Starman (by David Bowie)

This is a cover of a song from the 1972 album Ziggy Stardust (actually named The Rise And Fall Of Ziggy Stardust And The Spiders From Mars) by David Bowie. The Ziggy Stardust album was years (no, actually decades) ahead of its time. If you haven't heard it, then you owe it to yourself to buy it and add it to your collection. It is simply a delightful album with great songwriting, excellent musicianship, and flawless production.

The DAW used on this recording was Sonar Producer Edition V8.5.3. It was recorded at a sampling rate of 48kHz in 24-bit audio. The audio interface used was an Emu-1820m.

The musicians were:

- **Vocals:** Mitch Wilson (lead singer and guitarist for No Knife and for Lunar Maps). Vocals sung through a Rode NT-2A microphone and an ART Digital MPA mic preamp.

- **Electric Guitars:** Chris Del Priore (former lead singer and guitarist for Mesa Blue). Electric guitar used was Stratocaster played through a BOSS GT-8 guitar processor. Chris also played the intro acoustic guitar part on a custom Moze 6-string acoustic guitar which was recorded using a Rode NT-2A microphone and an ART Digital MPA mic preamp.

- **Acoustic Guitars:** Kelly Gunning. Acoustic Guitar used was Martin D-28 recorded using a Rode NT-2A microphone and an ART Digital MPA mic preamp.

- The rest of the parts were recorded by John Volanski:
    - **Bass:** Alesis NanoBass and Cakewalk Dimension Pro
    - **Drums:** Cakewalk Dimension Pro
    - **Strings:** Solina String Ensemble, Gforce String Machine, Kontakt 4, Edirol Orchestra, and Kurzweil K2000RS.
    - **Synthesizer:** Korg MS2000R
    - **Hand Claps:** Clap Of Luxury (VSTi)

Tracking Notes:

- The first thing I did was generate a reference track that we would use for all subsequent tracking. (In general, this can be anything you want, from a simple click track to a barebones or even full version of the actual song.)

- I did all the bass, drums, strings, synth and claps tracks first. These are mostly all MIDI performances using a Kawai M-8000 master keyboard to play the parts. The drums were played manually using a Korg padKontrol surface. The beginning "strings" sound was played using a Solina String Ensemble keyboard (yes a real hardware analog classic that I rebuilt). For this song, I rendered all of those MIDI tracks into associated audio tracks, and then renamed and saved the Starman Sonar project. From then on, I used the 2nd version of song, and deleted the MIDI tracks and the all of the VSTi plugins (which chew up a lot of CPU cycles). If I ever need to change those parts, I can go back to the first version of the song that I saved, make the changes, and just import those new tracks into the latest version I am working on. This really helps to make sure I don't bring the CPU to its knees later when I mix the song and add in all those processor plugins. I know the parts will be

perfectly in sync between the two Sonar projects, because the timing, sample rate and arrangement of the song are exactly the same in both projects.

- For the vocals, we recorded 4 tracks (takes) for the first verse and then 5 tracks for the second verse, and I just selected the best take for each verse. Having this many vocal tracks also allows me to comp the vocals, using just the best phrases or even words or syllables to create a "best of" vocal track. That process can be tedious though.

- For the vocals on the choruses, we recorded 5 chorus tracks and then another 4 tracks of harmony vocals. I ended up using most of these, panning them across the left/right spectrum at a lower level to give a nice lush background vocal layering effect. Then we recorded another 4 tracks of vocals for the La La La vocal part at the end of the song. I used all of those tracks.

- The ART Digital MPA mic preamp has a digital output, so once the mic signal gets in there, it is converted from analog to digital, and stays that way throughout the rest of the process. I really like the price/performance ratio on this Digital MPA unit. Can you pay more and get better results? Absolutely! But you can also pay a lot more, and get results that are indistinguishable from the Digital MPA. In fact, I saw recently that SOS magazine ran a blind listening test and verified that very thing.

- I recorded Kelly's D-28 acoustic guitar using the mic positioned at the top of the fretboard to catch the crisp tones there. I pointed it away from the guitar's acoustic sound hole so I wouldn't catch any of that tubby component of the sound. The guitar parts he plays here have some quick chords that need to cut through the mix, and I didn't want them to be mushy. We recorded 4 tracks of acoustic guitar, and I used the best 2.

- I recorded Chris's Moze acoustic guitar the same way, but it has quite a different tone than the Martin. The Moze has more of a woody sound. We recorded 3 tracks of acoustic guitar here, but I only used 2 of them in the mix. On the 3rd track that I didn't use, he did some more experimental thing with it, but I didn't think it fit so well, so I left it out.

- Chris uses the BOSS GT-8 guitar processor for his electric guitar when he plays out at concerts, so he has plenty of pretty good user presets already dialed into the unit. Why reinvent the wheel? He selected a chucky fat sound that captures the feeling of what Mick Ronson played on the original Bowie song, especially on those chords he is playing.

