SAMPLE SETUP AND SHUTDOWN PROTOCOL DOCUMENTS

A conscientious designer makes sure to provide her running crew with the technical documentation they require to ensure the continued integrity of her design. As I write in *Standby,*

> *Once we have built the systems that will facilitate the nightly replication of our work, we must document what we have done for the sake of our stage management and crew. Our documentation will include design schematics, hookup diagrams, information on signal paths and equipment settings, suggested troubleshooting procedures, and detailed checklists codifying the setup and shutdown procedures for our department. Our system diagrams and lists of instructions will become the owner's manual for the theatrical machine and will allow the stage manager and run crew to operate it with accuracy and confidence.*

The present resource focuses on only one of these types of documentation, protocol checklists. Each of these four documents codifies the preshow setup and postshow shutdown procedures for one or more specific production departments on a show I designed. The productions range in their level of professionalism from high school to Off-Broadway.

Most of these documents consist of ordered, step-by-step instructions for preparing the space and for verifying the proper functioning of equipment, along with basic troubleshooting information, contact information for the designer and technical staff (omitted here), and any other notes and reference material that may become relevant during the run of the show. The amount of supporting detail varies, depending on the length of the run and the expertise of the technical staff.

Every designer of lighting, sound, or projections should prepare a checklist like these for her crew. (Designers of scenery and costumes will do likewise for their respective departments, but as their paperwork is more widely documented it is not represented here.) The designer should walk the stage manager and operator through the procedures outlined in the protocol document and provide printed copies of the document to the SM team and running crew — ideally, for a short run, one copy for each performance. The SM can then begin with a fresh copy of the document each night and check or cross off the instructions as he completes them. (For the digitally inclined, this can also be accomplished with electronic checklists, though theatre people tend to favor paper over pixels. A sheaf of completed paper checklists also provides a more lasting record of having consistently followed the procedures.)

In *Standby,* I avoid mentioning the trade names of pieces of software and equipment, in the belief that concepts are more important than commerce and that the principles of design predate and will outlast any and all branded products now in use in the industry. Such trade names, however, do appear in this document, as an authentic component of these protocol checklists and the productions for which they were written.

For an additional example of a protocol checklist for the sound department on a regional theatre production, see Deena Kaye and James LeBrecht, *Sound and Music for the Theatre: The Art and Technique of Design,* 4th ed. (New York: Focal Press, 2016), 377–79. For further discussion of the designer's responsibilities in relation to the machine of the production, see *Standby,* 172–78.

— EXAMPLE 1 —

PROJECTIONS FOR AN OFF-BROADWAY PLAY FESTIVAL

[*For this Off-Broadway play festival, the sound and projections computers were networked together, with the sound computer triggering cues on the projections computer. This allowed one stage manager to run lighting, sound, and video using only two triggers. The projector douser was on a dedicated DMX line from the video computer, separate from the lighting system. This reference document was prepared by me, the projection designer, for our stage manager, and represents one third of her pre- and postshow protocols. The other two thirds of her procedures were specified by the lighting and sound designers. Below, I indicate an ideal juncture in the video setup routine for the SM to execute her sound check. Note the extensive technical documentation, which was provided so that the SM could undertake basic troubleshooting on her own as necessary throughout the several-month-long run of the show.*]

SETUP AND SHUTDOWN PROTOCOL FOR PROJECTIONS

PRESHOW CHECKLIST FOR VIDEO

Note: In order to keep the preshow setup protocols for sound and video separate for troubleshooting reasons, please begin this checklist for video first, and wait to start your sound checklist until indicated below.

