



# Transmission solutions

Transmitting large files over military networks can be a daunting task. While we have several methods of transmission that are officially supported, not all military networks or systems are equal. The most important part of executing this is communication with the recipient before and after transmission.

The key to transmitting media from the fleet is to plan in advance and follow-up. Treat the transmission process like your equipment by conducting maintenance and testing routinely using established SOPs.

Your local network administrators are constantly working to maintain information assurance (IA). They are responding to new requirements and outsider threats on a constant basis. This means that the transfer method you know to work today may be inadvertently disabled tomorrow. The issue may be a simple security patch interrupting access requiring trouble shooting and configuration changes. It may also require finding a new solution. There may also be issues on the recipient end as the shore side cyber security team responds to changes in IA posture.

The following is not policy. It is simply best practices and known viable workflows.

## **A Note on Compression:**

The smaller the file you try to move, the better. H.265 is preferred to ensure the highest quality and smallest file sizes. The newest version of Adobe Creative Cloud (2015.5 or later) and Elemental Servers have the capability to export h.265. The h.265 codec saves roughly half the file size. If you don't have the capability to produce H.265 files, we found that using the H.264 with the Android Tablet – 1080p 29.97 Adobe Media Encoder preset produced the smallest full HD video files. The YouTube 1080P HD is also a good preset.

## **A Note on Metadata:**

Please embed metadata using Adobe Bridge after export. Have your MCs type the caption, release and keyword information in Word before pasting it into the IPTC Core fields that appear in the Adobe Bridge Metadata fields when you select a file. Please complete as many blocks as possible. The metadata can then be read by both the Navy Imagery Server (CHINFO/Navy.mil) and DVIDSHub servers.

You can verify the presence of Metadata by opening the file in Notepad or another text editor (Not Word or Wordpad) and searching for a term in your caption. The file will appear to be random characters. This is normal. Your caption should show as legible text preceded and followed by a bunch of code.

**MOST IMPORTANT STEP:** Follow-up - Contact OI-2 by phone or email to alert the staff regarding your transmission.

Video emailed in should be sent to [NVNS\\_Video.fct@navy.mil](mailto:NVNS_Video.fct@navy.mil)

## **Transfer methods**

- 1) **AMRDEC** - This Army operated system is completely web based and is NMCI compatible. Users visit the page, follow prompts to locate files and insert email addresses to deliver download instructions to. It can enforce CAC usage for delivery.
  - a) AMRDEC URL: <https://safe.amrdec.army.mil/SAFE/> • Naval Postgraduate School developed instructions:
    - (a) [http://www.nps.edu/Visitors/AMRDEC\\_SAFE\\_Getting\\_Started\\_Guide.pdf](http://www.nps.edu/Visitors/AMRDEC_SAFE_Getting_Started_Guide.pdf)
- 2) **Elemental file transfer (OI-8)** - Elemental Technologies provides a software solution on a server, and was originally utilized to fill the capability gap caused when FFT was removed from ships. It operates off the ship's network either on the AMMPS Visual

Information Local Area Network or a stand-alone workstation. Elemental Technologies Server is part of the Platform Information Technology (PIT) for AMMPS as of December 16, 2015.

Elemental Technologies uses a proprietary video compression algorithm to compress video twice the industry standard. OI-8 worked closely with Elemental Technologies over the course of a year to customize the configuration of the servers to be installed on ships. The workflow is relatively simple. A full motion, high definition video file is dropped into a work folder. The server automatically transcodes, or compresses, the video and divides it into 4MB, or smaller, individual files. These files are then copied to a compact disk and moved to a ship's computer. Each file is then attached to an email and sent off the ship using the ship's unclassified network. This process is similar to the current workflow MCs are utilizing to send still photographs. An Elemental Technologies server is needed by both the sender and receiver. Once the compressed video file attachments are received, the individual compressed video files are copied to a compact disk and transcoded back to the original full motion high definition video using the Elemental Technologies server, which will automatically reassemble the video. For more information on obtaining an Elemental Technologies server, contact CHINFO OI-8 VI Systems. You can work through [navymedia@Navy.mil](mailto:navymedia@Navy.mil) initially.

