

JUMP POINT

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ISSUE 02.03



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GREETINGS, CITIZENS!

Our baby's growing up, and I'm just so proud. To be specific, our corvette baby is growing up into a frigate, and I really can't take any of the credit (or blame, if any of you want to dish blame) for what's happened.



I do know I really wish I had bought an Idris back when it was a corvette (not that my speed dial is any better than yours).

And I can give you this update: Idris stats are still AWOL, until CGBot gets it into the engine and we know for sure what it'll have. And it hasn't grown any longer since the last time we chatted.

Moving on, we're starting to get the DFM dementia. It's in that stage where we know it'll happen soon, but not soon enough. In some ways, it's worse for me than for you. I can walk by and watch people play (or try to play — no game at this stage of development, no matter how wonderful, is anywhere near stable), and realize even more sharply how close we're getting. Now, I've been around games that were this close and all of a sudden they were a year (or more!) postponed, and I've learned from experience that holding my breath till I'm blue in the face, waiting for a game, just makes me blue in the face. But this one is starting to feel really close. It hasn't helped that the DFM has its fingerprints all over this issue of JP — just take a look at our featured corporation (who just happen to make the DFM game) or the Galactic Guide (which just happens to be set in one of the principal systems featured in the DFM game), or even the Work In Progress article on the Idris ... and how does that relate to the DFM, you ask? Because nearly every

CIG designer and artist is focused on getting the DFM done, which means (everyone count quietly) exactly how many other ships are getting done so we can feature them in JP? Having said all that, I still think I have it better than you. At least I can watch how things are going, and I know that progress is being made, so please believe me: that day is getting closer, day by day.

In other notes ... Roger Aplin suggests we add audio and video clips to both JP and ship brochures. While it is definitely doable (especially with the software he recommends) and I appreciate the suggestion, my answer is that there are lots of sources on the CIG website for audio and video (the commercials being a prime example); JP is simply an old-fashioned read. Adding clips that aren't available elsewhere would take an alarming amount of time (not just my time, but others') for production and review.

And I will give the first of an occasional series of acronym definitions: **PBR = Physically-Based Rendering**. This is exciting to our artists because it's a very new method that (as I understand it) automatically and naturally applies shading and light to objects (ships, people, and so forth), without the artist having to calculate the locations and effects of all the nearby light sources. It's both easier and more realistic. Everything you see on the screen in the finished game will be "PBR."

Hold on, it's gonna be a wild ride!

David

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PAGE 3: CGBOT

PAGES 31-33: LOGOS, DAVID SCOTT; HUD MOCKUP, CHRISTINE MARSH & ZANE BIEN

PAGES 34-40: MICHAEL MORLAN

PAGE 41: ELIJAH MCNEAL & CHRIS OLIVIA

PAGE 44: RYAN ARCHER



FROM THE HOCKEY!



Idris: Foundry 42

This issue we're focusing on the work Foundry 42 has done on the Idris. Work shifted to Foundry 42 when the Idris became the principal capital ship for *Squadron 42*. There is introductory material on most sections from Mike Northeast (MN), F42 Senior Designer, plus contributions from:

Chris Roberts (CR)

Mark Skelton (MS), CIG Art Director

Paul Jones (PJ), F42 Art Director

Stuart Jennett (SJ), F42 Concept Artist

Bjorn Seinstra (BS), Senior Artist

Tom Johnson (TJ), F42 Project Manager

Andy Ley (AL), F42 Concept Artist

Phil Meller (PM), Lead Designer

After Ryan Church's concept was completed last year, CGBot (which does much of the ship conversion to CryEngine for SC) began the Idris conversion. However, when it was realized that the flight deck wasn't large enough (see the notes on the next page), F42 was given the task of updating the Idris concept. As F42 completes rooms and other parts of the ship, they are handed off to CGBot. As this issue is published, F42 is just about finished with their work, while CGBot is getting underway with the conversion.

Since the F42 team was often working on various parts of the ship at the same time, this article is organized by parts of the ship, rather than our normal more chronological order.

CR: Why is our current profile so radically different – shorter than the original concept? I thought we just widened the beam, which would make her appear more stubby from the top and $\frac{3}{4}$ views, but the profile should be unchanged.

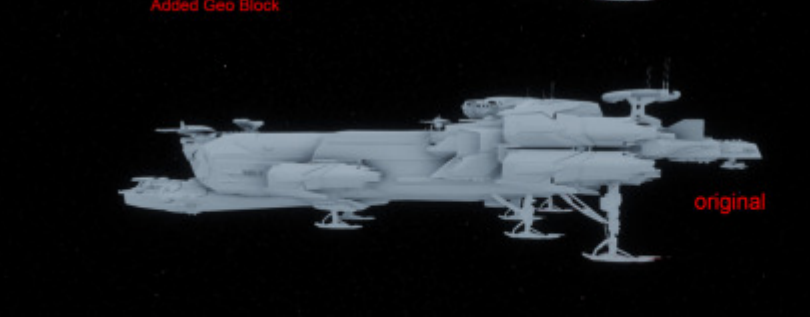
I also miss the aggressive bridge from Ryan's concept.



WORKING IN PROGRESS



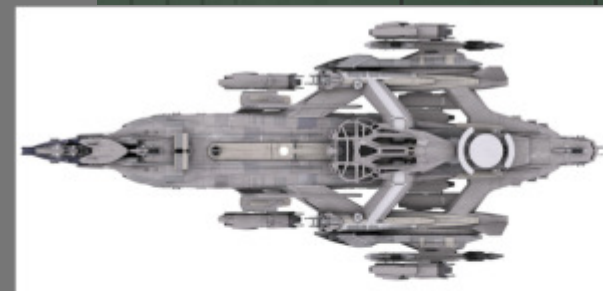
So I think if we just cut the nose off and add a block of geo to fill the gap we should be fine. The interior is modular so we can just extend some hallways and rooms to fit the interior to match.



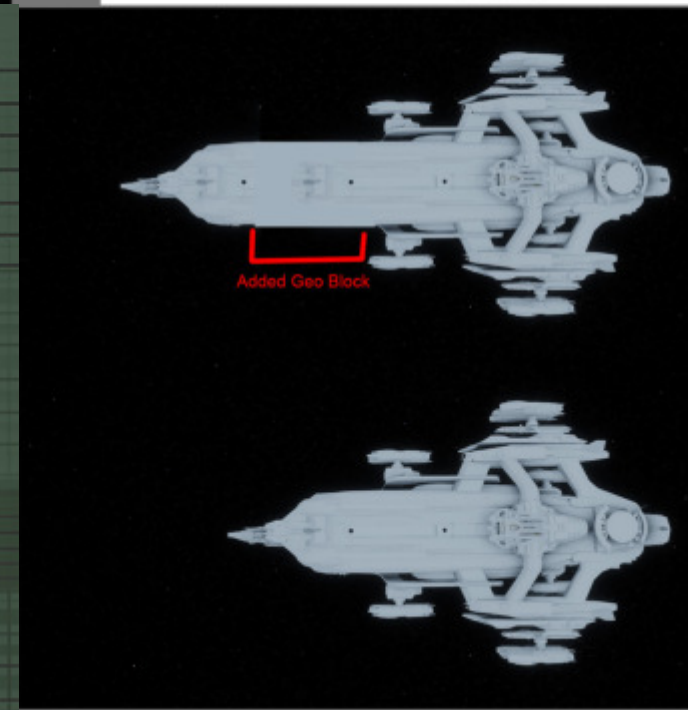
MS: Here's what I'm proposing for the Idris lengthening. What do you guys think about the Idris model in general (exterior)?

CR: Mark's suggestions seem to be in the right direction (although we need to make sure she is balanced on her landing skids).

I would scale up some of the turrets to try to match the concept closer, too.



Heres what it looks like from the top. This WILL add quite a bit of hangar space and will probably accomodate at least one more Hornet, which Ive made Rob aware of.



