

Interoperable Sessions: Usage, Planning, and Scheduling

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Introduction to Interoperability

Interoperability is the ability of software and hardware on different machines from different vendors to physically communicate and share data.

Interoperability allows communications to occur between ATM sites and other standards based distance learning technology. The configuration provides the capability to host mixed sessions that include IP video conferencing, ISDN video conferencing, Interactive Television (ITV), and ATM video conferencing.

To make the interoperable connection work, some form of videoconferencing hardware that is suitable for use with the bridge must be in place. The most common types of videoconferencing hardware are those made by Polycom and Radvision. Generally, it is not possible to interface with video chatting software running on personal computers.

The Maine Distance Learning Project ATM system allows both in-state and out-of-state conference capabilities, making the state system able to connect to remote locations at a global level.

Interoperability opens the door and holds great promise for Maine schools as it breaks down geographic barriers, expands real time, live, fully interactive course offerings and allow access to people, regions and cultures throughout the state, the nation, and the world previously unavailable to Maine's students and communities.

Types of Interoperability Connections

ATM sites in the Maine Distance Learning Project can request interoperability connections either via H.320 (over high speed ISDN phone lines) OR via H.323 (over the Internet).

Sites will need to work with the remote interoperability sites to determine which type of connection to use. Both choices have positives and negatives, and it is important that sites discuss these considerations with the remote locations before making a decision.

Videoconferencing via H.320 (using high speed ISDN phone lines)

H.320 is a popular videoconferencing standard. ISDN is the transport mechanism used most often with H.320 systems. The ISDN communications standard specifies how a single wire or optical fiber can carry voice, digital network services, and video. Typically, an ISDN circuit has more bandwidth than a regular analog telephone circuit, and will have consistent quality with clear transmission of voice and video.

ISDN conferences are dial in, and the caller pays for connection time. The additional line charge is paid as an hourly fee to the phone company. ISDN charges depend on several factors, and costs will likely be higher for sites outside of the continental United States.

Sites should resolve all costs considerations prior to scheduling sessions.

Videoconferencing via H.323 (using an IP address / the Internet)

H.323 provides a foundation for audio, video, and data communications across IP-based networks, including the Internet. It is the standard for videoconferencing over IP. In this type of connection, systems communicate with each other over the Internet or other TCP/IP based network.

A system running H.323 technology will have an Internet Protocol (IP) number assigned to that system. You can connect to any other H.323 video conferencing system in the world using bandwidth available on the global Internet without paying any additional line charges.

ISDN or IP?

If you have a choice of having an ISDN versus an IP connection with the remote site, you have two issues to consider: quality and cost.

You will get consistent quality with an ISDN connection, but over the Internet you do not have guaranteed bandwidth (and therefore no guaranteed quality).

In many cases, there will be additional charges (for you or the site you are connecting to) for ISDN. In general, there are no additional charges for IP.

Additionally, ATM sites use broadband lines while the interoperable sites will utilize much lower speeds. Consequently, the ATM site video conferencing quality for an interoperability session will be diminished.

There are additional charges for ISDN connections either for you or the site you are connecting to. In general, there are no additional charges for IP. Therefore, some sites may not offer the ability to hold ISDN conferences, and limit connections to be via IP.

If your interoperable session is a virtual field trip, be sure to follow whatever rules the offering organization specifies, including what type of connections they allow.

Scheduling Interoperability Events

Currently, there are some complexities when scheduling interoperability sessions that include IP and ISDN sites. The vendor has committed to addressing "ease-of-use" in future releases of its scheduler but in the meantime the DOE requires all interoperability conferences to be centrally scheduled through the MSLN Helpdesk.

Scheduling Requirements

The following requirements must be complied with when scheduling an interoperable session.

1. Interoperability sessions will be scheduled on a "first come, first serve" basis.
2. DOE has the authority to determine priority if the system is oversubscribed.
3. Sessions must include at least one ATM site.
4. Requests for interoperability events must be submitted to the MSLN Helpdesk a minimum of seven (7) days in advance to allow for connectivity testing with the locally participating distance learning (ATM) sites and the remote interoperability sites. Sites interested in hosting an interoperability event **MUST** run at least one test with the participating interoperability site to insure the event will function properly. (see next page)
5. Coordinators at ATM sites and interoperability locations must arrive 15-20 minutes early on the day of the scheduled event to troubleshoot any problems that might occur.

Interoperability Session Request Email

The organizing ATM site must submit a session request via email to voc@lists.maine.edu with the word "INTEROPERABILITY" in the subject line.

The email must contain the following information and be submitted a minimum of seven days in advance.

Part 1 – Session Information

- | | |
|---|---|
| 1. Date of Session | Ex: 1/31/05 |
| 2. Session Title | Ex: UNE Anatomy Lab |
| 3. Session Description | Ex: Human anatomy discussion |
| 4. Originating ATM or Interoperability Site | Ex: Shibles Hall, UMaine Orono (ATM site) |
| a. Site Contact | Ex: Anne Perloff |
| b. Site Phone Number | Ex: 561-3584 |

(It is **IMPORTANT** to remember that if connecting out of state you must provide the area code. Also, realize that this phone number will be used by the helpdesk during the troubleshooting session and therefore must be in close proximity to the interoperability location.)

