



Implementation

BSS AVoIP and USB products provide networked transport and control for video, audio, and USB signals. This pre-implementation guide describes the network behavior and IT requirements that should be reviewed before deployment. It is written for network engineers, IT administrators, AV integrators, and system designers.

Product families

Family	Product role	IT and deployment focus
Vx600 Series	Video transport and distribution endpoints	Video formats, stream bandwidth, multicast, control, and switch capacity
Vx300 Series	Video transport and distribution endpoints	Video routing, endpoint addressing, multicast, control, and display integration
Ux200 Series	USB and USB-over-network endpoints	USB host/device roles, USB stream traffic, collaboration peripherals, and network segmentation

Implementation considerations

- BSS AVoIP endpoints use Ethernet for management, control, discovery, and media transport.
- Endpoints may be deployed on a physically separate AV network or on an approved AV VLAN within an existing enterprise network.
- Each endpoint requires a reachable IPv4 address using DHCP or a manually assigned address.
- Video, audio, and USB-over-network streams may use UDP/IP multicast. Switches must be configured to prevent multicast flooding.
- Exact capabilities vary by model and firmware. Use the approved model documentation when a feature or port is marked optional.

Video Inputs and USB Interfaces

Vx600 and Vx300 video endpoints accept the digital video formats supported by the installed model. Confirm the exact input connector, output connector, maximum resolution, frame rate, HDCP behavior, scaling, and audio support for each device in the equipment schedule.

Video planning

Planning item	Requirement
Source format	Record resolution, refresh rate, color format, audio format, and HDCP requirement.
Display format	Record sink resolution, refresh rate, EDID behavior, and scaling requirement.
Stream mode	Record the selected BSS transport mode and expected per-stream bandwidth.
Multicast address	Use the address displayed or configured on the endpoint; do not assume one fixed address for every device.
Recovery	Define the local fallback image or behavior used if a stream or network link is unavailable.

EDID and protected content

- Sources may select an output format based on the attached display EDID. Confirm that the selected source format is supported by the encoder and decoder path.
- If the system uses scaling, configure all endpoints consistently when seamless or predictable switching is required.
- HDCP-protected content is encrypted and may not be visible through packet capture or third-party monitoring tools. Confirm protected-content behavior with the actual source and display.

Ux200 USB planning

- Identify the USB host computer and every attached USB peripheral, including cameras, microphones, speakers, touch interfaces, keyboards, and mice.
- Record host/device direction, connector type, USB mode, cable length, hub topology, and required power for each connection.
- USB enumeration is not sufficient acceptance. Test the required conferencing or collaboration application with the customer computer image and security policy.
- Document whether USB traffic is local or transported across the AV network, and include the resulting VLAN, multicast, and bandwidth requirements.

Network Properties

BSS AVoIP endpoints use different network packet paths for different operations. The following table identifies the principal network traffic that an IT department should account for during design and firewall review.

Signal or service	Transport	Address or port	IT notes
Device discovery	UDP broadcast	UDP 50001	Broadcast is local to the subnet and is not routed. Permit only where discovery is required.
Optional HControl discovery	UDP multicast	239.254.12.16:4197	Used only when multicast discovery is enabled.
HControl	TCP	TCP 4197	Direct HControl connection to an endpoint.
Direct Control and status	TCP / UDP	TCP 50001, 50002; UDP 50001, 50002	Permit from approved control systems and management hosts.
Web management	TCP	TCP 80	HTTP management where enabled by the endpoint.
Secure web management	TCP	TCP 443 if enabled	Optional; confirm support and enablement on the installed firmware.
PTP timing when used	UDP multicast	224.0.1.129; UDP 319 and 320	Permit on the media VLAN when synchronization is required by the selected audio mode.

IP addressing

Use DHCP reservations or static IPv4 addresses for managed deployments. Record the device name, MAC address, IP address, subnet mask, gateway, DNS servers, NTP source, VLAN, and switch port. The management station and approved control systems must be able to reach the endpoint IP addresses.

Media traffic

Traffic	Transport	Addressing	Network requirement
Video	UDP/IP multicast	Device-configured multicast group	Enable IGMP snooping and one authoritative IGMP querier per multicast VLAN.
Audio	UDP/IP multicast	Device-configured multicast group	Permit the selected groups and size uplinks for aggregate traffic.
USB	UDP/IP multicast when selected mode requires it	Device-configured multicast group	Permit only on VLANs carrying Ux200 traffic and validate the required USB workflow.
Control/status	TCP or UDP unicast	Endpoint IP address	Permit from approved control and management hosts only.