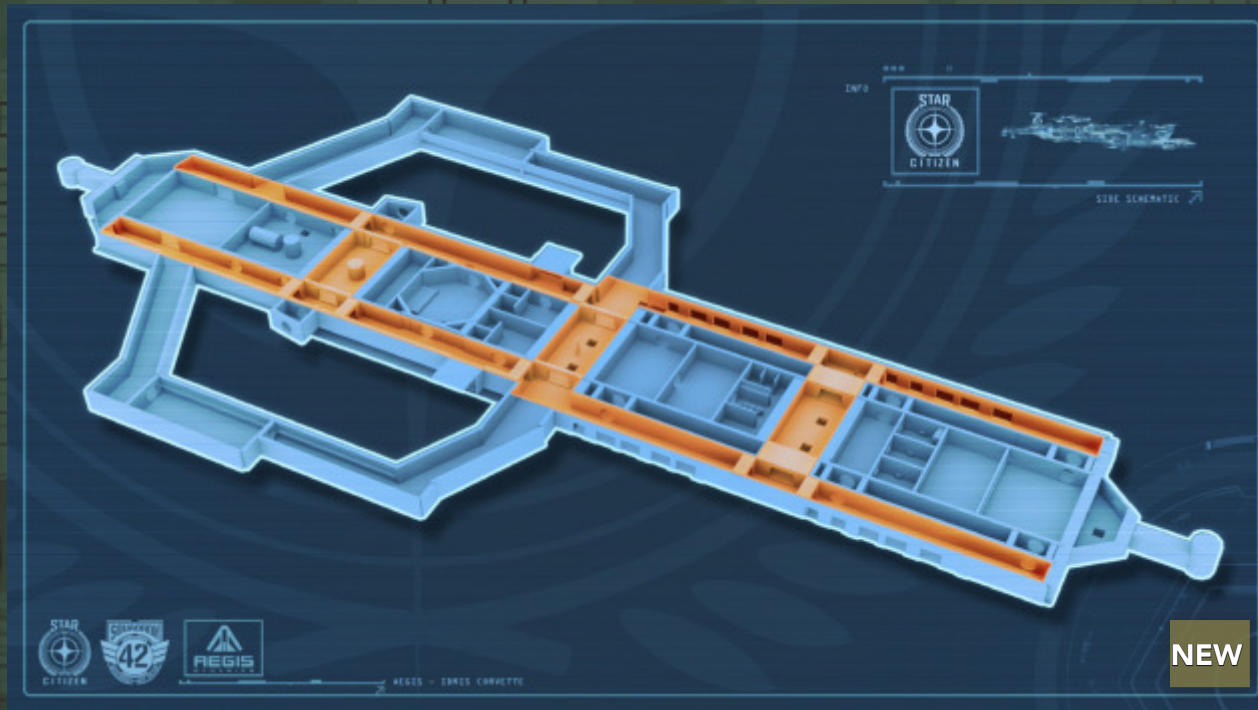
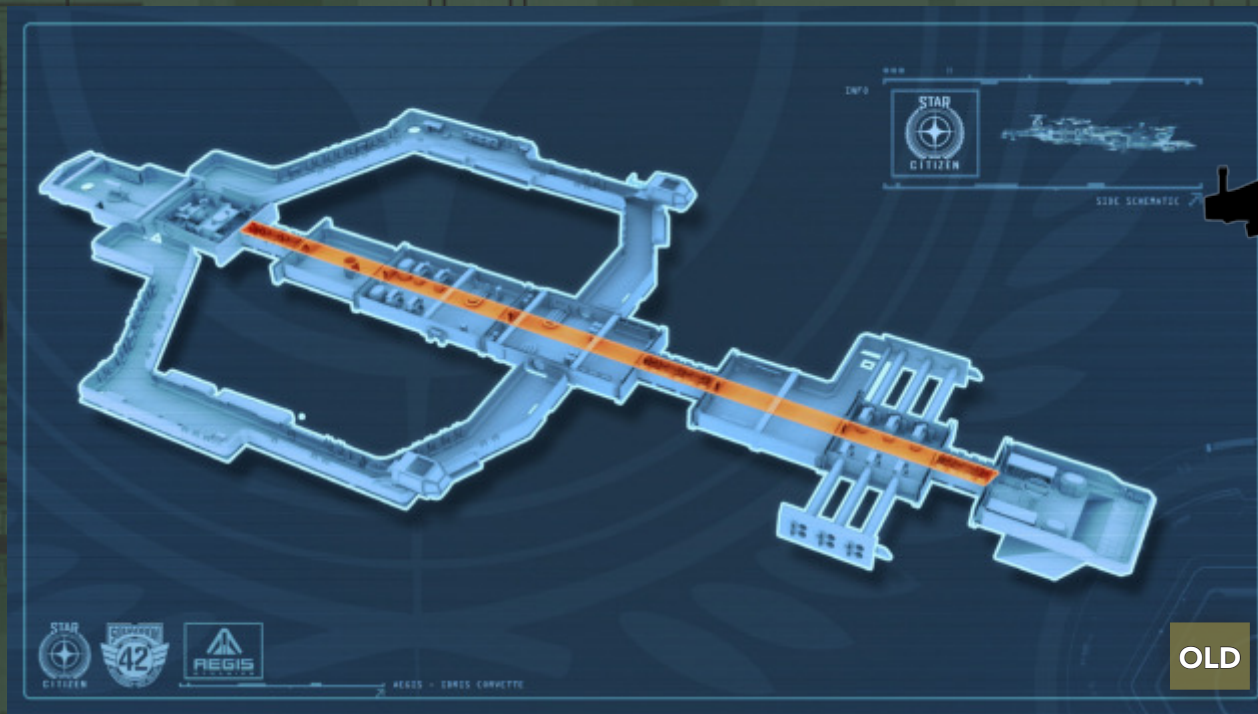
MS: To my understanding, here's what happened ... when Ryan Church was concepting out the Corvette, he used an older Hornet model that was too small (I believe it was the original Hornet from the kickstarter cinematic). When CGBot built the Corvette to spec, we realized that our current Hornets didn't fit and had to widen the ship to accommodate them. In doing that, when we made the bridge proportionate to the concept, the inside of the bridge was HUGE. It felt like a hotel atrium, so we made it smaller, which in turn made it much less prominent. It also made the whole ship shorter, since we were trying to maintain the ship-to-ship comparative measurements. Overall, our proportion problems have cascaded down from the concept, but with a few more size adjustments (see the accompanying images), I think we will be back on track.



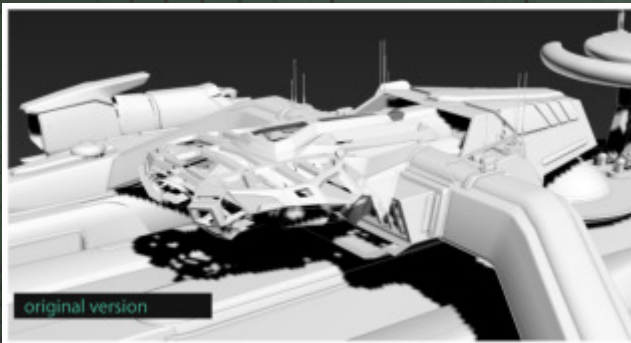
WORKING IN PROGRESS

MN: The Idris Corvette was announced back in June 2013 and proved to be extremely popular with the fans. We wanted to keep the aesthetics as close to the vision created by Chris Roberts and Ryan Church as we could, so we only made minor adjustments to the exterior, focusing our attention mainly on the interior of the ship. Our goal was to offer more functionality in terms of general layout and to create a viable hub for the player in *Squadron 42* where they could receive missions, gear up and relax after a hard-fought battle.

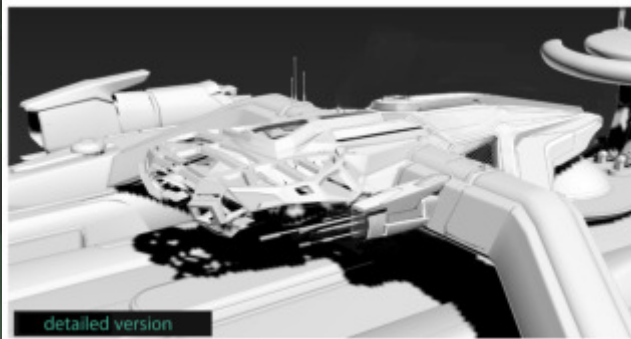
The first step when designing the interior of a large ship is to white-box the deck layout in CryEngine's Sandbox editor. This practice allows us to quickly block out shapes without having to worry too much about the detail, which is important when changes are requested during the design phase. I began by improving overall mobility on the ship by introducing side corridors, which run the length of the ship, plus bulkhead corridors, which connect them. Essentially, this is the "skeleton" of the ship.