1 Turn on the marked breakers backstage left.
2 Open the upstage panels on the set.
3 On your way to the booth, visually inspect the color scroller (douser) to make sure it is positioned properly in front of the projector lens.
4 In the booth, make sure the projections computer is turned off. If it is on, turn it off.
5 Turn on the projector using the remote.
6 Wait about thirty seconds for the projector to power up.
7 While you are waiting, visually inspect the projections computer. Check that it is properly connected to:
    A the power adapter, which is plugged into wall power;
    B the external solid-state hard drive (via USB);
    C the projector (via HDMI);
    D the Art-Net node (via USB); and
    E the router (via ethernet).
8 Check that the HDMI cable and power cable are securely seated in their ports on the rear of the projector.
9 After you have given the projector thirty seconds to warm up, turn on the projections computer.
10 Log in to the show account. Password: *projections*.
11 Make sure Wi-Fi is turned off on the computer.
12 Launch the show file using the icon in the center of the desktop.
13 Make sure QLab is in show mode, using the toggle at the lower left of the window.
14 Check the indicator lights on the douser "brain" (to the right of the laptop). The power light should be steady, and the data light should be flashing.

15 Fire cue 1. You should see a grid that fills the whole center area of the set. While in this cue, check for three things:

    A Visually check that the grid lines are in sharp focus. (If they are not, the focus on the projector may need to be adjusted.)

    B Watch the image for a good ten seconds to make sure the light is steady. If you see any flickering, consider replacing the projector lamp. (Note: this is a lengthy procedure that will probably have to be done after the show or the next day.)

    C Visually check that the projected grid looks straight and level, and that it lines up with the lines of the set. (If something seems off with the grid, the most likely cause is that the projector itself got bumped out of focus, but run through all check cues and consult with the designer if possible before refocusing it.)

16 Fire cue 2. You should see a grid that fills the upstage wall. Check for straightness and alignment with the set.

17 Fire cue 3. You should see a grid that fits the cyc (between the open sliding panels). Check for straightness and alignment with the set.

18 Fire cue 4. You should see a grid that is shaped to fit the short wooden wall below the sliding panels. Check for straightness and alignment with the set.

19 Fire cue 5. You should see a grid that is shaped to fit the two midstage side panels. Check for straightness and alignment with the set.

20 Fire cue 6. You should see a trapezoidal grid. This represents the full raster (beam) of the projector.

21 Fire cue 7. This is a douser test. The douser should move into position in front of the projector lens. Visually check that the entire projected image is covered.

22 Fire cue 8. The douser should return to its open position. Visually check that no part of the projected image is being blocked.

23 Fire cue 9 to stop all test cues.

24 At this point, do your entire preshow checklist for sound.

25 On the sound computer, fire cue "net1." This tests the connection between the two computers. You should see a projection that says "Success! Trigger received." (If you do not see this, there is a networking problem that must be addressed ASAP. Start by making sure the router is powered and turned on.)

26 On the sound computer, fire cue "net2" to take the projection out.

27 Stand by to go into preshow. From this point on, you should not need to touch the projections computer until shutdown time.

POSTSHOW CHECKLIST FOR VIDEO

1 After the house has cleared, go to the projections computer and manually fire cue "OUT" (the last cue in the list).

2 Quit QLab by typing Cmd+Q.

3 Shut down the computer.

4 Turn off the projector by pressing the "Standby" button on the remote twice.

5 Check that the projector is actually powering down. There should be no more light leaking out the back right corner.

6 At this point, do your entire postshow checklists for lighting and sound.

7   The breakers backstage should be the last things you shut off before you leave the room, to give the projector adequate time to cool down.

8   Thank you!

IMPORTANT REFERENCE INFORMATION

General notes

It is fairly easy to refocus the projector (intentionally or unintentionally) simply by pushing it. If it is out of alignment, the most likely cause is that it has been bumped, and you can restore the focus by rotating it on the mounting pipe. Please be mindful of how close the cable connections are to the booth window. There is very little clearance.

Emergency hotkeys

The following hotkeys can be used on the sound computer in the event of an emergency:

Hotkey 1: kill video
Hotkey 2: close douser
Hotkey 3: open douser

Emergency backup show file

The main show file is stored on the video computer's internal hard drive. If there is a problem with this file, you can run the show from the external hard drive instead. Open the drive using the icon on the desktop and launch the show file with the most recent date. In the event that there is a problem with the computer itself, you can connect the external drive to a different computer to run the show. This will require some additional setup to work properly; please contact the designer for assistance.