- | | |
|------------------------|---|
| 5. Session Start Time | Ex: 9:00 AM |
| 6. Session End Time | Ex: 12:00 PM |
| 7. Sites Participating | Ex: Shibles Hall (ATM), Skowhegan HS (ATM), Greely HS (ATM), and UNE (Interop Site) |

Part 2 – Interoperability Information

Sites will need to work with the remote interoperability sites to determine if the anticipated connection is to occur via ISDN (over high speed phone lines) OR via IP (over the Internet).

Option A: Connect via ISDN

If the interoperability session is to occur via ISDN (H.320) then following information needs to be included about each remote interop site to be connected via ISDN. ISDN conferences will be "dial in" and the caller pays for connection time.

1. Site Name Ex: University of New England
2. Site Contact Ex: John Doe
3. Site Phone Number Ex: (207) 123-4567

(It is IMPORTANT to remember that if connecting out of state you must provide the area code. Also, realize that this phone number will be used during the troubleshooting session and therefore must be in close proximity to the videoconferencing equipment.)

4. ISDN Dial-In Phone Number Ex: (207) 555-1234

(If an ATM site has requested an ISDN session they will receive a "dial in" telephone number from the MSLN Helpdesk. The ATM site is then responsible for giving the ISDN site(s) the telephone number that they are to "dial-in" to for the ISDN connection. If you do not receive a number from the helpdesk be sure to call and verify. DO NOT wait till the day of your event before you check!)

Option B: Connect via IP

If the interoperability session is to occur via IP (H.323), then the following information needs to be included about each remote interop site to be connected via IP.

1. Site Name Ex: University of New England
2. Site Contact Ex: John Doe
3. Site Phone Number Ex: (207) 123-4567

(It is IMPORTANT to remember that if connecting out of state you must provide the area code. Also, realize that this phone number will be used during the troubleshooting session and therefore must be in close proximity to the interoperability location.)

5. IP Address Ex: 123.456.789.10

(If an ATM site has requested an IP session they will not receive a telephone number from the MSLN Helpdesk, but they should still contact the helpdesk the day before the event to ensure their information has been filed and scheduled properly.)

Additional ATM Sites

If the interoperability session is to include any additional ATM sites, then the following information needs to be included about each remote ATM site.

1. Site Name
Example: Greely HS
2. Site Contact Information
Example: James Smith, (207) 765-4321

(This phone number will be used by the helpdesk during the troubleshooting session and therefore must be in close proximity to the videoconferencing equipment. It is suggested to include either the ATM room's IP Phone Number or the cell phone number of the tech support person for the site.)

Submit the Session Information (Part 1) and the Interoperability Information (Part 2) to voc@lists.maine.edu with the word "INTEROPERABILITY" in the subject line.

ATM / Interoperability Session Technology Etiquette Information

Sites planning Interoperability events should share the following guidelines with ALL locations to ensure that the planned event goes smoothly.

1. The ATM system allows ATM and interoperability sites to participate in distance learning events in two primary transmission modes. Mode one is an interactive format in which participants are able to interact in two way communications with one or several remote sites. Mode two is a non-interactive in which participants will NOT be able to interact with any remote sites. Both communications modes have their positives and negatives and it is important as an event organizer that you are familiar with the transmission modes.

Both communications modes have their positives and negatives and it is important as an event organizer that you are familiar with the transmission modes. For further information contact 1-888-FOR-MSLN.

2. ATM sites involved in ISDN and IP events need to understand that these technologies might be somewhat slow when compared to the ATM system. The video from interoperability sites may become jerky and blurry if rapid movement of a camera target occurs. To help prevent this, presentation staff may wish to attempt to limit rapid subject or camera movements when possible.
3. There is an inherent delay in receiving audio and visual signals between interoperability and ATM sites. This delay can lead to a "communication oscillation" similar to two pedestrians "dancing" as they attempt to avoid each other in a hall. Sites will want to establish a protocol for asking questions in order or in a sequence and wait for interoperability sites to completely finish a response.
4. Participants at sites should use a normal talking voice. It is often helpful if the event organizer asks remote locations if they can hear each other properly before beginning the programming this will prevent you from having to do it in the middle of the event.
5. Sites should understand that ALL sound is received by the sensitivity of the ceiling microphones. Do not drag chairs, shuffle papers, tap pencils, or carry on side conversations as these will disturb the presentation for the other sites.
6. If possible, sites should turn off any room announcement systems and bell systems in the room.
7. We recommend that interactive sites have a technician or teacher in the room (15-20 minutes early) to test the video and audio connection. For non-interactive distance learning events it may be necessary to have a person in the room and in control of the equipment during the entire presentation, as the remote ATM location will have no control over the local equipment.
8. It is often a good idea to call non-interactive sites to verify they are successfully receiving the session audio and video. This also serves as a good time to answer any event questions.
9. Send any session handouts to sites well ahead of time to allow for photocopying and distribution.
10. Teachers should be prepared with alternate or supplemental, on-hand learning materials in the case of technical difficulties.