- The performances by Mitch, Kelly and Chris were all done at different times (over the course of a several months)….in fact, I don't think Mitch and Chris have ever personally met each other!

Mix Processing:

This song was mixed within Sonar Producer V8.5.3. The VST plugins used to mix the song were: Cakewalk Sonitus EQ, IK Multimedia Tracks-3 Black 76 Compressor, Waves Doubler, Blue Tubes PH2 Phaser, Waves Kramer PIE Compressor and HLS EQ, Waves TrueVerb Reverb.

Mix and Arrangement Notes:

- The first thing I did was use Adobe Audition to open each track that was recorded with a microphone and perform as much noise reduction as I could on the tracks (hopefully without ruining them). This involves selecting "silent" spaces in the track and taking the gain to zero

at those places, or using Audition's excellent noise reduction tool (which allows you to isolate and characterize the offending noise, and then remove that from the whole audio clip), or both techniques. I also identified any single-event noises that I wanted to remove and used Audition's ability to view the clip in the frequency domain (instead of the time domain), to simply erase the offending noise (much the same as you would erase a blemish on a photo in Adobe Photoshop). Try that on your 24-track analog tape deck!

- For the bass, I used the same bass MIDI performance to generate two different bass tracks. The first bass track (NanoBass) has a high frequency component to it that readily allows the ear to distinguish the notes that are played. That bass sound had no real low frequency component to it though, so I added the second bass track (Dimension Pro) that didn't have a strong attack transient like the first track, but it has that fat round bottom-octave sound that underpins this song. I like mixing the bass like that so I can get the best of both worlds (if the particular song requires it). This approach does have some pitfalls though. You must make sure that when you mix the two bass tracks together that you don't get cancellation between the two bass tracks, or even a "phasiness" to the sound. This will most likely ruin the bass part, and it will be tough to get a reliable constant bass tone throughout the whole mix. If this happens, you may have to nudge one track or the other to try to get rid of the phase cancellation, or perhaps choose different bass sounds/samples, or rely on your EQ to make sure both tracks are separated in the frequency domain as much as possible. In my case, it helped that I used the same MIDI performance to drive both bass instruments. If you use 2 different and separate bass performances, then you can probably expect to see some bass cancellation somewhere in the mix. I EQ'd both bass tracks with the Sonitus EQ, added the IK Multimedia Black 76 plugin on each bass track, and then created a bass bus and sent both bass tracks to it.

- For the strings, I had generated MIDI parts for viola, violin, cello and string bass. When I went to render and mix those parts though, I used each of those 4 MIDI parts to drive instruments in Kontakt, Edirol Orchestra and on the K2000RS. In other words, from those 4 MIDI tracks, I now had 3 viola tracks, 3 violin tracks, 3 cello tracks and 3 string bass parts. The reason I did this is that each of these sounds slightly different (since they come from 3 different instruments) and I can pan each of those tracks to a different location, plus I can effect and EQ each of them slightly differently. I find this layering approach really helps provide a much more lush and interesting sound. On the Gforce String Machine, I only played chords of the string parts. I developed a custom patch on the Gforce String Machine that just sounds killer on stereo pad strings, and I use that as the low level basic string sound (to give the illusion of many more people playing strings in an orchestra), and then put all the other 12 string tracks around it to make it into something hopefully resembling a real string orchestra. I created a stereo orchestra bus and sent all of the orchestral tracks to it.

- For the vocals, I submixed all those 22 separate vocal tracks into a more manageable 3 stereo tracks (main vocal, chorus vocals, and La La La vocal). I EQ'd those tracks using the Sonitus EQ, and then I put the IK Multimedia Black 76 compressor on those. I created a stereo vocals bus and sent the 3 stereo vocal tracks to it. On the stereo vocals bus, I added the plugin Waves HLS EQ. This sounds *very* good on vocals and guitars. (Note: I didn't use Melodyne or any other pitch correction software on any of Mitch's vocals…somehow he manages to sing all 22 tracks so they sound good without any pitch editing at all. I don't know how he does it, because I certainly can't do it.)

- For the drums, I had separate tracks for snare, kick, high hat and cymbals. I generated these by using the MIDI tracks to drive the Dimension Pro drum instruments one at a time. I EQ'd

those tracks using the Sonitus EQ, and then added the IK Multimedia Black 76 compressor on just the snare and on the kick tracks. I also added the hand claps to this bus.

- For the "hazy cosmic jive" synthesizer, I just played the part using a Korg MS2000R synthesizer. On that track, I used the Waves Doubler and Blue Tubes PH2 Phaser to give it that other-worldly sound. I created a stereo bus for it. On the stereo bus, I manually drew in the bus panning using the pencil tool in Sonar, which is how I achieved the quick left/right seemingly random panning effect.