Data and power hookup

The sound and video computers are both connected via ethernet to the router. The Art-Net node for the douser is also connected via ethernet to the router. Neither of the computers nor the Art-Net node are connected directly to each other. DMX from the Art-Net node runs to the scroller "brain" in the booth, and then from the brain to the scroller on the projector. HDMI runs directly from the video computer to the projector. The projector and scroller brain are on hot power, controlled by the backstage breakers. The laptop uses wall power from the booth.

Networking information

Sound computer IP: 192.168.1.10
Sound computer subnet: 255.255.0.0
Video computer IP: 192.168.0.100

Video computer subnet: 255.255.255.0

Art-Net node IP: 192.168.0.111

Projector IP: 192.168.0.8 (The projector is not connected to the show network, but can be configured in tech via a direct connection to a laptop.)

About the douser

The douser (color scroller) is DMX channel 1 and is controlled via cues on the projections computer, sending Art-Net over the network to the Art-Net/DMX node. If the douser is unresponsive, the first thing to check is the router (see #25 in the preshow checklist above). If the network is functional but the douser is not, check the power and data connections on the douser brain (to the right of the projections computer).

— EXAMPLE 2 —

SOUND, PROJECTIONS, AND SUPERTITLES
FOR AN OFF-OFF-BROADWAY PLAY

[*This Off-Off-Broadway production involved projected video mapped onto scenery as well as video displayed on a vintage television set that was handled by actors. It also made use of a multichannel sound design. Both the sound and projection designs were run on a single computer, and the two disciplines, which were the domain of a single designer, came to be known jointly as the "media" department. The play also required supertitles for translation. These were run on an independent system comprising a second computer and a dedicated projector. "Media" and lighting were operated by the sm; the supertitles were run by a separate crew member, taking his own cues. The show computers needed to be struck each night and restored and reconnected as part of the preshow protocol. The presence of a knowledgeable technical director at the venue throughout the run made troubleshooting information unnecessary in this document.*]

SETUP AND SHUTDOWN PROTOCOL
FOR MEDIA AND SUPERTITLES

PRESHOW CHECKLIST FOR MEDIA

1   Plug the show computer into wall power.
2   Connect to the computer:
    A   the MIDI trigger remote (via USB);
    B   the main projector (via HDMI);
    C   the sound card (via Thunderbolt to FireWire); and
    D   the prop TV set (via Thunderbolt to VGA to video converter to S-video to RF modulator to BNC).
3   Turn on the main projector by pressing the power button once. Be careful not to knock the projector out of focus.
4   Turn on the prop TV set. Make sure it is set to channel 4.
5   Turn on the Saffire sound card.
6   Turn on the computer and log in. Password: *media.*
7   Make sure Wi-Fi is turned off using the menu bar icon at upper right.
8   Make sure the system volume is turned down to silent, using the volume keys on the keyboard.
9   Launch the QLab show file.
10 If necessary, close open group cues by pressing Cmd+Shift+comma.
11 Make sure the workspace is in Show mode, using the Edit/Show toggle at lower left.
12 Unmute the first six channels on the mixer.
13 Fire cue 0.1, the sound check cue. Stand in the center of the house and check that the sound comes out of the speakers in the correct order:
    A   House left
    B   House right
    C   Up center
    D   Under risers

      E   Subwoofer

      F   TV effects speaker off right

      G   All

14   Fire cue 0.2, the video check cue. Make sure the projector and the TV display the focus grid image. Make sure the projected image lines up with the fabric panels on the set. If necessary, tweak the focus of the projector. Make sure the TV grid image is centered on the TV screen and is the correct size. If the image is the wrong size, does not fit the screen, or is off-center, you may need to reset the converter device's resolution through the computer's system preferences. If so, ask the technical director for guidance.