Port Requirements

The following port matrix is intended for firewall, ACL, switch, and control-system planning. Ports marked optional shall be enabled only when the corresponding feature is used.

Product or service	Interface	Protocol	Port	Purpose
Vx600, Vx300, Ux200	Control	UDP / TCP	50001; TCP 50002	BSS discovery, direct control, and status traffic
Vx600, Vx300, Ux200	HControl	TCP	4197	Direct HControl connection
Vx600, Vx300, Ux200	HControl discovery	UDP	4197 to 239.254.12.16	Optional multicast discovery
Vx600, Vx300, Ux200	HTTP webserver	TCP	80	Web management where enabled
Vx600, Vx300, Ux200	HTTPS webserver	TCP	443	Secure web management where enabled
Media VLAN	PTP	UDP	319, 320	Timing and synchronization when required
Media VLAN	PTP multicast	UDP	224.0.1.129	PTP multicast group when required

Firewall and ACL guidance

- Restrict management and control ports to approved management stations, control processors, and support hosts.
- Do not block the approved discovery, control, media, USB, or timing traffic with ACLs, storm control, or flow-control policies.
- If the AV VLAN is routed, the network architect must approve the multicast routing design and access-control rules.
- Document every enabled service and the source and destination zones that are permitted to use it.

Network diagnostics

- Packet capture may be used to validate discovery, control, multicast membership, and packet flow for non-encrypted test content.
- A standards-based media player may be used to validate non-encrypted test streams where the selected BSS mode supports it.
- Protected content may not be visible through third-party monitoring tools.

Installation Over an Existing Network

BSS AVoIP systems may be deployed over an existing managed network when the network architecture has been reviewed and the media traffic is isolated and controlled.

- Place video, audio, USB, and control traffic on a dedicated AV VLAN where possible.
- Enable IGMP snooping and a single IGMP querier on each multicast VLAN.
- Confirm that ACLs permit required discovery, control, media, USB, and timing traffic.
- Calculate worst-case aggregate bandwidth for the endpoints and streams being deployed.
- Confirm PoE budget, uplink capacity, port speed, and switch buffer capacity.
- Test one endpoint at a time before enabling the complete system on an existing network.
- Record the resulting switch ports, VLANs, multicast groups, and firewall rules for the IT handoff.

Existing-network risk controls

- Begin with conservative stream settings and increase them only after traffic levels are verified.
- Use the endpoint configuration to disable unused streams and services.
- Prevent control-system ports from receiving media multicast when they do not require it.
- Do not use unmanaged switches or unapproved wireless links in the media path.
- If stream loss or flooding occurs, stop adding endpoints and have the network administrator review IGMP, ACL, QoS, and uplink behavior.

Installation Over a Dedicated Network

A dedicated AV network can simplify multicast containment and predictable bandwidth planning. The dedicated design must still provide managed switching, sufficient uplinks, and a defined path for management and control access.

- Use managed switches with adequate port speed, uplink capacity, PoE budget, and multicast support.
- Provide a defined management path from the IT or AV management network to the endpoint addresses.
- Use IGMP snooping and a single querier per multicast VLAN.
- Use fiber or copper uplinks appropriate to the distance and aggregate traffic requirement.
- Document the switch stack or topology, endpoint port assignments, VLAN configuration, and addressing plan.
- Validate failover, power recovery, control reachability, and stream recovery before handoff.

Control across separated networks

Where media traffic must remain on a physically separate network but control must be available from the enterprise network, use an approved routed or dual-interface control architecture. Do not bridge multicast media into the enterprise network without an explicit design and security review.

IT Handoff Requirements

Before system acceptance, the installer shall provide the IT department with the information below.

Handoff item	Required information
Endpoint inventory	Model, serial number, device name, MAC address, location, and firmware version
IP plan	IP address, subnet mask, gateway, DNS, NTP, DHCP reservation or static assignment
Switching	Switch name, stack, port, VLAN, speed, PoE draw, and uplink path
Network services	Enabled TCP and UDP ports, discovery settings, management access, and control hosts
Multicast	Video, audio, and USB groups in use; IGMP snooping and querier location
Security	ACL, firewall, certificate, remote-support, and account ownership decisions
Validation evidence	Discovery, control, video, audio, USB, power-cycle, and recovery test results

Final note

This guide is a product-family implementation reference. Product-specific limits, connector assignments, stream formats, and optional services take precedence over generalized guidance. Confirm the final port and feature matrix against the approved BSS documentation and installed firmware before production deployment.