WORKING IN PROGRESS



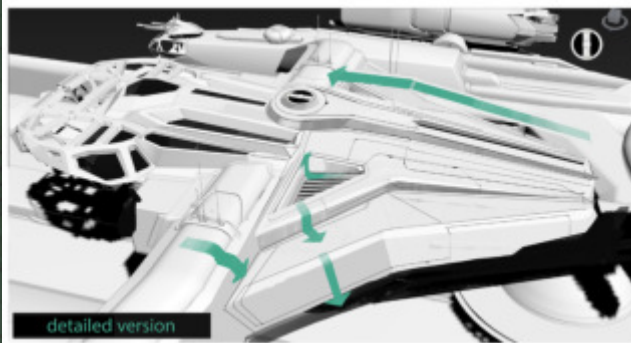
original version



detailed version



original version



detailed version

MN: Stuart Jennett modified the rear of the bridge to match the hull exterior and to add heat exchange vents that will have an impact on some of the gameplay planned in the persistent universe.

TJ: Please explain a little more about the purpose of these vents, and how and if they need to be connected to interiors/systems in a certain way.

MN: Sure. These are heat exchangers or radiators. Their sole purpose is to chill the coolant that the ship systems use to remain operational whilst venting heat into space.

SJ: I completed detail modifications and streamlining of CGBot's bridge, and also venting concepts for ship cooling management systems.

CR: Looks good.

PJ: We'll get CGBot to update the model with a first pass on the rear bridge housing.

The nose was altered to meet the rough pass we made while you visited, along with some slimming alterations so that it fit more with the original concept. We'll get you an updated grab of the model.

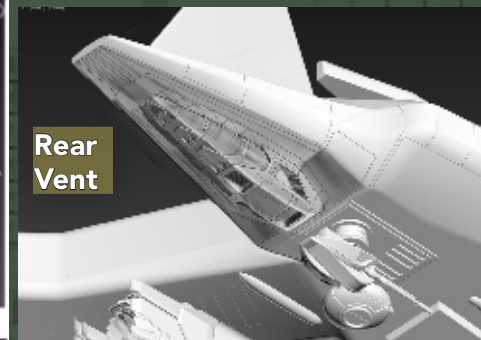
Also more heat exchange vents were added to the rear and side of the Idris.



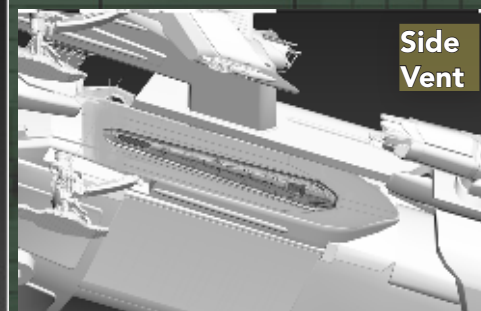
original version



detailed version



Rear Vent



Side Vent



WORKING IN PROGRESS

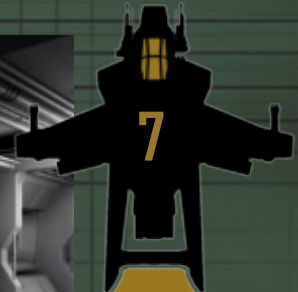
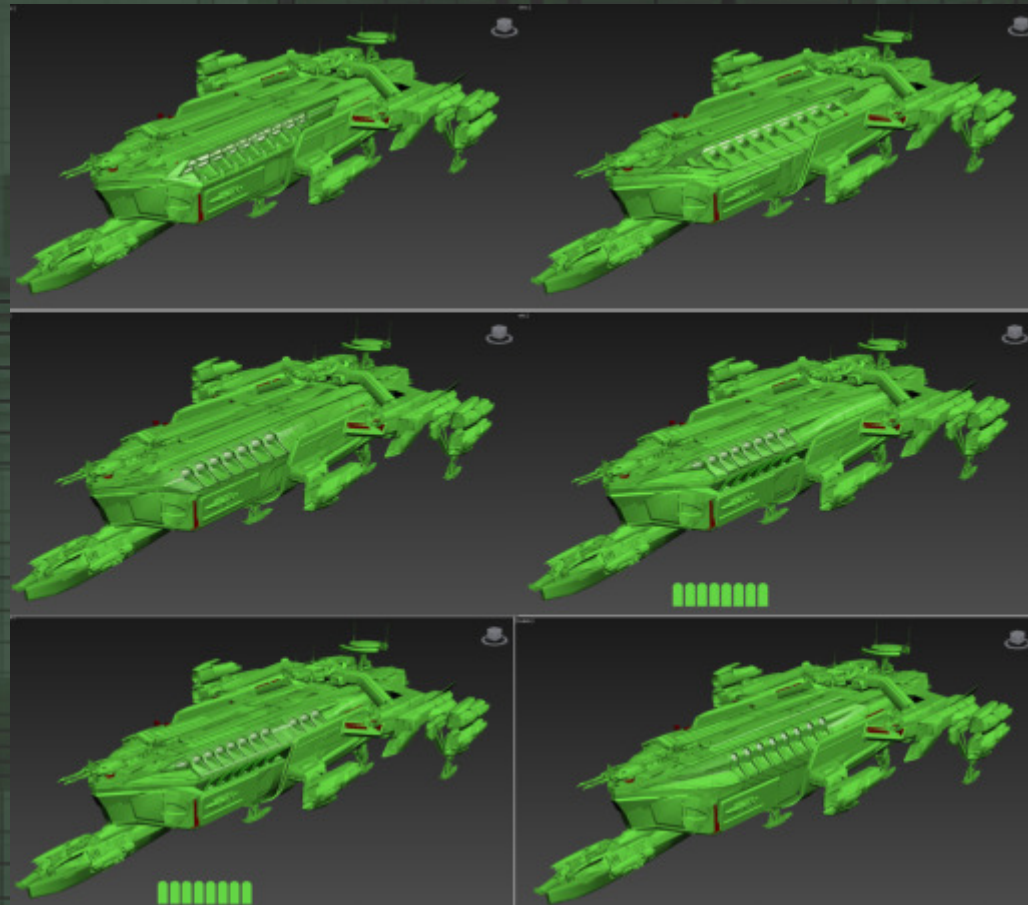
CORRIDORS & BULKHEADS

MN: The corridors at the fore of the ship were close to the hull, allowing us to add exterior windows, and then large bulkhead doors were added to cap these corridors off. The doors remain true to the circular aesthetics

seen on the other interior doors on the Idris. This also had an impact on the hull of the ship.

Possible window variations in green, below.

PJ: These are the new windows that were added as per CR's request (at right).



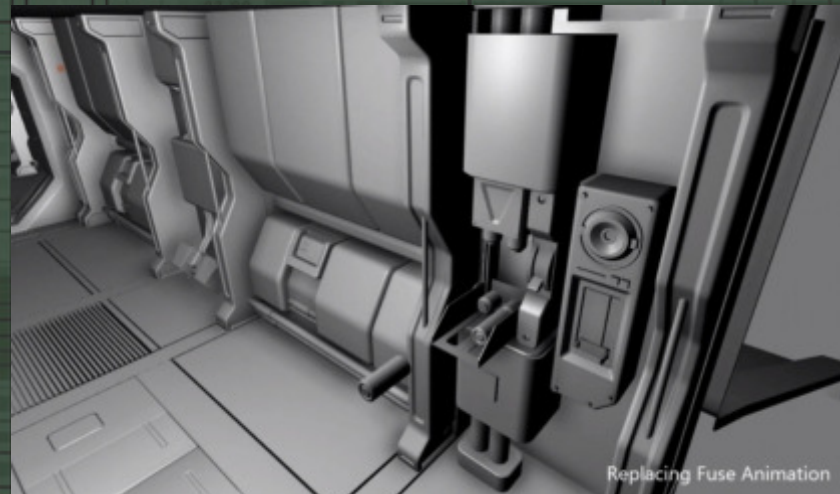
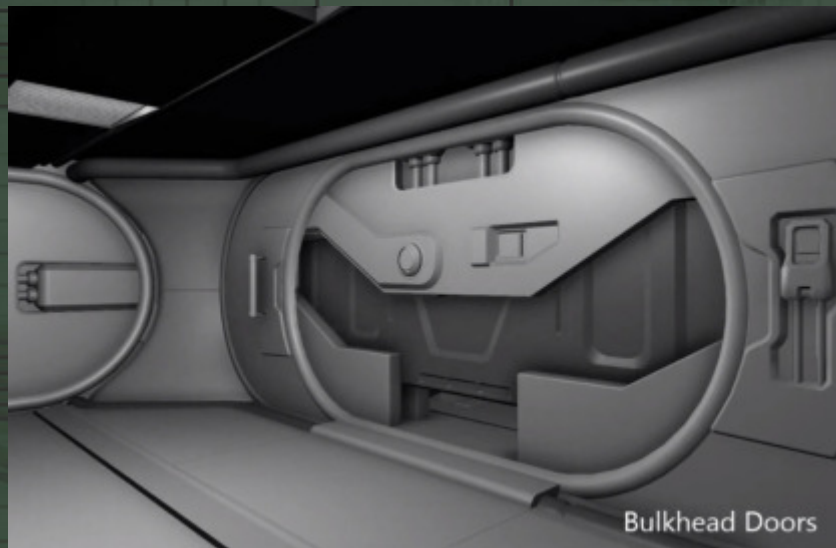
WORKING IN PROGRESS

CORRIDORS & BULKHEADS (Cont.)

