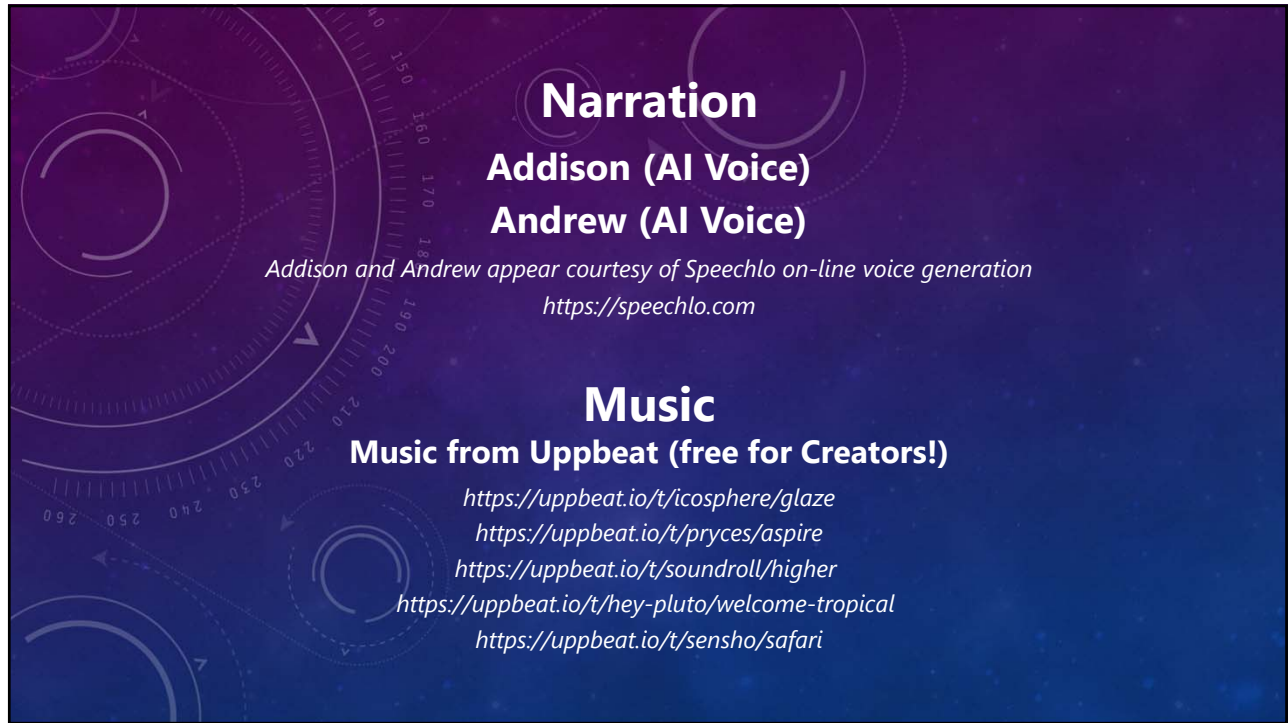
Technical Support
<https://groups.io/g/MPOSoftware>



Executive Producer
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Narration
Addison (AI Voice)
Andrew (AI Voice)

Addison and Andrew appear courtesy of Speechlo on-line voice generation
<https://speechlo.com>

Music
Music from Uppbeat (free for Creators!)

<https://uppbeat.io/t/icosphere/glaze>
<https://uppbeat.io/t/prycles/aspire>
<https://uppbeat.io/t/soundroll/higher>
<https://uppbeat.io/t/hey-pluto/welcome-tropical>
<https://uppbeat.io/t/sensho/safari>



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**The slides used in this tutorial
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MPO v12 Tutorial

Exporting v10 Data

No humans were harmed during the making of this production

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