

Lighting & Sound America

\$10.00

plasa media

Carrie Underwood:

Her Las Vegas Residency



ALSO

Steinmetz Hall in Orlando

Ayrton Huracán LT


Sound for *MJ*

Remote Lighting Control
for CNBC



Reflections of a Star





Providing an expansive environment for Carrie Underwood's Las Vegas residency

By: Sharon Stancavage
Photos by Ralph Larmann

Carrie Underwood's Las Vegas residency at Resorts World, is, according to creative producer/lighting designer Nick Whitehouse of Fireplay, "a collaboration between myself, Carrie's management team, and Barry Lather, who is the creative director. Technically, we produced the show. Carrie, Barry, and her team managed the concepts. They developed the set list, and we then figured out how to make individual sections look good and where we needed to add big transitions."

"The first thing that we found out was that the show was going to be called *REFLECTION: The Las Vegas Residency*; consequently, our interpretation of that and translating that into an amazing show was one of our goals," explains production designer Joanna-Maria Helinurm, production designer for Fireplay and chief architectural designer of Laviku. "Of course, we had to provide an adequate set for the band, which is a big part of her performance. We were given a list of her songs, and there were a few things creatively we wanted the set to recognize. In general, Carrie's team was very open-minded and receptive of all Fireplay's ideas and suggestions."

"We made the set very flexible; there are a lot of kinetic pieces," Helinurm says. "The ceiling panels are all on Nav Hoists, and the video walls are on tracks and can open into different positions. The majority of the risers were also self-driving, so we could reorganize the riser positions."

The venue has an expansive automation system using a variety of winches and hoists; the show required more. "TAIT provided 60 Nav Hoists for the triangles, four Nav Hoists for the Jeep [see photo, left], five Nav Hoists for the Gem [see below], four performer flying winches, four trolleys for the video wall moves, an upstage lift, and four laser-guided mobilator band risers," says Aaron Siebert, Tait business development manager.

For the ceiling triangles, Helinurm says, "We opted for black Plexiglas mirrors, so they reflect back everything that is happening on the stage and the surrounding surfaces. They amplify everything that we were using on the stage to echo it and make it look even larger. They enhance everything that is going on—the lighting, the set, and strategically placed lasers." There are 20 ceiling panels, provided by Tait. The panels have "RGB LED edging and they are hung from 60 Nav hoists. The triangles were designed with a black polycarbonate finish and engineered to be hung from three individual points to allow maximum flexibility in programming through the Navigator Automation Platform," Siebert comments.

The ceiling panels aren't the only things in the air. "For the opening," Helinurm says, "we designed a multi-faceted gem that reflects and refracts light; Carrie makes her entrance at the top of the show inside the gem. It's a crystalline vessel structure that's almost 40' tall and has three different pieces that move separately. The surfaces are



Above: "The whole concept of the show was to do something that was completely unique to the theatre that we could not do on a tour," says Whitehouse. Opposite: Over half of the songs have pyro, flames, fog, or lasers in them provided by Pyrotecnico FX.

covered with a semi-mirrored dichroic film that redirects the light, so there is an infinite spectrum of colors that expands from it." Tait fabricated the gem prop. "Using Navigator, the rigging that holds the upper section moves in sync with the house lift for the big reveal," Siebert says. "Tait collaborated directly with the Fireplay team to develop materials and finishes to bring their design to life; special attention was paid to the structural framing and making it all part of the aesthetic. It was a challenge to make such a high-finish piece with minimal framing, but the result speaks for itself." Helinurm adds, "We had a lot of moving pieces, and it was quite a matrix we had to deal with, bringing all these things together for each song." PRG Scenic and Gallagher also provided scenic fabrication.

Video

Upstage is 5,000 sq. ft. of ROE CB3 LED walls, owned by Resorts World. "The video walls move from the sides of the stage to upstage, which is accomplished with three separate trusses and four Navigator trolleys," Siebert says.

Video content from Blink, This is Comics, and Lüz Studio in Montréal, is managed by the house disguise d3 media server. "We collaborated with Lüz, a content company from Montréal, and they do amazing spatial 3D content," Helinurm says. "For example, in 'Two Black Cadillacs,' where you see the cars stacked up behind the

riser. Also, they recorded the lighting in the theatre and then projected that same lighting back into a virtual set in the video content, so it looks like the video content is reflecting back the actual lighting that was taking place in the space."