The aft side corridors are more enclosed, but have far more functionality. This is where the cargo lifts from the hangar floor and the airlocks are situated. These corridors are also more rounded, to follow the art direction for Aegis Dynamics capital ships.

Connecting these side passages are wider bulkhead corridors which are sturdier and allows the player to move around the ship easier. These also have hatches in the floor which allow the player access to the ships crawlspaces. Towards the stern of the ship one of the bulkhead corridors was converted to an information hub which contains a map of the ship and the elevator which takes you to the bridge.

AL: This shows concepts for corridors, an airlock door, a bulkhead door and the room containing the lift up to the bridge. There is also a concept for the Idris power relay panels where PCs can replace fuses on the ship.

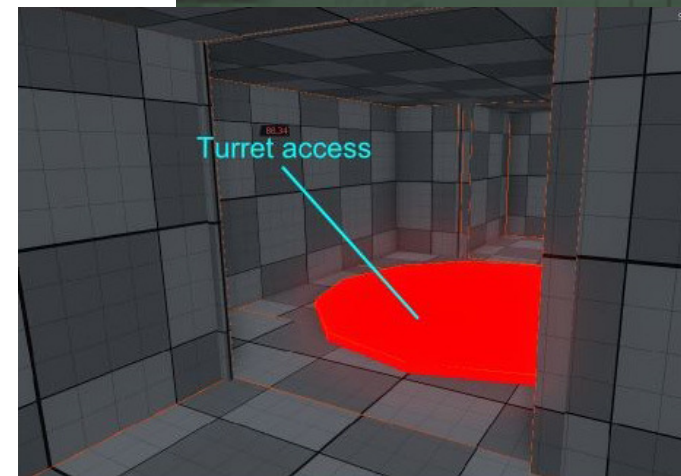
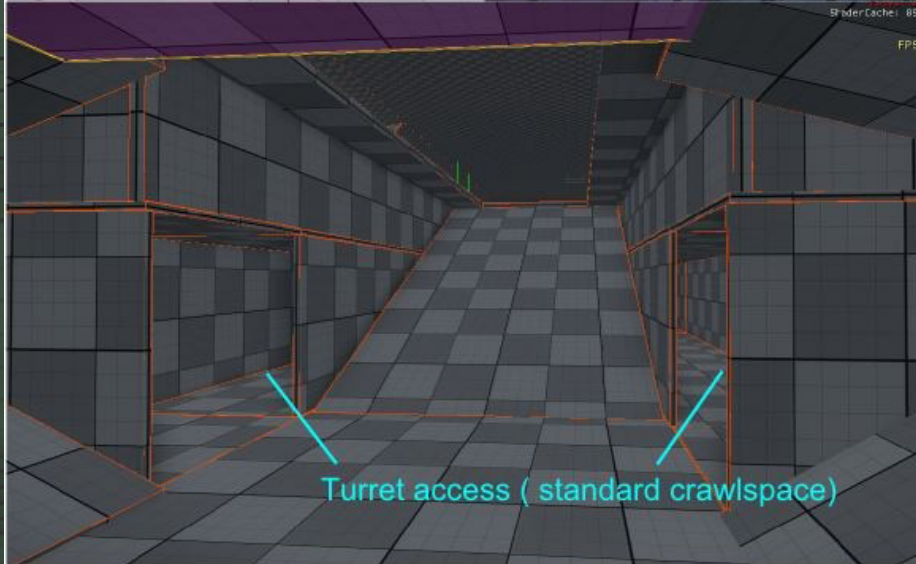
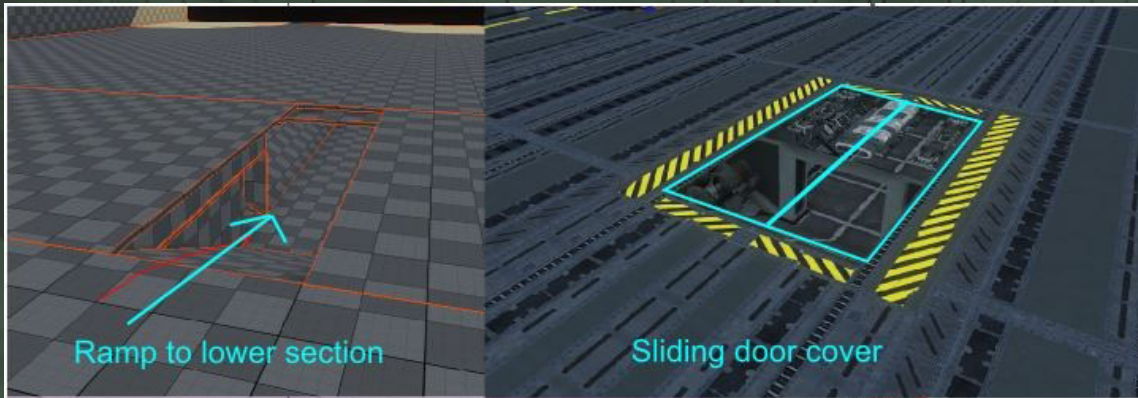


WORKING IN PROGRESS

BOARDING STAIRS, ACCESS RAMP

MN: The boarding stairs have been removed, as it was unsure how characters would use the nearby turret. This leaves room to include crawlspace that gives access to the turret.

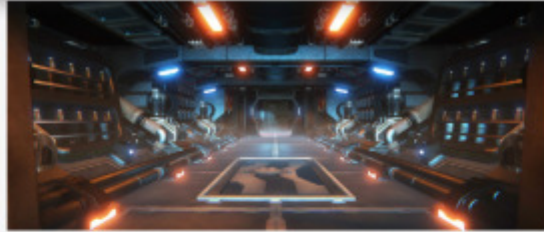
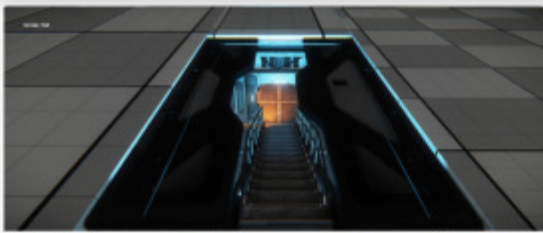
The access ramp now consists of the following: An access hatch door that slides open horizontally. A ramp down to the access section. At the bottom of the ramp there should be access to a small crawlspace. The crawlspace leads to the turret access point.



WORK IN PROGRESS

CORRIDORS & BULKHEADS (Cont.) *Crawlspace.* Based on feedback from the fans, we added a network of crawlspaces below the main deck. Primarily, these allow the ship's engineer to access the numerous systems aboard the ship. However if a ship is boarded, they become a great way for either side to move about the ship stealthily.

Interior Locations. I then defined the locations we would need in *Squadron 42*. Once decided, the talented concept artists from offices all over the globe began to create art, which helped to outline the look, feel, mood and lighting for each of the locations. I'll let the images speak for themselves.



