



PEG Specifications

Encoder Information:

The city's encoding equipment at a minimum must meet the following specifications:

Encoder Technical Specifications	
Video Encoding Format (without closed captioning):	Both Advance Profile and Windows Media Video 9 VC-1 Main Profile are supported. However, the Advance Profile is the recommended setting.
Video Encoding Format (with closed captioning): *	Windows Media Video 9 VC-1 Advanced Profile CC 608 standard
Video Streaming Bandwidth:	1.25 Mbps
Input Video Format:	NTSC'
Frame Rate:	30/29.97 fps
Scanning Type:	Non-interlaced
Key Frame Distance:	4 Seconds
Buffer Size:	2 Seconds
Output Resolution	480 x 480 720 x 480 is available if supported by existing encoder
Aspect Ratio	4:3
Audio Encoding Format:	WMA (Windows Media Audio)
Audio Streaming Bandwidth:	96 kbps
Audio Sample Rate:	48 kHz
Streaming Protocol:	HTTP
Streaming Mode:	Constant Bit Rate
Streaming Format:	Unicast
Addressing:	Public IP Address
Output:	ASF Network Pull

*If Closed Captioning and/or Secondary Audio Programming (SAP) are required, please contact your AT&T Community TV Liaison (CTVL) for additional information.

AT&T strongly encourages the use of a stand-alone, dedicated hardware-based encoder that meets these specifications.

RECOMMENDED ENCODER: AT&T recommends the city use **Cisco 5300 encoder (release 7.6.3)**, which AT&T has tested and certified as compatible with its PEG service. The Cisco AS3005 which has reached end of life will continue to operate over the AT&T U-verse platform until further notice.

OTHER ENCODERS: The city may select and use the vendor and encoder of its choice. **AT&T assumes no liability, and makes no warranties, express or implied with respect to any such vendors and encoders.** In addition, the city is expressly advised that there is a **potential for degraded signal quality as well as increased operational overhead** if the listed minimum specifications are not met. As between AT&T and the city, **the city bears sole and exclusive responsibility for verifying that its selected encoder supports the minimum specifications** required for the city's PEG programming.

Audio:

Audio signal handoff must meet VC-1 codec standards. Audio may be mono or stereo. Decibel (db) levels should be adjustable.

Transport:

Internet access transport service is required. The Internet access transport service used must meet the following parameters:

- Internet transport access with 1.5Mbps of dedicated network bandwidth per stream.
- One (1) dedicated public IP address per stream. This should include default gateway and DNS addressing.
- TCP port 5000 shall be configured and open inbound through firewalls to the encoder.
- The city should use an appropriate firewall, router access control list, and Internet security to protect its PEG equipment from unauthorized intrusion.



The city may choose to acquire dedicated Internet bandwidth using an AT&T transport product (under AT&T's standard terms and conditions), or may use other transport services provided the above bandwidth and streaming parameters are met. If the city wishes to order AT&T transport, please work with your local Account Team for detailed product information.

Router Information:

A router may be required if the programmer uses certain internet access transport services (for example, AT&T MIS T1 service). Cisco 1800 and 1900 series routers or an integrated switch router unit such as the 2900 series are examples that can be used for this purpose.

If the city uses AT&T's MIS service, the chosen router needs to support:	A CSU/DSU is usually built into the router, but requires the following capabilities:
<ul style="list-style-type: none">• PPP for leased line protocol• IP default and static routing	<ul style="list-style-type: none">• Support Binary Eight Zero Substitution [B8ZS] and Extended Super Frame [ESF]
<ul style="list-style-type: none">• Internet Control Message Protocol [ICMP] to accept pings to the serial port IP address connected to AT&T MIS	<ul style="list-style-type: none">• Have a line build out that can adapt to different voltage levels from smart jacks
<ul style="list-style-type: none">• BGP4 - dynamic routing protocol (optional - if dynamic routing is required)	<ul style="list-style-type: none">• Take timing from the AT&T network [looped timed or receive timed]



Important information regarding PEG on AT&T U-verse TV

AT&T's PEG service

AT&T uses Internet Protocol (IP) technology to stream a City's PEG channels through the AT&T U-verse TV service to U-verse TV subscribers in the designated market area (DMA).

Conversion and Transmission of PEG Programming by City

In order to provide PEG programming in the appropriate format for distribution to AT&T U-verse TV subscribers, the City must transmit each channel of its PEG programming as a digitally encoded video stream using Windows Media 9 per the AT&T PEG specifications. The City will provide at its own expense the required video and audio transmission equipment, including, but not limited to encoders and routers required to transmit PEG programming signal in the format specified by AT&T. The City also shall be responsible for transport and/or Internet access services required to transmit its PEG programming to AT&T. The City should include the appropriate firewall and Internet security to protect its PEG equipment from unauthorized intrusion. If the City's PEG programming includes closed captioning (CC) or secondary audio programming (SAP), please notify your AT&T Community TV Liaison (CTVL). More detailed encoder and transmission specifications are available upon request.

Availability of PEG Programming to AT&T U-verse TV Subscribers

AT&T delivers PEG programming to all U-verse TV subscribers within the same designated marketing area (DMA) on Channel 99. This means the City's PEG service will be available to all U-verse TV subscribers in the DMA, not just those who reside within the City.

Internet addresses for PEG programming ("URLs/IP Addresses")

Each PEG channel transmitted by the City to AT&T must have a unique and dedicated Internet URL/IP address. The City will need to work with AT&T to identify and finalize the dedicated URL/IP address for each of its PEG channels.

Timely Completion of PEG Implementation

AT&T will meet with the City to review PEG requirements. AT&T and the City will work cooperatively and on a timely basis to enable the implementation of PEG programming within specified timelines.

Maintenance and Support

The City may report technical issues to AT&T Operations center by calling AT&T U-verse Operations at 1-866-563-7972, option 2. The Operations center will troubleshoot the AT&T U-verse network and clear any issues within AT&T's network. If the problem is identified to be transport or encoding hardware or software related, the City is responsible for troubleshooting and issue resolution and can contact their transport or hardware provider for assistance.

PEG Programming Content

AT&T shall not exert direct or indirect programming control or assert ownership over the City's PEG programming. All PEG content provided to AT&T by the City shall remain the responsibility of the City. The City shall ensure that it has the appropriate rights to allow transmission of all content by AT&T to subscribers in the DMA. AT&T shall have no editorial control over the City's PEG programming.