Special effects

"The whole concept of the show was to do something that was completely unique to the theatre that we could not do on a tour," Whitehouse says. "Special effects were a big part of that; they're not that easy to do on a tour, so we developed a few things, especially in terms of pyro and fire, that have not been part of Carrie's touring production." Over half of the songs have pyro, flames, fog, or lasers in them; they're provided by Pyrotecnico FX.

The laser package is extensive. "There are six FX Series Laser 25 RGBs, six FX Series Laser 12HDs, and eight FX Series Burner 4S controlled via a Pyrotecnico FX integrated laser control and safety network," notes Pyrotecnico EVP of SFX Rocco Vitale.

Onstage, "There are four total flame units upstage of the risers and the flaming jeep," adds Vitale. The Jeep [with two custom propane flame bars] appears in the song "Before He Cheats." Whitehouse notes, "It's a play off her music video. She beats up the 'pretty little souped-up four-wheel drive' and, toward the end of the song, she throws her lighter into the jeep and it explodes, something

Carrie and her team thought would be fun.”

The finale, “Something in the Water” includes pyro and a waterfall. Whitehouse notes, “Carrie’s always wanted to do something with real water during that song, but on tour, that’s not feasible. Our brief was ‘I’d like to get wet in this song.’ We came up with the concept, and PRG Scenic actually built it.”

Lighting

“The rig in the air was the hardest part of the design process,” Whitehouse says. “It’s a massive stage, but we put so much stuff in the air, between props and scenic and pyro, so between me and Brian Vaughan, my co-lighting designer and technical director for the show, we managed to squeeze the trusses in. Resorts World has a really good lighting rig, a ton of fixtures and a ton of truss that we could use, so we designed around what they had.”

“The house gig is a Robe rig, so it’s Tarrantulas, FORTes, and some [TMB Solaris] Flare LR+ units,” he says. “We brought in Claypaky Scenius Unicos and some Claypaky Mini Xtylos HPes as well.” The Tarrantula is new

to Whitehouse. “I’m not a fan of big LED fixtures like that; I make the best of them, but if it was up to me, I would have picked something else. It’s nice and bright and has a good beam; I just don’t like looking into those things. I’m so old-school.” The rig includes Robe MegaPointes and BMFL WashBeams; additional gear was provided by Solotech.

“Carrie owns a BlackTrax system that we use for followspots,” Whitehouse says. “There are no traditional spots. Carrie and the entire band are tracked. We have nine people in the band, four aerialists, and four dancers.”

The lighting portion of the BlackTrax system is managed by lighting director Nate Cromwell. “We track the band and Carrie through BlackTrax for key lighting, utilizing around 60 different fixtures,” he says. “We have 14 IR cameras that we use for tracking each of her wardrobe pieces. There are at least two stringers sewn into each one of them.” The production uses Fortes and BMFL Followspots with BlackTrax. Whitehouse adds, “I prefer to light with followspots, rather than with a big wash; it always looks better. Using BlackTrax, I was able to do that because you don’t have to have 14 operators.”





The finale, "Something in the Water," includes pyro and a waterfall. Whitehouse notes, "Carrie's always wanted to do something with real water during that song, but on tour that's not feasible. We came up with the concept, and PRG Scenic actually built it."

Lighting is also part of a variety of Underwood's costumes. "We have seven RC4 LumenDimPixMicro receivers that are in Carrie's different LED pieces. Three are necklaces sewn into shirts and jackets, two are in a pair of shoes, and two are used on dresses. They're used in various songs in the fourth act." The LumenDimPixMicro receivers work with a LumenRadio NOVA TX. "Stock RC4 devices normally operate from 5V to 35V, but this project needed tiny wireless pixel controllers to work on voltages as low as 3.3V – 3.6V," says James David Smith, RC4's president and chief product developer. "We were able to quickly provide modified LumenDimPixMicro units that meet this requirement, eliminating the need for additional power regulators and keeping the entire system as small as possible. We are now able to offer this option to other users, as well."

Whitehouse programmed the show on an MA Lighting grandMA3 console. "Being the first big show to use the MA3 in 3 mode," he says, "there were a lot of little things that we found, and there was a lot of time on the phone with MA and ACT [Lighting, MA's North American distribu-

tor], asking, 'How do we do this?' ACT is awesome; they have 24-hour support, so you can call whenever you want, and they'd be Zooming us back. I know a lot of people have different opinions, but after doing that show, I was hands-on programming it really fast and I wouldn't go back to the [MA]2; it feels old."