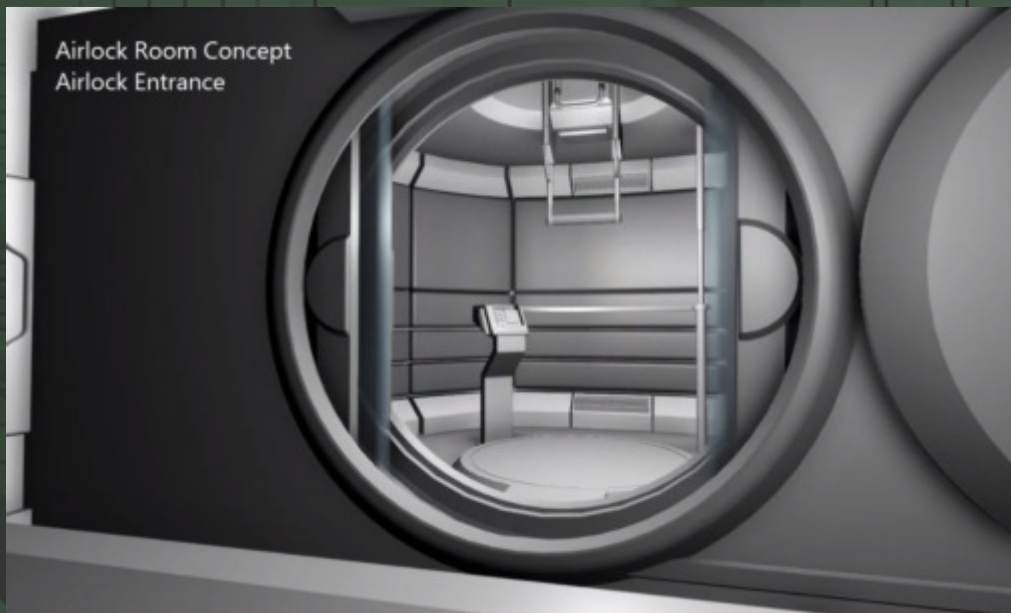
THRUSTERS

MN: The Idris is now a fair bit larger than the original spec (240m long rather than 140m long). Given that there's a lot of focus regarding correct placement of manoeuvring thrusters for the physics model, is there someone over there who might be able to look at the thruster placement to make sure that they are in the correct place and that there are enough of them?

TJ: If anyone foresees any problems with the placement of

the thrusters, please let us know; we assume it's safe to proceed but it would be good to check as early as possible if you think there are any considerations we need to make. If so, please ping Mike asap and he can talk you through our plans and figure out a best course of action.

MN: For the time being I think CGBot can get on with these. Any issues with the thrusters will make themselves apparent once the ship is in-game and any art adjustments can be made then.



AIRLOCK ROOMS

MN: There are two suggested airlocks on the Idris at the back of the ship. These should contain a panel that, when pressed, starts the airlock sequence which should be as follows:

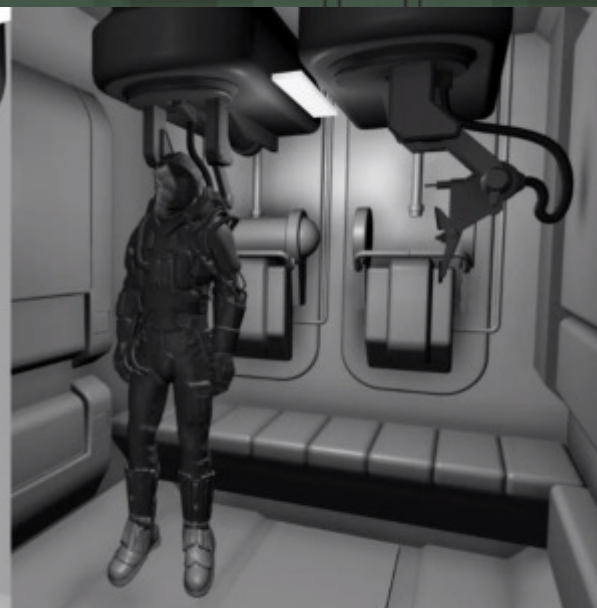
- Activate Panel
- Inner door closes
- Area depressurizes

Outer door may now be activated and EVA can begin.

PJ: Mike, does this use a common external airlock door design to other ships? I.e., is there anything that can be used from elsewhere?

BS: This needs a beefed up version of the circular door to signify it's an airlock.

AL: These images show the footstep lift that takes the PC up through the ceiling. The room also contains a charging rack for EVA suits.



MISSION OPS

MN narrative: Mission Ops is where the PC receives all the details of the next mission. The location is central to the ship, to reduce the time it takes to get there from any other area. The concepts here are based on a larger vessel and (as you can see) started out larger itself. The art direction for the Idris Ops room is identical to that for larger ships, yet now only holds seats for nine. The key feature to the room is the large, curved screen at the front. This is capable of showing 2D text and data displayed by a holo-projector that emits a hologram from the ceiling. This allows us to do some interesting things in *Squadron 42* and still leave a point of reference in the PU.

Each seat has a small interface where the user can view images or text more closely.

I've also attached an image of the pilot seats. They have the small displays on them that I'd like to see on the chairs.

PJ: Idris Briefing room, with 5x3 seating configuration.

PJ: Ok, here's the feedback from the design department.

- Mood lighting
- Chairs with mobiglas display



MISSION OPS

- on the arm of the chairs
- No Tron lighting!
- Large curved screen with secondary holo function
- No purple lighting!
- Room to be well used and functional, not a posh cinema.

CR: Seats are cool.

Love this for the Panther, but the Idris? Is there an extra squadron hidden in a Tardis-like flight deck? I get it for an escort carrier, but the Idris only has a 2-fighter complement!

MN: Here's a shot of the Idris briefing room in a basic whitebox. Although there are only two pilots, we imagined that key bridge crew members might attend mission briefings too, thus we're allowing for nine seats. This concept for this room shows it far larger than it actually is due to the field of view being too high. Is this size OK?

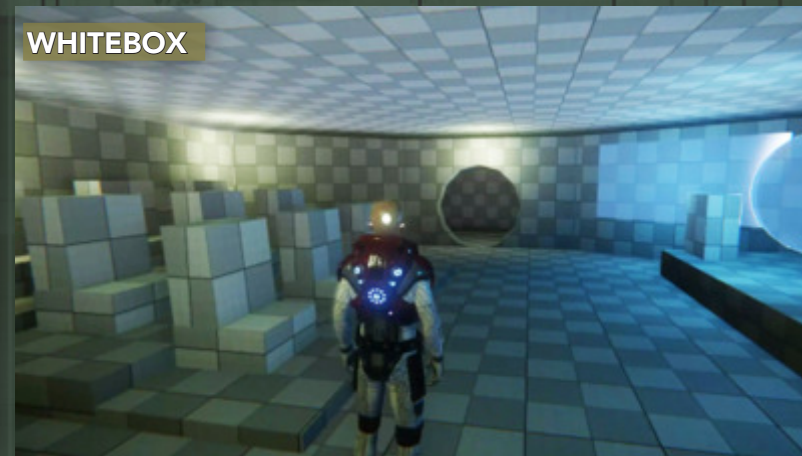
CR: This works for me!



CONCEPT



WHITEBOX



CAPTAIN'S QUARTERS

MN: As you might expect, the Captain's quarters allow for a little more luxury than the standard crew quarters. This concept is by Dennis Chan. The Captain's quarters contain the following key features:

- A private shower and toilet cubicle.
- A cubicle containing a bed and extra storage.
- A main area with a personal

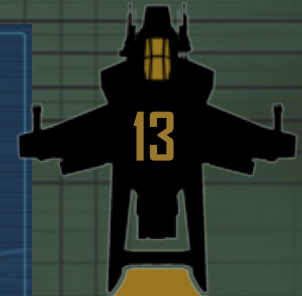
nutrition vendor, a shelving system with room for personal items and trophies and even a fish tank.

PJ: XO quarters will be similar.