15   When you're done with these checks, fire cue 0.3 to stop all test cues.

16   Stand by to fire the preshow media cue.

PRESHOW CHECKLIST FOR SUPERTITLES

1   Plug the supertitles computer into wall power.

2   Connect the supertitles projector (via Thunderbolt to HDMI).

3   Turn on the supertitles projector by pressing the power button once. Be careful not to knock the projector out of focus.

4   Turn on the computer and log in. Password: *supertitles.*

5   Launch the Glypheo show file from the icon in the center of the desktop.

6   Use the arrow keys to select the test cue (three rows of *X*'s). You should see this cue appear live onstage.

7   If nothing shows up on the projector, click the "Configure" button, select the panel called "Yoleros," and then click "Toggle fullscreen."

8   Once you have the *X*'s showing up, check that the projected text is centered on the supertitle surface.

9   Proceed to the next (blank) title cue for preshow.

POSTSHOW CHECKLIST FOR MEDIA AND SUPERTITLES

1   Quit QLab and Glypheo, and shut down both computers.

2   Re-mute channels one through six on the mixer.

3   Turn off the Saffire sound card.

4   Turn off both projectors by pressing their power buttons twice. Be careful not to knock the projectors out of focus.

5   Turn off the prop TV set.

6   Put the computers in storage.

7   Thank you!

— EXAMPLE 3 —
LIGHTING FOR A COLLEGE PRODUCTION

[*This protocol checklist was developed for the student stage manager and the student lighting operator of a production that I designed at the university where I teach. It includes a variety of tasks for putting the venue into "show mode" as well as the execution of a series of check cues built into the show file on the lighting console. The LED color integrity check was instituted because some units of a specific make were found to have failing LED chips and would need to be periodically replaced. Setting the units to purple would make it obvious whether anything was wrong with the red or blue chips, the units' most commonly used colors. I typically walk the SM and operator through their preshow routine a day or two before the first performance. Once the run is underway, the routine becomes the responsibility of either the SM or the lighting operator, depending on each's level of experience and familiarity with the venue and the rig.*]

SETUP AND SHUTDOWN PROTOCOL FOR LIGHTING

PRESHOW CHECKLIST FOR LIGHTING

1   Turn on the lighting console.
2   Once the console has booted up, fire cue 0.1, labeled "Non-dims on." This will send power to the LED units, movers, and other equipment in the rig that takes non-dim power.
3   Wait thirty seconds for the gear on non-dimmed circuits to power up.
4   Fire cue 0.2, labeled "Dimmer check." This turns on every unit at 20 percent.
5   Turn off the house lights, using the wall panel in the booth or the wall panel by the auditorium doors. The check cues include the house lights at half.
6   Stand onstage and verify that every lighting instrument in the rig is on. In addition to surveying the overhead electrics, pay special attention to:
    A   the near catwalk, which contains 20 units, mostly organized in repeating trios;
    B   the far catwalk, which contains 21 units, mostly organized in repeating pairs;
    C   the proscenium booms, which each have eight units;
    D   the four footlights (which need to be checked for focus and barn door positioning as well);
    E   the five hanging lanterns;
    F   the two inkies behind the windows of the ship's hull;
    G   the Source Four inside the USR platform;
    H   the USR taildown, which has one unit;
    I   the USL taildown, which has two units; and
    J   the two far US booms for the ocean backing sidelight, which have two units each.
7   Exit stage right. Check that the worklights in the cats are off, using the switch at the base of the spiral staircase.
8   Turn on the SR blue running light.
9   Check that the SR worklight is off, using the wall switch by the door to the hallway.
10 In the OSR hallway, turn on the blue running lights, using the switch by the dressing rooms.
11 In the smaller breaker panel, turn off the hallway light.
12 In the same breaker panel, turn off the ghost light.