Previsualization

Like many productions, "We didn't have much time in the venue," Whitehouse says. "So, we tried something a little bit different; we did rehearsals in Nashville before we moved to Vegas for music and choreography; we did lighting and video virtually. Traditionally, you'd load in a duplicate rig somewhere. We didn't do that."

Extensive pre-viz was done in Unreal Engine with David Perkins, of Imaginary Lights. "David came in with his plug-in Carbon for Unreal, and we basically put all the set, the video, the automation, lasers, lighting, everything into this one package," Whitehouse says. "The [disguise vx 4 media server] and the MA could talk to Unreal, and it was so good that we got a lot of artist approval before we ever



"The house gig is a Robe rig, so it's Tarrantulas, Fortes, and then some [TMB Solaris] Flare LR+ units," Whitehouse says. "We brought in Claypaky Scenius Unicos and some Claypaky Mini Xylo HPEs as well."

got to Vegas. Amazingly, the bones of the show were programmed before we got there."

In terms of budget, Whitehouse says, "It's cheaper than renting a bunch of equipment and having a bunch of guys there—which you still have to do at some point—but being able to shorten the amount of time with the physical stuff, especially in a world where equipment and crew are really scarce. To be able to do it all virtually and then just verify it and tweak it once you get the real equipment was massive for us. I think that's why we were so far ahead of the game when we got into Vegas. It's going to become our workflow moving forward."

Audio

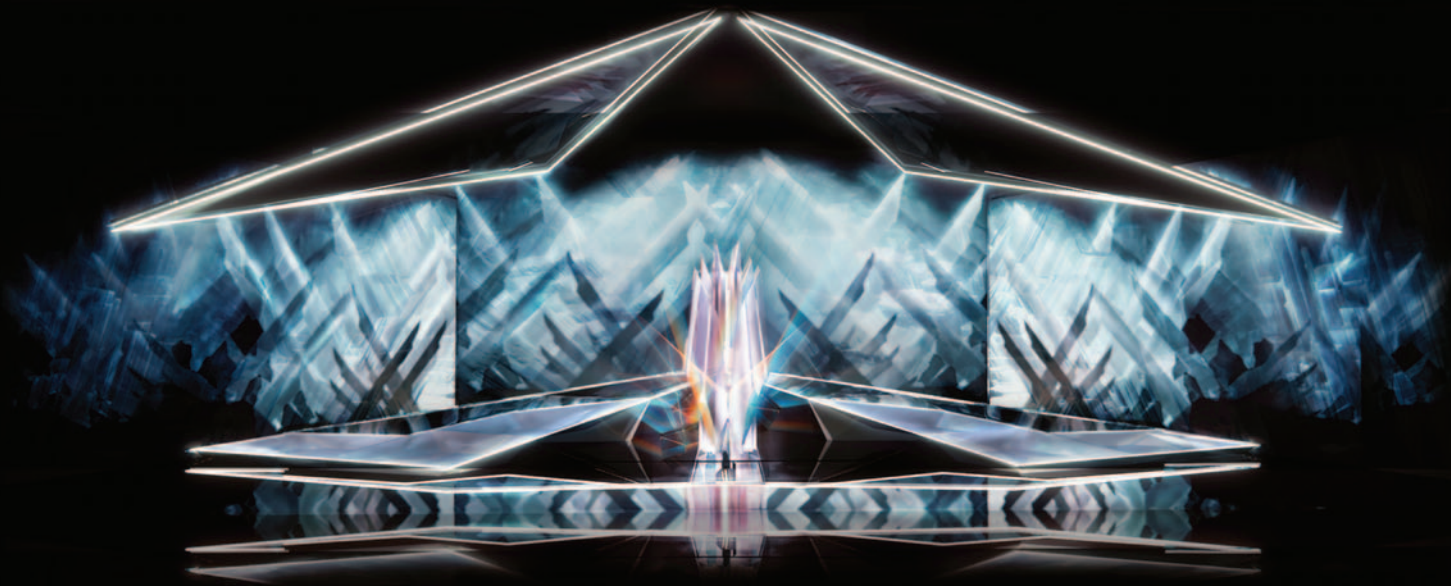
"The theatre has an L-Acoustics L-ISA immersive audio system; it's one of the largest of its kind, and was designed just for that room," says Tim Holder, Underwood's front-of-house engineer. "The main performance rig is seven hangs of 14 K2s with seven arrays from left to right. I believe they have nine-deep SB218 subs; they are in an end-fire array dead center above the main

hangs. There are two balconies; they have your typical coverage because the sightlines of the PA would be blocked. There are surround speakers as well; it's an astronomical cabinet count."