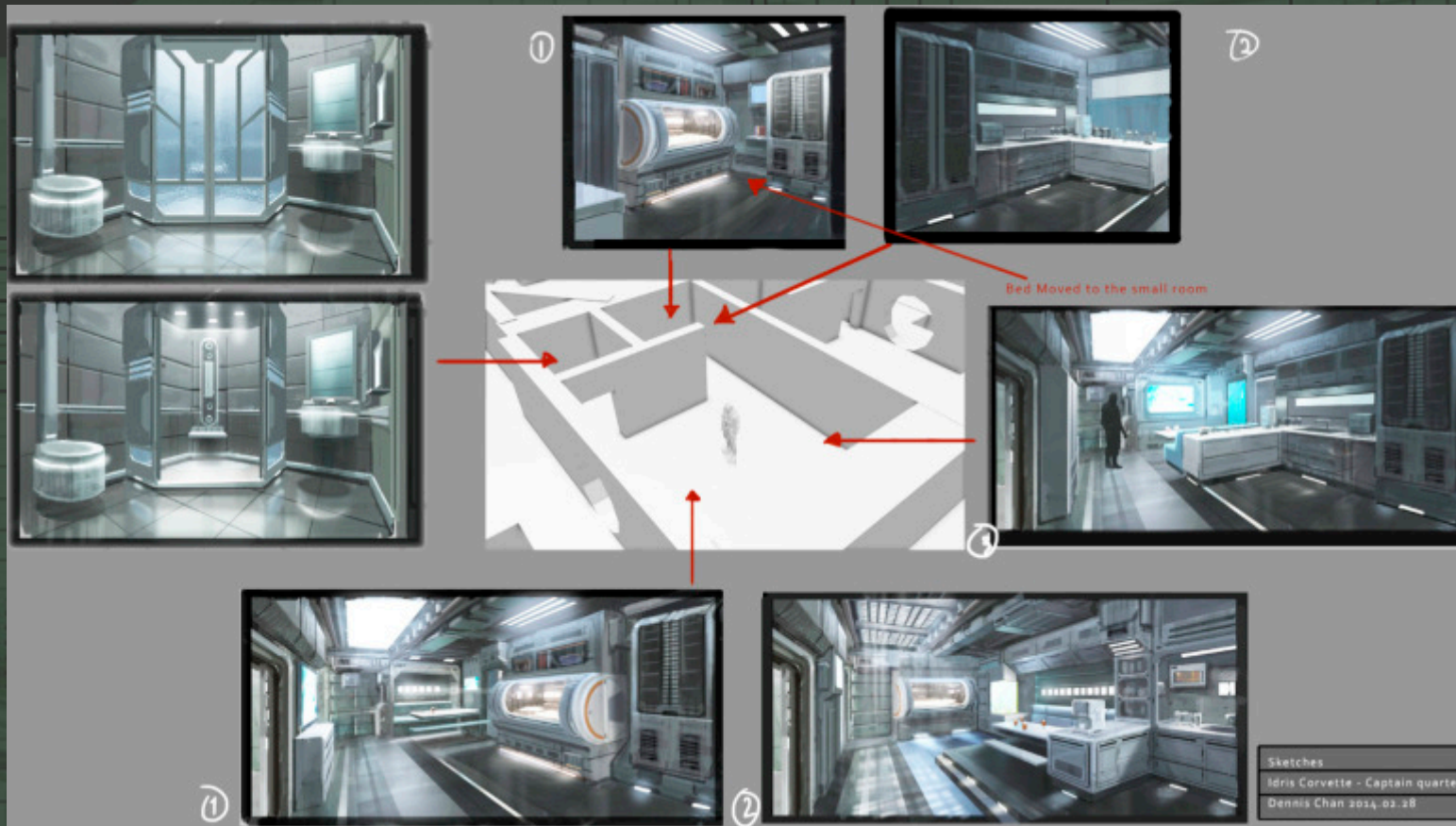
The bed should be the standard capsule bed seen elsewhere in the Idris.

BS: Needs shelves, desk, toilet, sink and bed, same as crew quarters. Additional storage, etc., and bits such as a lamp.

CR: Looks good to me!



WORK IN PROGRESS

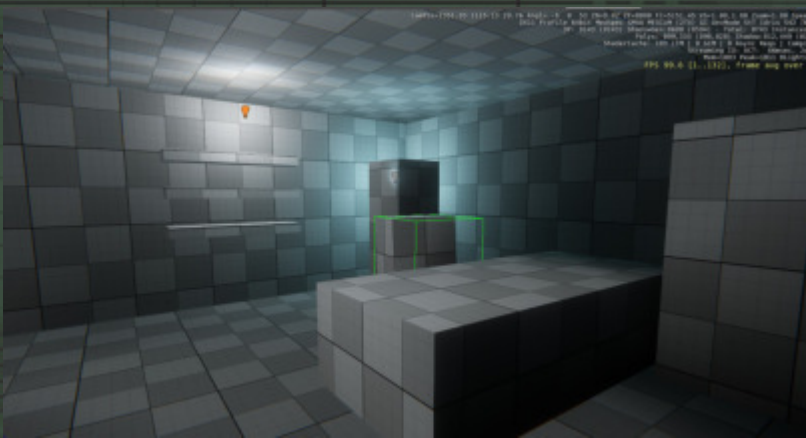
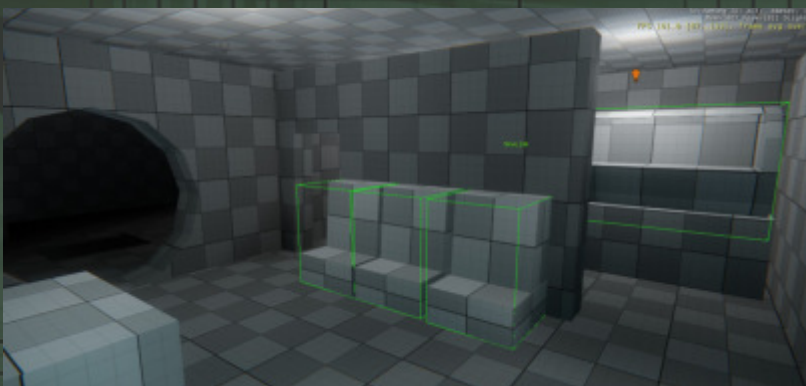


CAPTAIN'S QUARTERS (Cont.)

MN: The room in the concept is a little bigger than what we have on the Idris, but the look and feel is right. We need to keep the key features from the concept: the shelves, vending machine, bed and shower/toilet cubicle are important.

I think the bench is too much, so no need to put that in; replace with a nice, executive chair. The worktop with the coffee machine needs to be a desk rather than a worktop.

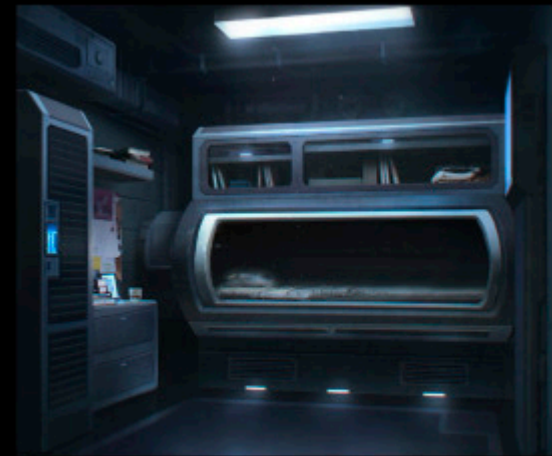
I've attached some screenshots of the whitebox.



Main room



Bathroom/shower toilet



Sleeping quarters

Concept Art
Irisa Corveta - Captain's Quarters
Dimitri Eitan 2024-05-08



WORKING DRAFTS

CREW QUARTERS

MN: Crew quarters comprise bunks for up to twenty-four crewmen, a small mess room and a restroom. Although the Idris is larger than previous iterations, she's still the smallest of the capships. Rather than waste valuable space on a kitchen, the Idris features nutritional vendors, which cater to the crew's food and drink supply.

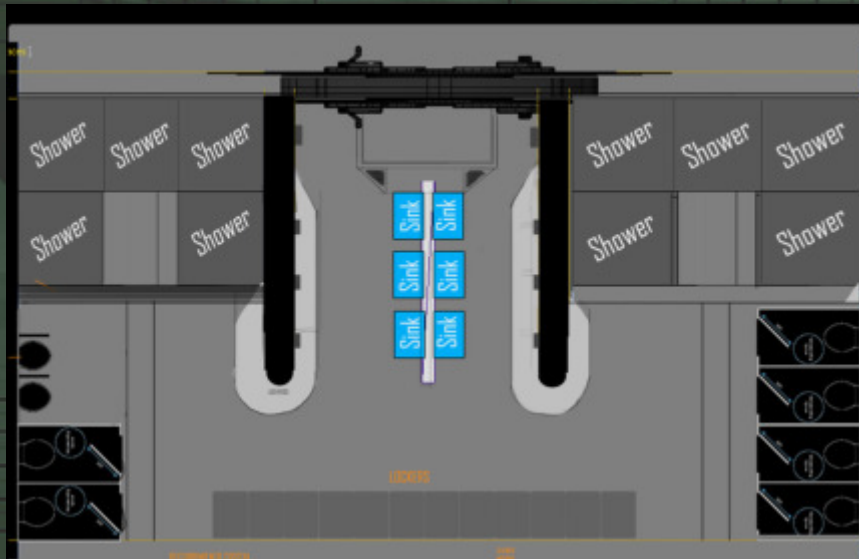
BS: Table, chairs and vending machines need to be 'seeds' to use the system for them to be swapped out.