13   In the larger breaker panel, turn off the worklights, using the eight breakers so labeled on the righthand side.
14   In the same panel, turn on the two breakers for aisle lights.
15   In the same panel, turn on the breaker labeled "Cyc LEDs."
16   Continue walking upstage to the crossover. Turn off the US worklights, using the two switches next to the backstage offices.
17   Check that all five groundrow units are on.
18   Check that the cyc units on the 5 LX are on. There are six LED cyc lights and five ellipsoidals. We are not using the R40 strips.
19   Plug the power cable for the USR hazer into the wall outlet to the left of the cyc.
20   Turn off the backstage L worklights, using the switch behind the ladder storage area.
21   Proceed to the SL wing. Plug the power cable for the SL hazer into the wall outlet by the pit stairs.
22   Check that the OSL worklight is turned off, using the switch above the stairs.
23   Return to the deck and check that both hazers are powered on. Make sure the hazers have sufficient fluid, and refill if necessary.
24   Return to the booth. Fire cue 0.3, labeled "Set LX white." Check that all five hanging lanterns are lit up in white, and that both windows in the ship's hull are illuminated.
25   Fire cue 0.4, labeled "Set LX red." Check that all five lanterns are lit up in red.
26   Fire cue 0.5, labeled "LED color check." Check that the six LED PARs on the DS booms are emitting the same shade of purple. If in doubt about the color integrity of a unit, select all six units on the console and assign them additional colors as a test.
27   Fire cue 0.6, labeled "Mover check." Both movers should hit DC with a hard-edged N/C beam.
28   Fire cue 0.7, labeled "Haze check." Check that both hazers (USR and SL) are producing haze. This cue includes a breakup wash to make the haze more clearly visible.
29   Fire cue 0.8, labeled "Worklight." This cue kills the haze and establishes a basic wash onstage, to facilitate presetting the deck, running fight calls, etc. Remain in this cue until you are ready to open the house.
30   Immediately before the house opens, fire cue 0.9, labeled "Blackout check." This cue should take the space to a state of absolute black. Verify that there is no spill from running lights, worklights, open doors, or any other source.
31   Once the space has passed the blackout check, fire cue 1, labeled "Preshow."
32   Open the house.

POSTSHOW CHECKLIST FOR LIGHTING

1   On talkback days, remain in the postshow cue until you are ready to begin the talkback. Then fire cue 201, labeled "Talkback."
2   When the talkback is complete, fire cue 202, labeled "Talkback postshow."
3   On ordinary show days without talkbacks, remain in the postshow cue until the house clears. Once the house has cleared, fire cues 201 and 202 to skip through them.
4   Turn on the worklights at the breaker panel in the OSR hallway.
5   Turn on the house lights using the wall panel in the booth or by the auditorium doors.
6   Fire cue 501, labeled "Out." This will kill all stage light.

7   Fire cue 502, labeled "Non-dims out." This will cut power to all the non-dimmed gear in the rig. It is normal for some units to flash at random when they lose power.
8   Turn off the console.
9   Thank you!

Backup show file

The primary show file resides in the console's internal storage. A backup copy of the show file is kept on the flash drive that is connected to the console.

Spares

There is one spare Mini-10 unit (footlight) with a spare 1 kW lamp in one of the rental road-cases. There are two spare red lamps for the lanterns in the booth, to the left of the consoles. The "white" (clear) lamps in the lanterns are of two sizes and shapes. The larger lanterns have a taller N/C lamp; the smaller ones have a shorter globe lamp. There are spares of both in electrics storage, above the gel cabinets, in the boxes labeled "Vintage edison lamps." We have extra gallons of haze fluid in electrics storage. We have s4 lamps and other lamps in the small metal drawers in electrics storage. We also have more LED PARs, which can be swapped in if any units fail to pass the color check. Props has more strands of rice lights for inside the ship prop, if those run low on battery power.

Documentation

Copies of the magic sheet, light plot, and paperwork can be found in the lighting design binder in the booth, as well as in the shared production drive. Use the documents as needed for troubleshooting.