- 3) **Navy Imagery Server** (OI-2) - Simple web uploads to the Navy Imagery Server at [Imagery.navy.mil](http://Imagery.navy.mil) are fast and insert your files directly into the CHINFO OI-2 workflow. To obtain a username and password, contact [navymedia@navy.mil](mailto:navymedia@navy.mil). The server is very easy to use, located in the cloud for fast file transfers and is your resource for additional photos or video for your projects.
- 4) **DVIDS** - CHINFO OI-2 and DVIDS have an excellent relationship. All Navy and Marine Corps VIRIN'd files sent to DVIDS are shared with OI-2 daily. That said, if your file is urgent or related to a story, be sure to email [navymedia@navy.mil](mailto:navymedia@navy.mil) and let us know where the file is.
  - a) Upload instructions: [http://static.dvidshub.net/training/post\\_news\\_photos\\_direct.pdf](http://static.dvidshub.net/training/post_news_photos_direct.pdf)
- 5) **DMA FTP** - DMA operates an FTP server. File sharing is not automatic, so be sure to let us know where your files are. Contact [ahu@dma.mil](mailto:ahu@dma.mil) for access. If you send a file via [p.dodmedia.tv](http://p.dodmedia.tv), please let us know. We do not look on their server routinely.
- 6) **Commercial file transfer** (discouraged) - There are a lot of commercial file transfer methods. We routinely receive video via YouTube, VIMEO, Google Docs and Dropbox. If you use these methods, please do so as a last resort. Consider release status, content and urgency prior to selecting a non-DoD maintained method of file transfer. We are unable to download from Facebook. Using commercial/free file transfers systems is easy, but may pose an operational/Cybersecurity/political hazard. Free cloud storage is a commercial product with terms of service the Navy has not agreed to, such as transferring rights to the information and imagery to the storage provider, creating a security risk to the Navy.
- 7) **MAC OS X large file splitting for email (by Lt. Russ Wolfkiel)** - In the following, wherever the type [YOUR FILE] exists you should replace the entire entry, including the brackets, with the actual name of your file (i.e. your actual input will likely not include any brackets). Also, everything is case sensitive (as are your file names). Make sure you use the upper and lower case as specified and that your file names are copied EXACTLY.
  - 1) Create a folder on your desktop named temp (if you name it anything else, change the word temp in all the commands below to match the folder name you actually use)
  - 2) Open the terminal (use the finder to search if you're not sure where this is)
  - 3) In the terminal type:

```
cd ./desktop/temp
```
  - 4) In the terminal type:

```
split -b 2000k [YOUR FILE].mp4 [YOUR FILE]
```

NOTE: the portion after -b delineates the size of the file. 2000 = 2 MB. You can change this to get bigger pieces so you don't have to send as many e-mails.
  - 5) This should output several files that are named [YOUR FILE]aa, [YOUR FILE]ab, ... [YOUR FILE]an. Send each of these files as a separate attachment in separate e-mails.

Best Practice: Before you send them, send a note telling the recipient what you will be sending them and how many files to expect. Also its good to send the caption for the product in the introductory e-mail and to make [YOUR FILE] the VIRIN of your video product so there is no duplication over time.

### Reassembling the Files (PC):

To assemble video files use the following procedure on a PC.

- 1) Save all the split files to a folder on your PC. I recommend a folder like E:\temp. I will use E:\temp In all examples below. If you save the files in anther folder, use the path to that folder instead of E:\temp.
- 2) Open a command prompt. On Windows 7 or 10, click start, type 'CMD' and press enter. On Windows XP and earlier, click start, chose Run, type 'CMD' in the Run box and press enter.
- 3) In the DOS box that comes up type the drive letter of the folder where you saved your files followed by a colon and press enter. In the example E:\temp you would type 'E:' then press enter.
- 4) Change to the folder where you saved the files by typing 'CD\[FOLDER NAME]' For example type:  
CD\temp  
TIP: If you are not sure if you are in the right place or if you need a visual reminder for the file names, type 'Dir' to make sure you are in the right place and all your files are listed.
- 5) Use the 'TYPE' command to reassemble the file. To do this type 'TYPE' then the file name of the pieces you received followed by an asterisk, a space, the '>' symbol, another space and the name of the output file. EXAMPLE: If you received files named 160121-N-WK391-008aa through 160121-N-WK391-008am use the following command:  
  
type 160121-N-WK391-008\* > 160121-N-WK391-008.mp4
- 6) That should run for a few seconds then stop and leave you with a fully assembled video file in the folder where you saved the pieces.

If you do not have access to CMD (some system administrators block access) you can try putting all these commands into a batch file. To create a batch file, use Notepad to create new text file, type all the command-line commands listed above into the text file, one per line, the save the file with the file extension .bat (NOT .txt). When you double click the batch file, it will execute all of the commands one after the other and should finish with the same end result.

Here is an example of what the contents of a batch file might look like for the example above:

```
E:  
CD\Temp  
type 160121-N-WK391-008* > 160121-N-WK391-008.mp4
```

### Reassembling the Files (MAC):

To assemble video files use the following procedure on a Mac.

- 1) Save all the split files to a folder on your MAC. I recommend making a folder on your desktop. In my example, I will assume you made a folder on your desktop named 'temp'. If replace 'temp' with the actual name of the folder you use.
- 2) Open the terminal (use the finder to search if you're not sure where this is)
- 3) In the terminal type:  
cd ./desktop/temp
- 4) Use the 'cat' command to reassemble the file. In the terminal window, type 'cat' then the file name of the pieces you received followed by an asterisk, a space, the '>' symbol, another space and the name of the output file. EXAMPLE: If you received files named 160121-N-WK391-008aa through 160121-N-WK391-008am use the following command:  
  
cat 160121-N-WK391-008\* > 160121-N-WK391-008.mp4