How to Operate a CISM Access Grid node

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Pre-meeting:

- Use the bathroom, get snack/beverage, get reading material ready (and do anything else that would require you to leave the room during the meeting).
- Get to the meeting room a half-hour before the meeting is supposed to start, to get everything running and debug audio (and any other problem areas) with the other sites.
- Make sure that the room is reserved for the whole time period; find out what room schedule is after meeting (in case they want to go over); a printout is a good idea (reserving the room for a half-hour before and after might be a good idea, too).
- Make sure that you have working batteries in relevant objects (wireless keyboard + mouse (AA), projector remote (button cells), camera remote (AA), wireless microphone (9V) and backup batteries for them.
- Get a phone number for the operator/room for the other sites, in case there is a problem (this would probably be best done a day or two before).

Startup:

- Turn on all relevant projectors.
- Make sure all projectors to be used have AG data cables (VGA) connected on back (in case they were unplugged for use in a meeting).
- Turn on all relevant cameras.
- Turn on the monitor if it's off. (The lower right power button - LED should turn green or orange; 'ON/OFF' switch on left side should be on all the time.)
- Turn on and/or plug in any microphones that need to be turned on. (In our case, only the wireless microphone and receiver (the Shure ULXP4) need to be turned on. Note that it's best to plug the table microphones in before turning on the power conditioner (which starts the ClearOne), as plugging in a microphone after starting the ClearOne will usually produce a noticeable 'pop' in the speakers if they're already on.
- Turn on the Power Conditioner. The Furman PL-8, above the ClearOne XAP-400 (ClearOne = Gentner). Use the main switch on the right (it should light up); the switch on the left (black) is for pull-out lights in Conditioner - leave them off, unless you're currently using them.
- Turn on the the speakers. (Note: it's better to do this after the Power Conditioner, since the Power Conditioner turns the ClearOne on, and turning it on will produce an annoying pop in the speakers if they're already on.)
- Don't try to turn on the ClearOne machine (the XAP-400) using the button on the right; the Power Conditioner turns it on; the 'On' and 'Off' buttons/LEDs on the right are only for the Telco hybrid, which will be covered when/if necessary. (It won't turn on anyway - if you push 'On', it always goes back to the 'Off' setting.)
- Turn on the Linux and Windows servers if they are off. (The large red button on the right-hand side.) (Linux = top of the two, marked 'RH 8' (Red Hat 8); Windows = bottom of the two, marked 'XP Pro').
• Switch between the Linux and Windows machines being displayed/controlled (by the mouse and keyboard) with <Ctrl>, <Ctrl>, 'A', <Enter> (hit those four keys in a sequence) to switch to Windows; <Ctrl>, <Ctrl>, 'B', <Enter> to switch to Linux.

• Log in to both machines as 'ag' (for Access Grid); you should have already been given the passwords. (Note: on the Windows machine, you can just click the 'AG' button and enter the password; on Linux, you have to type 'ag' (lower case), then the password.)

• On Windows, click 'Start' -> 'Programs' -> 'Access Grid Toolkit' -> 'Venue' -> 'Start AG Display'. You should then get two windows: the 'Event Server Monitor' and the 'Display Resource Manager', which might be on top of the Event Server Monitor window; after about 15 seconds, the 'Connected' button in the Display Resource Manager window should fill in solid and the 'Heartbeat' button should start blinking.

• On Windows, click 'Start' -> 'Programs' -> 'Access Grid Toolkit' -> 'Venue' -> 'Virtual Venues'. Internet Explorer should open the 'Access Grid Virtual Venues server' web page.

• Click on the 'Log in to the non-secured Venues pages' link; a sign-in screen should open.

• Enter your AG Username and AG Password; you should already have these.

• You will be logged into the 'Access Grid Lobby'; click the links to go to the relevant room; usually this will be the "CISM (Boston University)" room - from the Lobby, click the "Door to Institution Lobby" link, then the "Door to CISM (Boston University)" link.