Contact information

In case of emergency or for troubleshooting assistance, contact the following people in this order:

First point of contact — master electrican: [contact information]
Second point of contact — technical director: [contact information]
Third point of contact — lighting designer: [contact information]

none— EXAMPLE 4 —

LIGHTING AND SOUND FOR A HIGH SCHOOL PRODUCTION

[*This document was prepared for the student stage manager and operator of a performing arts high school. The lighting design relied on wall power and portable dimmer packs, in addition to the normal lighting infrastructure in the venue. Because the black box theatre in which this play was produced was also used daily as a classroom, it was especially important for the* sm *to vigilantly check any piece of equipment that might have been tampered with during the school day. The original version of this checklist included instructions for presetting scenery and props and performing other preshow tasks for various departments; those instructions have been omitted here. For a more complex lighting rig, I would normally include check cues for various subsets of the rig, for any units with critical focuses, and for atmospherics and effects.*]

SETUP AND SHUTDOWN PROTOCOL
FOR LIGHTING AND SOUND

PRESHOW CHECKLIST FOR LIGHTING AND SOUND

1   Make sure all electrical cables on the deck are plugged in. Check:
  A   the single cable in the outlet by the black box door (sl boom);
  B   the two cables in the outlet under the air conditioner (sr boom and sr instrument power);
  C   the power cord for the air conditioner itself;
  D   the two cables in the outlet offstage left under the scaffolding (instrument power and scaffolding power);
  E   the two cables in the upstage left outlet behind the cyc (stair power and strip lights); and
  F   the single cable in the outlet upstage right (strip lights).
2   Turn on the air conditioner by pressing the power button once.
3   Visually inspect the three dimmer packs on the set to be sure they are correctly addressed:
  A   The pack on the sl side of the scaffolding should read 505.
  B   The pack on the sr side of the scaffolding should read 501.
  C   The pack inside the stairs should read 509.
4   In the booth, turn on the power switch on the upper right of the audio rack.
5   In the booth, turn on the opto-splitter on the windowsill, using the power switch on the left.
6   Turn on the lighting console by pressing the silver power button once.
7   When the console finishes booting up, press go to go into cue 0.5.
8   Turn off the worklights with the wall switches in the booth.
9   Cue 0.5 is a dimmer check cue. Every unit should be on in this cue. Walk around the whole space and visually check that every lighting instrument is working. Ensure that:
  A   every lighting instrument in the grid is on;
  B   all five strip lights behind the cyc are on;
  C   all fourteen birdies on the scaffolding unit are on;
  D   all forty edison lamps on the platforms and stair unit are on;

E   all four music stand lights are on (turn them on with their switches if necessary);

F   both downstage moving lights are on;

G   both downstage booms (vertical strip lights) are on; and

H   the night light inside the stair unit is on.

10   Check instruments for correct focus and adjust if necessary:

    A   If the upstage strip lights (groundrow) have been kicked, adjust their angle so that they all match.

    B   If the booms have been knocked out of alignment, adjust them so they focus straight across, parallel to the plaster line.

    C   Check all birdies on the scaffolding unit for accurate focus, keeping in mind that some are focused for seated actors.

    D   Make sure all the edison lamps are seated correctly and pointing straight up.

11   In the booth, turn on the audio interface (Octa-Capture) by pressing and holding the power button for several seconds.

12   Turn on the sound computer.

13   Log in to the "Show" user account. Password: *sound.*

14   Open the QLab show file using the icon in the center of the desktop.

15   Turn on the QSC power amp at the bottom of the audio rack.

16   Play a sound cue to check the system, then re-select the first cue in the show.

17   Before house opens, press GO on the lighting console to go into cue 1 for preshow.

18   Check to make sure all running lights are off backstage.

POSTSHOW CHECKLIST FOR LIGHTING AND SOUND

1   Once the house has cleared, quit QLab on the sound computer by typing Cmd+Q, then shut down the computer.

2   Turn off the QSC amp.

3   Turn off the audio interface (Octa-Capture) by holding down the power button for several seconds.

4   Turn on the worklights with the wall switches in the booth.

5   On the lighting console, type [Go To Cue] [Out] [Enter].

6   Shut down the console by pressing the power button twice.

7   Turn off the opto-splitter on the windowsill of the booth.

8   Turn off the power switch on the upper right of the audio rack.

9   Turn off the air conditioner by pressing the power button twice.

10   Thank you!