CREW QUARTERS



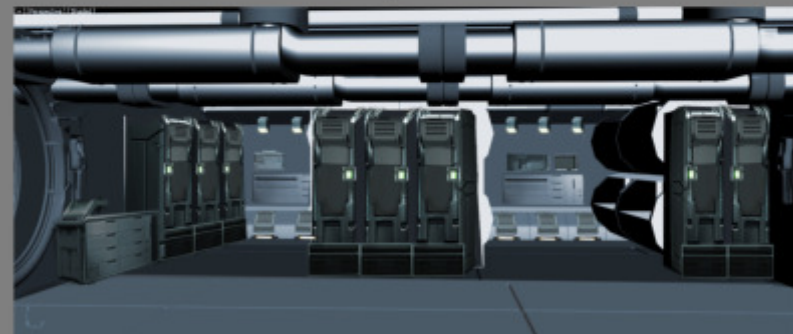
WORKING DRAFTS



Sleep Quarters Mockup



Proposal



Notes:
There is an unused aisle between the right-most beds and the wall, so I proposed that the beds could be moved to leave more space between them.



BRIG

MN: We felt that a brig was an important room for *Squadron 42*, and also an area that players in the persistent universe would appreciate. The brig consists of the following:

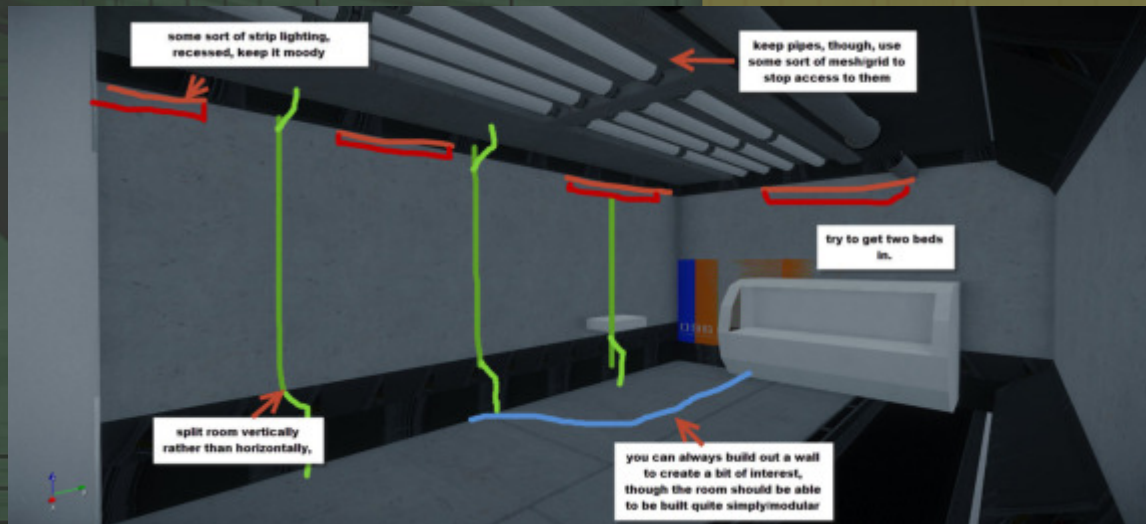
- A monitor post with an interface that allows the PCs to lock and unlock the cell doors.
- Three cells, each with an individual panel to lock or unlock the door.

- Each cell consists of a bed, wash-basin and a toilet. There's also a communications panel.

PJ: The brig will need a bit of tweaking to bring it to the same level of wear and tear as in the in-game model. Shapes are good overall and will give CGBot a good idea of what to aim towards.

CR: Looks cool – but how many brigs do they have? (Or are these 3 rooms, not 3 brigs?)

PJ: One holding area with 3 cells.

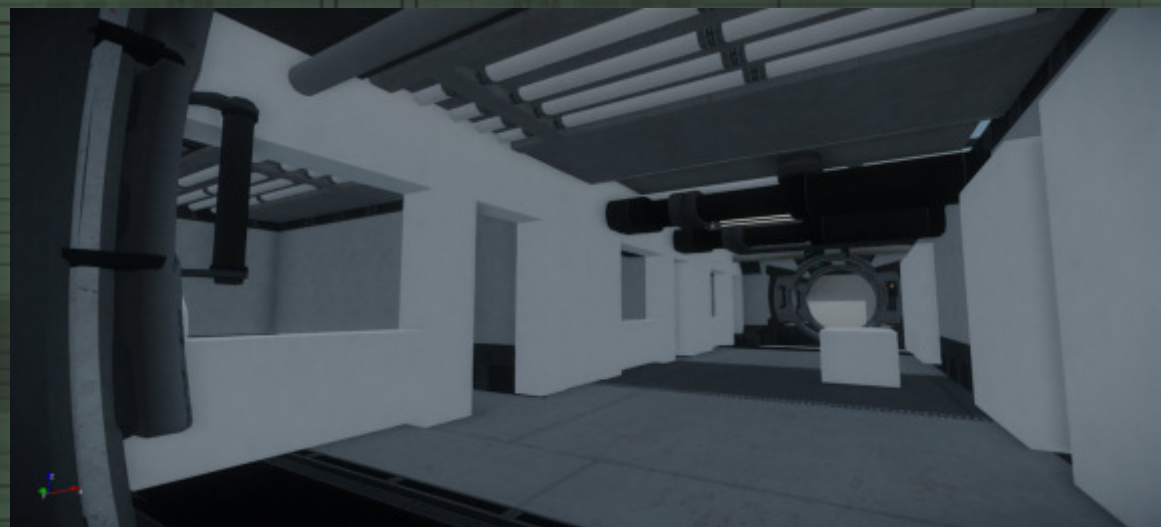


BS: Doors will need a panel inside and out.

Each room has a bed, sink, toilet and interesting sound proofing.

Security console on the outside; i.e., desk with guard outside.

PJ: In the pic to the right, the wall on the right would be some sort of storage/lockers to keep the prisoner's stuff in.



WORKING IN PROGRESS

BRIG (Cont.)

PJ (to CGBot): I was thinking the dark grey areas could be made out of a high density foam type material; it'll look good in PBR.

Also, in these concepts, some of the architecture can be replaced with stuff you've already made – things like the corridor wall, the angled beams; no need to redesign content. It's mainly about layout for the corridor.

For the cells, keep it close to the concept, but again make sure it fits with the current Idris style.



WORK IN PROGRESS



SUPPLIES

SUPPLIES & STOREROOM

MN: We added a good-sized storeroom at the back of the ship with lifts in the adjoining corridor, which allow the PC to bring supplies up from the hangar.

ARMOURY

MN: We added a small armoury for firearms, grenades and gadgets. There's also storage for the different types of armour the PC will wear.

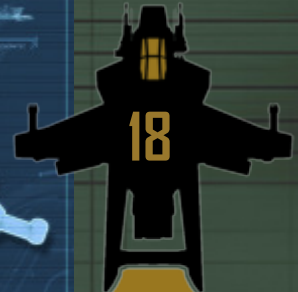
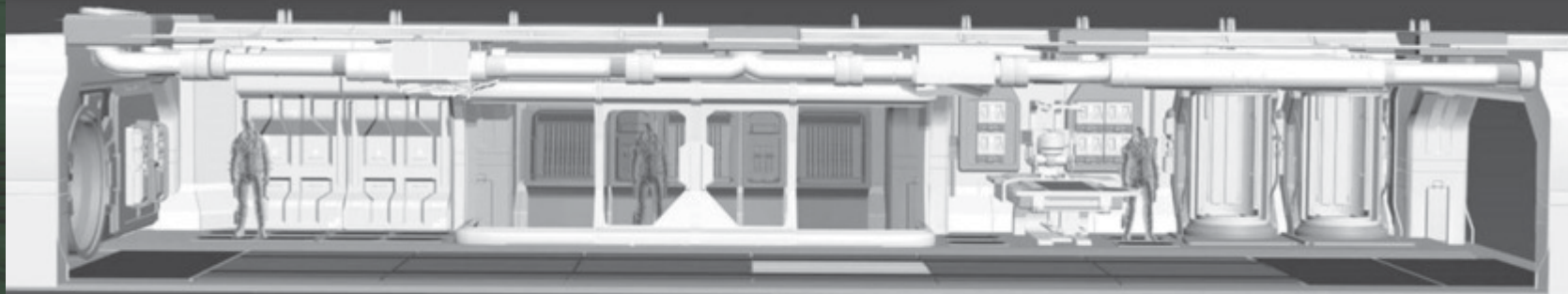
TJ: This needs to be compatible with IllFonic's work. We need to sync up our design on this.

SJ: It's important to note the new window frame, as we now have split windows internally and externally in order to incorporate the new wall.

Room beams also now integrate into the surrounding window frame.