• A 'tkMOO' window should have already opened, telling you what room you're in and who else is there; type a double quote (the " symbol) in the purplish line at the bottom, then the message you want to send for everyone else in the room to read. (Note: do not type a second double quote to match the first one, as the first one won't show up in your message, but all others will.)
• On the Windows side, the Display Resource Manager should bring up a window with all of the available displays (for the room you're in) in small windows inside a larger window [image here]; click on any of those images to get a larger version of the window, which can be moved around (in particular, this is how we display the other participants); make any of those windows active (click on it, so that the title bar is colored in darker than the others) and you can make the image Large, Medium, or Small by simply pressing the 'L', 'M', or 'S' key on the keyboard. [There are some problems that can occur here; they will be described and solved in a later version of this document.]

The VIC Display Window

• On Linux, open a terminal (the icon on the bottom that looks like a footprint on a monitor screen), type in 'arm-eventlistener' (you should be able to type 'arm-' and hit 'Tab' and
have the rest filled in for you) and hit 'Enter'; (screens show up, including the 'Audio Resource Manager' window and the 'RAT' window; when multicasting is working, something will probably happen with the 'Connected' and 'Heartbeat' buttons); if you are already in your meeting room, click the 'Talk' toggle button in the RAT window, so that the other site can hear your audio (otherwise, keep 'Talk' toggled off, to cut down on background noise); when everyone is online and at the right IP addresses, both halves (triangles) of the diamond next to the other sites’ names in the middle part of the RAT should be solid green; your diamond should remain grey.

The RAT Window

- On Linux, open another terminal (same way), type 'vrm-eventlistener' ('vrm-' then 'Tab') and 'Enter'; (more screens show up, including the 'Video Resource Manager' and several display (VIC) windows having the room you're in (from the Windows side) as their title); if there are 4 Device windows, uncheck the 'Enabled' button in the '/dev/video3' box - probably the top of the 4 boxes - since we only have 3 cameras.
- If you are using a Bridge to connect to the CISM (BU) room, enter the bridge IP address (128.197.162.228) into each of the 3 (4) locations in the Linux Video Resource Manager window, the Linux Audio Resource Manager window, and the Windows Display Resource Manager window; enter the appropriate port # (audio = 60456, video = 60458) in each of the same windows, and make sure that the TTL (Time To Live) box reads 127 everywhere (it should already).
- For every window that you changed the IP address and port numbers, click the 'Stop <whatever>' button, which should then turn into a 'Start <whatever>' button; click it again to restart <whatever> with the new IP address and port number (this will first close, then reopen, several of your windows; if you changed any settings in the old windows, they will need to be changed in the new ones, as well).
Once you are in the room you are going to stay in, go to each of the four (three) VIC windows (it should say 'VIC v2.8<etc.>' in the bottom of the window), un-check the small 'mute' button toward the top left (should now be grey; red = checked = mute on) of each window; the large square to the left of the 'mute' button should go from grey to blue. Click the 'Menu' button at the bottom right of the same window to open the 'vic: vic menu' window; click on the 'Port...' drop-down menu in the 'Encoder' section (3rd section from the top) and select 'Television' (the button to the left of 'Television' should turn red and the menu will disappear; you can click on 'Port...' again to make sure, and just click outside the menu (not on another button!) or on the 'Television' label to make the menu disappear again); click on the 'Dismiss' button at the bottom to make this window disappear (this should start showing what your cameras see in the box that was blue before; you can click the image to see a larger image; click 'L', 'M', or 'S' on the keyboard to make the image window you opened Large, Medium, or Small - this works on both the Linux side and Windows); remember to do this for all three windows (if there are four, one isn't connected to a camera and will stay blue; you can leave it to annoy the others, or disable it as described above).

On Windows, double-click the 'ClearOne G-Ware' icon

Click 'File' -> 'CISM at UTEP-2003.06.26.psr' (or the file with the latest date in the name - in the format '<year>..<month>..<day>') from the bottom of the list. (The files are in the 'C:\G-Ware\SiteData' folder, if you have to hunt them down.)

