

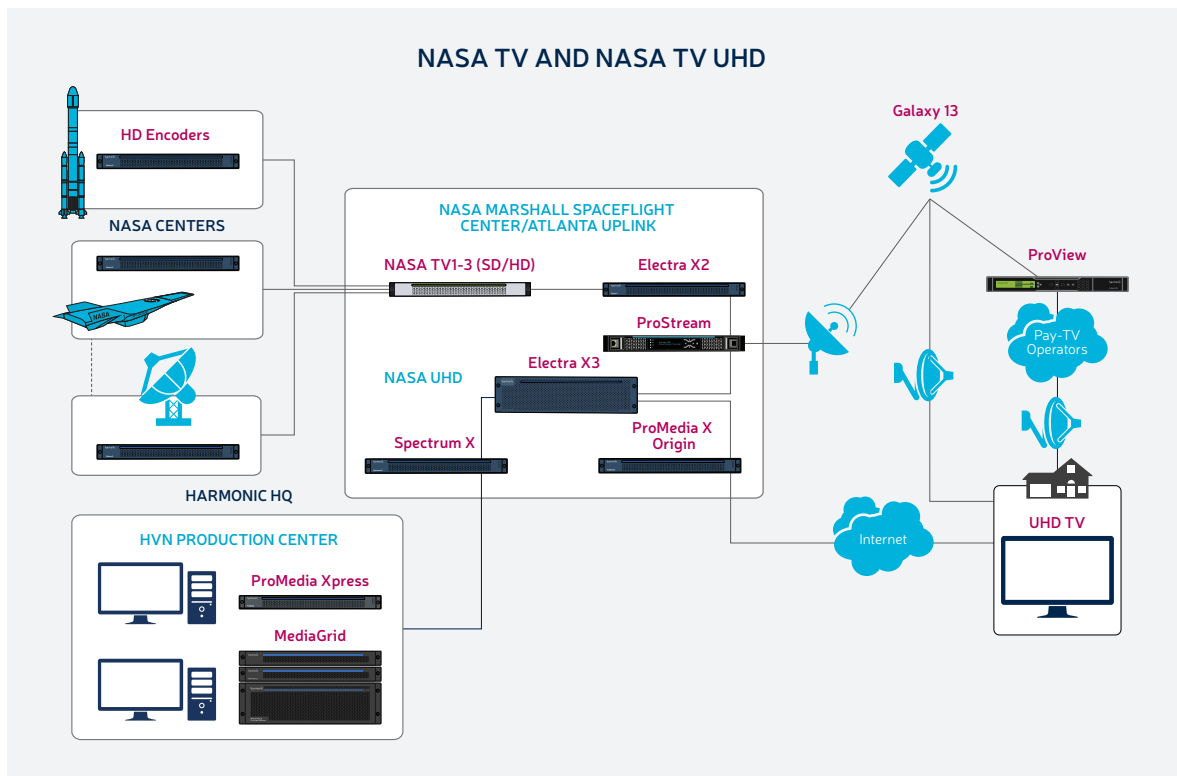
NASA TV UHD

CHANNEL ACCESS INFORMATION



NASA TV UHD leverages the latest 4K Ultra HD technology to highlight beautiful imagery from the U.S. space program. Utilizing an end-to-end video delivery system from Harmonic, the channel offers live and linear 2160p60 video content, enabling consumers to enjoy crystal-clear footage on a wide range of television and IP-connected devices.

The NASA TV UHD signal is available on the Galaxy 13 (Horizons-1) satellite, with a North American footprint. A Digital Video Broadcast (DVB)-compliant integrated receiver-decoder (IRD) is required for reception.



HIGHLIGHTS

Channel Parameters

- Satellite: Galaxy 13
- Orbital Location: 127 degrees W
- Downlink Frequency: 3920.00 MHz
- L-Band Frequency: 1230.00 MHz
- Transponder: 11

- Transponder Downlink Polarization: Vertical
- Symbol Rate: 28.0681 Msps
- Data Rate: 38.80 MHz
- FEC: 3/4

UHD Channel: NTV-4

- Program 104
- Compression Format: HEVC @ 13 Mbps
- Video PID: 0x1041 hex/4161 decimal
- MPEG I Layer II Audio PID: 0x1044 hex/4164 decimal
- AAC-LC PID: 0x1045 hex/4165 decimal

MINIMUM REQUIREMENTS FOR VIEWING NASA TV UHD

C-Band Satellite Dish	
DVB-Compliant Satellite Receiver-Decoder (IRD) with IP Output	Harmonic ProView™ 7100 recommended; off-the-shelf units also acceptable Configure the IRD input using the channel parameters listed on page 1 Configure the IP multicast and port number for the video output of the IRD
HEVC 4K Decoder	Software or hardware acceptable (see below)
4K Television Monitor	

HEVC 4K DECODERS – SOFTWARE

GPAC Software Decoder	Open-source multimedia player with HEVC support, enabling display of 4K HEVC on a PC Download at: http://gpac.wp.mines-telecom.fr/downloads/gpac-nightly-builds/
Available Platforms	Windows 32-bit, 64-bit Mac OS X 32-bit, 64-bit Linux x86 32-bit, 64-bit Android iOS
Installation Process (Windows Example)	Install the GPAC software Open a Command prompt, then type: <code>cd "C:\Program Files\GPAC"</code> Then type: <code>mp4client.exe udp://[IP multicast:port#]</code> Example: <code>mp4client.exe udp://228.1.1:9990</code>

HEVC 4K DECODERS – HARDWARE OPTIONS

PC HDMI Card Example	ASUS graphics cards GTX970-DCMOC-4GD5 (PC decoder software) Full height HDMI 2.0
Set-Top Box Example	ViXS Systems X6E-02-GRD2 VIXS (ViXS Golden Decoder) Supports IP multicast & DASH

ONLINE STREAMING

Currently the NASA TV UHD channel can only be viewed via a satellite DVB-compliant IRD. In the near future, we hope to have the NASA UHD channel online and available for your viewing. Please check back with us for updates.