This is Holder's first time on the L-ISA system. "It definitely required a little bit of training," he says. "L-Acoustics is really doing a good job of supporting the guest engineers. I didn't have the time to go to their headquarters and do their training, so they came out to our production rehearsals with a demo rig, and I got a good start there. I was lucky enough to have a few days with my front-of-house system in the venue, getting a couple of hours a day, working with playback with the system, and that really got it dialed in. That was essential, because there was so much time needed to work out production, we were right up to the last minute, just refining the show.

"I can't say how important that was to the success of the show to have that time to work with the system."

Holder continues, "No longer is there a master buss. The L-ISA processor would be the master buss; basically, you're sending a direct out of every input out to the L-ISA



Above and opposite: "For the opening, we designed a multi-faceted gem that reflects and refracts light," Helinurm says. "Carrie makes her entrance at the top of the show inside the gem. It's a crystalline vessel structure that's almost 40' tall and has three different pieces that move separately. The surfaces are covered with a semi-mirrored dichroic film that redirects the light, so there is an infinite spectrum of colors that expands from it."

controller. It doesn't sum like the summing bus in the console normally would; you're just sending everything to the L-ISA controller. It is very different, but the concept of the mix is still the same. Overall, the creative process is much more involved; you have to make creative decisions on where you're going to place things within the mix. You really have to make the decision where to place things. It's not just left and right, because you have all the parameters of the L-ISA processor available."

Holder uses the surround system for the transitions within the show. "In a Vegas show, you have wardrobe changes and set changes, and there are a lot of transitions throughout the show, and a lot of those I put in the surround speakers. As something goes into the surround system, the audience gets quiet; they know something different is happening. They're not aware that this is an immersive audio system; they just know it's different. It's amazing how they react from it."

The surround system is also featured in the song "Wasted." "We have two fiddle players that solo back and forth, and we pan left and right, as they move," Holder says. "They are wearing Blacktrax beacons, so when they come down to the main part of the set, they cross and the

L-ISA system can follow the tracking information and pan their signal accordingly. It's just like real-time panning; the pan feature is assigned to the tracking information. I just use it for that one song. You have to be so careful with how you use it; the surround system can enhance the whole audio-visual experience or distract from it."

Holder is on a Yamaha Rivage PM7 console. "It sounds like a big fat analog desk to me, without having to use a lot of plug-ins," he says. "I like the natural sound of it and it integrates with the L-ISA controller as well, so I can control parameters from the L-ISA controller right on the surface."

As for plug-ins, he explains, "I've used a couple of the onboard Yamaha plug-ins that I think are nice. Their 1176 compressor plug-in is great; I also use the EQ4. It's a dynamic EQ, a really, really nice piece of software right there. It's similar to the Waves C6 but, I think, much better. I also use the onboard 5045; that's a [Rupert] Neve piece, it's a primary source enhancer that helps a lot with the vocal mics."

For outboard gear, he continues, "I use the hardware piece of the 5045 on Carrie. The plug-ins are good, they're almost as good as the real thing, but having the actual

hardware right there that I can always access, there's a knob for everything, I don't have to page through anything on the console; that means a lot. I use the plug-ins on everyone else." For Underwood's analog vocal chain, Holder also uses an API The Channel Strip, Empirical Labs Lil FrEQ, and a Tube-Tech CL 1B; all additional gear is provided by Clair Global.

"I have a DPA 4018VL [mic] for Carrie; she uses six different mics plus a spare, so that's seven inputs. They coordinate with her wardrobe changes. It's kind of cool," Holder says. The sole backup vocalist "is on a sE Electronics V7; that capsule has been really popular and extremely affordable."

Overall, Holder notes, "Our mics are mostly DPA. There's a DPA 2011C kick, a Shure Beta 91A inside the kick; all the toms are DPA 4099s, and the snare top is a

4099. I also have a 4099 that I use for what I call the cross-stick, it's for that one feature when the drummer hits the side stick." He's also using DPA 2011Cs on the snares.

"I have a Beyerdynamic 930 for the high hat and cymbal mics," Holder says. "There is a stereo overhead mic that is a ribbon, a Stager microphone. It's the SR-2N, which is the stereo version. It's a Nashville-based company." The production uses a Shure Axient Digital Wireless System.

Regarding the rest of the band, Holder says "All the amps, with the exception of one fiddle and the bass player, are Fractal. There are no actual amplifiers, so, therefore, no microphones."

Carrie Underwood's Las Vegas Residency is currently at the Resorts World Theatre through May 21. 