Click 'Connect' -> 'Connect'; if asked, sync to data in the Document, not the unit. Both "Site Data:" and "Unit Data:" in the lower left-hand corner of the window should have
green "lights" (buttons) next to them; if either is solid or flashing red or yellow, there is a problem - see p. 28 in the XAP 400 Installation and Operation Manual (thin, green, spiral-bound book) for some insight into what the problem might be.

- Click the 'Inputs 1-4', 'Inputs 5-8', and 'Outputs 1-9' buttons to open the respective control panels; the settings should be loaded from the file you loaded; make sure that the 'Mute' button is not lit for any microphones and speakers you're going to be using (or for the 'Reference' or 'RAT' buttons, either, for that matter); tweaking settings on the ClearOne (Gentner) is an art, and should be given the fear and respect it deserves (i.e., don't try to learn how all the buttons work 10 minutes before a meeting); if in tweaking something you get some unbearable feedback, or for any other reason want to do so, you can mute all the inputs and outputs at once by clicking the "Safety Mute" button - the right-most button in the icon bar below the toolbar in the G-Ware window (it's an icon that looks like a small speaker with a red circle-and-slash - the typical "do not" symbol; note that it *always* has the red circle and slash - the difference between muted and un-muted (normal) is that the button does or does not look depressed (pressed in, not emotionally upset), respectively).

- Test everything before the meeting starts; during the participants' introductions is a bad time to find out that none of your microphones are working and you don't know why.

**During:**

- Before starting the meeting, make sure that all of your windows minimize/restore in the LCD window, not on any of the large screens (so that you don't accidentally maximize/restore something onto one of the display walls - e.g., restoring your 'Dilbert' website right onto the meeting's remote participants, because you forgot that you had been admiring Adams' latest bit of wisdom on the big screen).
- At start of meeting, ask everyone to turn off ringers on cell phones, if appropriate.
- Explain to meeting leader what different displays are (our cameras, remote site displays, etc.), how camera remote and mics work, room schedule immediately after scheduled end of meeting.

**Shutting down:**

- If your meeting ends, but you aren't exiting the virtual room yet (because you're testing something, waiting for someone else, or whatever reason), mute your 'Talk' in the RAT (Linux side); this is general AG Node etiquette - don't talk unless you have a reason.
- Shut off projectors, park cameras ('home', zoom all the way out, then point all the way up) and turn off, turn off: (speakers -> power conditioner -> mics, in that order), in the G-Ware window click 'Connect' -> 'Disconnect' (-'Yes' to confirm), save any relevant settings (if you changed the ClearOne G-Ware settings, save the new file using 'File' -> 'Save As' -> 'Save As' -> File Name: 'CISM at UTEP-2003.<date>.psr', where <date> is that day's date) and log entries (anything you think noteworthy - in C:\Documents and Settings\AG_User\My Documents\AG Node Operations Log), close all programs and windows on the two servers (usually just by clicking the 'X' box on the upper-right corner of the window, or clicking any 'Quit' or 'Cancel' or 'Close' buttons in the window), then shut down the two servers (in Linux, you must first log out (clicking the 'footprint' in the lower left corner of the screen, then clicking Logout), then on the login screen click 'System' -> 'Shut down' [?]); turn off the lights; go to Chico's Tacos.
Other Stuff:

**tkMOO - (tkMOO-light)**

Explanation: The MOO is an area where you can communicate with other nodes on the Access Grid. It's based on the old Multi User Dungeons (MUDs) that originated before the Internet. Because of its origin, in the MOO (short for 'MUD, Object Oriented' - O. O. programming being how the AG software is typically constructed) individuals are referred to as 'characters', not individuals, accounts, etc. Fortunately, (or not, depending on how you look at it) there are few, if any, dragons left in the AG. (Incidentally, the 'tk' part of 'tkMOO' refers to a programming language, and is short for 'toolkit'. You will sometimes also see it as part of the combination 'tcl/tk', another programming combination. You do not need to know anything about tk, tcl/tk, programming, MUDs, or dragons to use the tkMOO.

Usage: You should be moved to the appropriate room automatically when using the AG. When you enter, you will be told who else is in the room. To communicate with them, type a double-quote (the " symbol), followed by what you want to show up on the screen, where everyone in the room can see it. (Stylistically, you should not type a second (ending) double-quote, since that one will end up in your printed message - the first double-quote is a command, everything after it is a message.)