- The electric guitars were relatively straightforward…..or at least Chris made it seem that way. He did both the electric rhythm part and the electric lead part in one take each! No mistakes, no overdubs. Just played them straight through. I guess this is what happens when you play out at live shows all the time. For the solo lead guitar at the end, we did 4 takes and he tried various licks, as he didn't want to play it just like Mick Ronson did it. We ended up using the 4th take. On each of 3 stereo guitar tracks, I used the Sonitus EQ (mostly to cut lower frequencies so it wouldn't interfere with the bass guitar and string bass tracks), and I added the IK Multimedia Black 76 on each electric guitar track. The electric guitar tracks already had some compression and distortion from the BOSS GT-8 guitar processor. Then I created a stereo guitar bus and routed all 3 guitar tracks to it.

- I spent most of the editing time on the main acoustic guitar tracks that Kelly did. Since the acoustic guitars seem to drive this song forward on Bowie's version, I wanted to make sure they did that on this version too. First I made sure that the strums were all time-aligned in Sonar. Where they weren't, I cut (split) the track and isolated the offending strum, and manually dragged it to where it should be. When I finished all the splitting and dragging, then I highlight and select all of the little strum clips and perform a "bounce to clip" command to make them all back into just one big audio clip of the acoustic guitar performance. Once I got all that done, then I opened each of the acoustic guitar tracks in Adobe Audition, and I manually went through to set the amplitude as consistent as possible for all the strums. I did it by highlighting each strum and then adjusting the gain on it. That was *way* too tedious to do it that way, and next time I will just use the clip gain envelopes in Sonar to do micro-adjustments like that on any track (i.e., just draw in the gain envelope with the pencil tool). Once I got the strumming syncopation and audio gain correct, then I adjusted the EQ on each acoustic guitar track using Sonitus EQ. I added an instance of Waves C4 Multiband Compressor to each track and also the IK Multimedia Black 76. I created a stereo acoustic guitar bus, and routed both tracks to it. Once I had the stereo acoustic Guitar bus, I sent a portion of it to my Stereo Spread Bus, which was created using the Waves TrueVerb plugin. This spreads the stereo image and makes it fatter with some reverb.

- On the 2 acoustic guitar tracks that Chris did at the very beginning of the song, I created another separate stereo acoustic guitar bus and routed those 2 tracks to it. I used the Sonitus EQ on that bus, plus added an instance of Waves PIE compressor and Waves HLS EQ.

- I used just one reverb on this song, and that was the Waves TrueVerb. I started with a New York Plate reverb preset algorithm, and then adjusted it to suit the song. This reverb sits on a separate stereo bus, and I send portions of other buses to it for effect (but not the bass guitar and not the kick drum- they are both dry in this song).

- Finally, as I mixed this song, I alternated between using my studio's speaker monitoring system and my Audio Technical ATH-M50 headphones. When I listen to the monitor speakers, I add an instance of IK Multimedia's ARC 2 (Advanced Room Correction software) on the master bus to correct for the acoustic problems that my studio room

introduces. When I finally got the mix I wanted, I turned off ARC 2 (because it is specific only to the acoustic anomalies where I listen in my studio, not to the song in general) and exported a version of the mix in 24-bit, 48kHz audio. So far, so good. Next step is mastering.

<u>Mastering Processing:</u>

This song was mastered using Adobe Audition (CS5.5). The VST plugins used to master the song were: Waves Lo Band EQ, Waves Multiband Linear Compressor, Waves L2 Ultramaximizer, and Har-Bal.

<u>Mastering Notes:</u>

For starters, I do not claim to be an expert Mastering Engineer, but that certainly doesn't stop me from trying my hand at it. I have tried several different approaches to this stage of the process. I tried Ozone 3, IK Multimedia T-Racks 3 processors, Blue Tubes Mastering processors, various tape warmth emulation processors, and a bunch of other stuff.

Lately, I have decided just to keep it simple. The first thing I do though is import the song into Har-Bal and look at it in there. Har-Bal (Harmonic Balancer) is a standalone program that allows you to correct EQ issues in very useful and intuitive way (once you check out their tutorials, that is). Using Har-Bal, I try to get the EQ of the mixed song to be as correct as possible across the whole audio spectrum. Then, I import the song into Adobe Audition and do the rest of the mastering in there. First up, I use the Waves Lo Band EQ to get rid of any DC offset and low frequencies below a certain point. No sense in having those unwanted low frequencies eat up dynamic range and throw off the compressors downstream.

Next I use the Waves Multiband Linear Compressor. This applies linear (as uncolored as possible) compression in 4 separate bands across the frequency spectrum. Using this, a loud sound in the bass frequencies won't affect the gain of a cymbal crashing in the higher frequencies, for example. And then the last step is the Waves L2 Ultramaximizer, which allows me to use up the full dynamic range of the digital signal without going over 0dBFS (see my Addendum for more on this). As a last check, I look and *listen* to the mastered song with Har-Bal to make sure I didn't screw up any band of frequencies. And that's how this Starman song was produced from start to finish!