**Microphones (PCC 160 (Phase Coherent Cardioid))**: Very directional - make sure the front (the larger flat metal part, where the 'crown' logo is; 'front' is also marked on the bottom of the microphone) is pointing toward the speaker; that is, the speaker should be able to read the 'crown' logo, with the "bar" part of the microphone perpendicular to him/her; if 'crown' is upside-down or the microphone cable plug is pointed directly toward or away from them, it's in the wrong position, and reception will be reduced. (Especially bad is pointed away - where the 'crown' logo is upside-down to the speaker.)

**Event Server Monitor (Windows)**: Tells you the room you're in (unless you've manually entered other addresses).

**VRM (Video Resource Manager) (Linux)**: Sends video from the cameras.

**Display Resource Manager (Windows)**: Receives video from the room you're in (including your sent video).

**Audio Resource Manager (Linux)**: Starts the RAT.

**RAT (Robust Audio Tool - Linux)**: Controls the audio we send + receive to the Access Grid.

**G-Ware (ClearOne) (Windows)**: Tweak microphone and speaker settings, do other dark magic too horrible to describe. (Echo cancellation, microphone gating, etc.)
CISM Access Grid Node Information

AG Virtual Venues server (sign-in page): http://venues.accessgrid.org/

CISM AG Web Pages: http://www.bu.edu/cism/AG

CISM AG Administrators mailing list: cism-ag@bu-ast.bu.edu

Alabama A&M:
Marius Schamshula, 256/858-8226, marius@caos.aamu.edu

    Video machine: 198.180.132.10 (cism-ag-video.aamu.edu)
    Linux machine: 198.180.132.11 (cism-ag-audio.aamu.edu)

BU:
Node administrator/operator: David Bradford, 617/353-4884, bradford@bu.edu
Alternate operators:
    Tim Guild, 617/353-5611, tguild@bu.edu
    Andy Clark, 617/353-7427, aclark@bu.edu
Backchannel phone: 617/358-2020
Teleconference phone: 617/358-2069

    Video machine: cism-ag-video.bu.edu, 128.197.162.242
    Audio machine: cism-ag-audio.bu.edu, 128.197.162.243

    BU Multicast bridge:
        cism-ag-server.bu.edu (128.197.162.228)
        audio port 60456 ttl 127
        video port 60458 ttl 127

Dartmouth College:
William D. Hamblen, 603/646-1303, william.d.hamblen@dartmouth.edu

    Video machine: space.dartmouth.edu
    Audio machine: weather.dartmouth.edu

LASP, University of Colorado:
Phil Evans, 303/492-6951, evans@lasp.colorado.edu

    Video machine: cism-video.colorado.edu, 128.138.106.17
    Audio machine: cism-audio.colorado.edu, 128.138.106.18

NCAR:
Eron Brennan, 303/497-1123, eron@ucar.edu

Rice:
Hubert Daugherty, 713/348-4035, hd@rice.edu
**UTEP:**
Node administrator/operator: Robert Bruntz, 915/241-5383, bruntzr@utep.edu
Alternate contacts:
  - Jose Huerta, 915/747-7951, jrhuerta@utep.edu
  - Tom Mikelson, 915/747-8965, tmikelson@utep.edu
IT conference room - x8931 (Union West rm. 11)

Linux: 129.108.246.68
Windows: 129.108.246.69

**SAIC**
Pete Riley, 858/826-9550, pete@peteriley.org
Alternate Contact: Jon Linker, linkerj@saic.com

IP Name: grid.adnc.net
IP Address: 207.158.46.5

**SSL:**
Greg Paschall, 510-643-6907, gregp@ssl.berkeley.edu
Alternate Contacts:
  - Steve Ledvina, 510/643-1352, ledvina@ssl.berkeley.edu
  - Bill Abbett, 510/642-6880, abbett@ssl.berkeley.edu

**Stanford:**
Keh-Cheng Chu, 650/723-9374, kehcheng@sun.stanford.edu