ARMOURY



WORKING IN PROGRESS

INFIRMARY

MN: No military vessel would be complete without somewhere to heal up after a nasty firefight. We wanted the infirmarium on board the Idris to feel slightly more low-tech than the facilities found in some of the newer ships of the line. This is Dennis's design, also.

CR: Looks great. I think people who backed for a Corvette are going to be very happy as they now have twice the ship!! Everyone is going to want their own personal space "castle" once we share the interior details of the Idris!

Imagine all the additional stuff in the bigger ships ... although we should re-purpose a bunch of stuff as I assume that a lot of this will be fairly standardized (like it is in modern naval ships).

PJ: Fab work as usual! It needs a few alterations:

- Add more light to the room; it feels too moody (did I say that!). It just

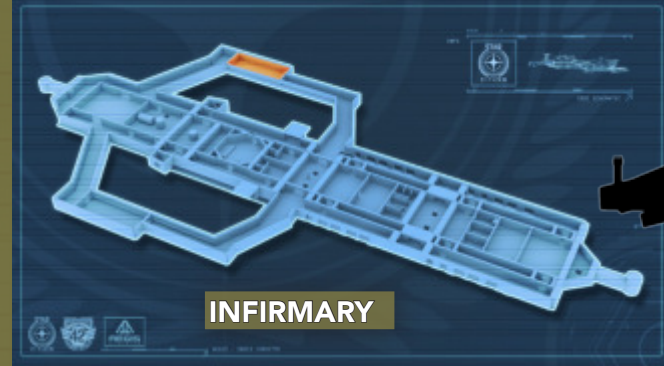
needs a little more in places, as it feels like it's in shut-down mode.

- The screens on the right need to be windows; see images of other windows and wall treatments.
- Med beds need another revision to incorporate some way of isolating the patient; we want something slightly older tech (not the high-tech curved glass option).

From Design:

- The room feels too spacious – can you add a figure for scale?

The design department suggests that the top piece at the ceiling might descend and enclose the patient. Perhaps there is a holographic display on the flat upper surface of the "lid." This bed could perform diagnostics such as CAT scans, manage intensive care,



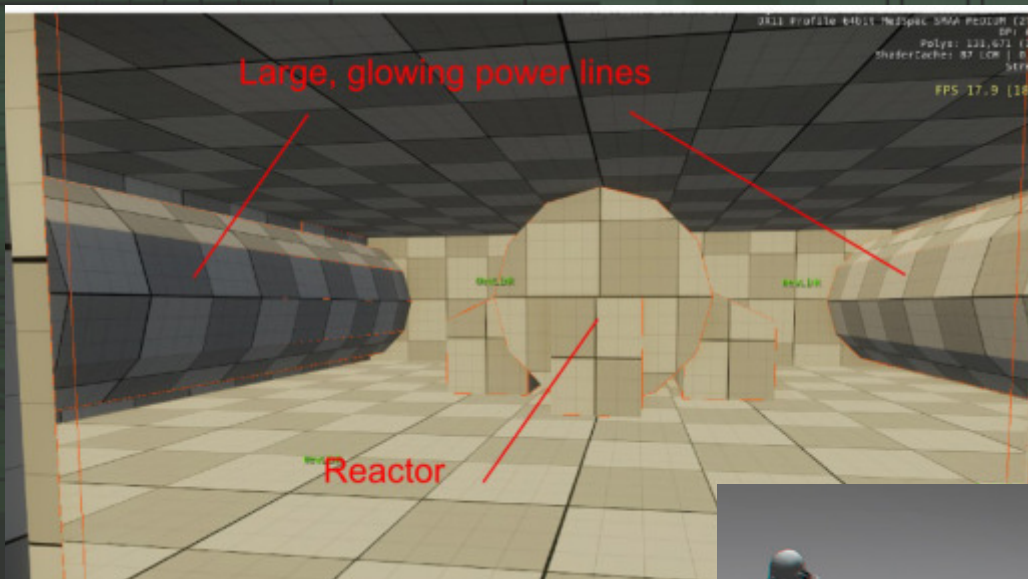
keep infection from getting in/out, and could even keep corpses from rotting until they are ready to be shipped off/ thrown into space/eaten. This change would need the following to show on the concept:

- A track at the back of the bed for the top to move up and down
- Would be nice to show one closed with a rough UI on top
- The surgery arm may have to change location so it can inject from within the case



WORK IN PROGRESS





REACTOR/POWER CELL ROOM

PJ: The reactors feed power to all the systems on the ship. The Idris has two of them, which should look identical.

CR: It's very cool, but what was wrong with the previous reactor room? It looked very cool to me.

MN: The old reactor room became the current engine room, pretty much the same as in Ryan Church's design. However it is now the hub where the engineering console

Update to the Update [as we are getting ready to publish]

MN: The Idris now has a single power plant that provides most of the power to the ship's many systems. It also has the power cells mentioned here, which serve to supplement the power plant, offering limited power in times of need.



is and where the engineer assigns power to the ship's systems. These reactors were added as part of the power management system and simply provide raw power. Currently, they are situated in the crawl-spaces of the Idris, thus the low ceiling.

PJ: It should be called 'power cell room' rather than 'reactor room.'



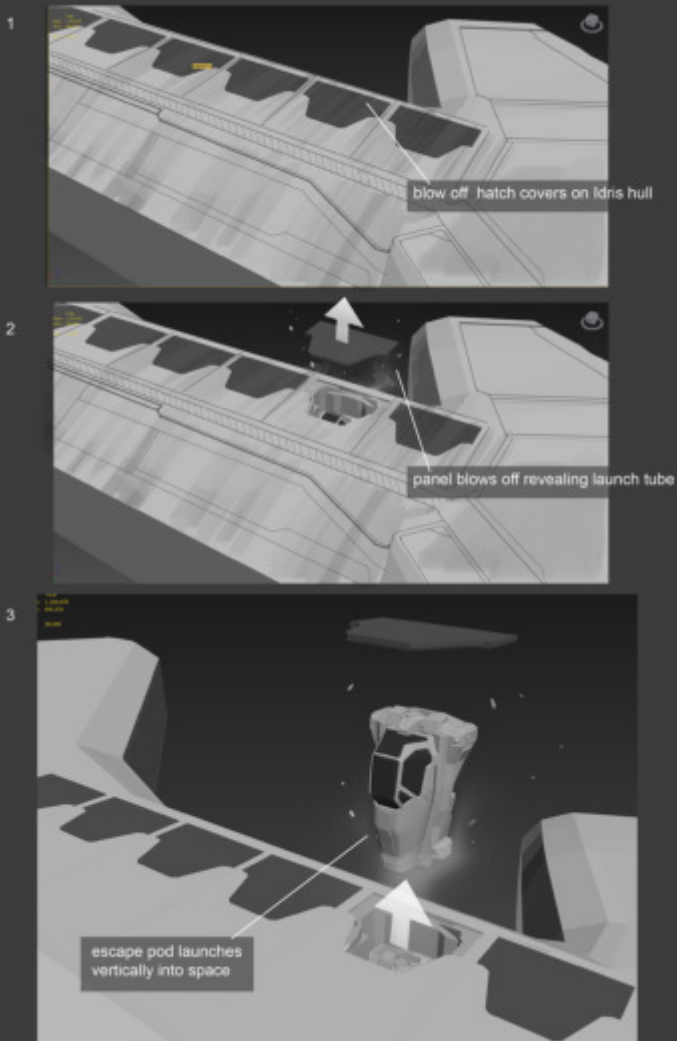
WORKING IN PROGRESS

ESCAPE PODS

MN: We moved the escape pods to the angular corridors along the side of the Idris to ensure that they were very central to the ship. This allows PCs to get to them quickly from almost any location on the ship.

SJ: Outer door slides over front of pod (on launch) to seal off corridor once the external outer panel has been jettisoned.

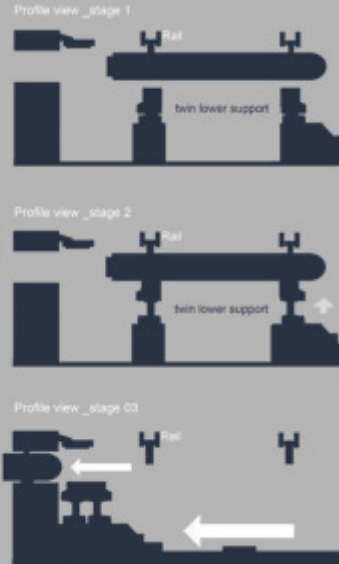
IDRIS-ESCAPE PODS LAUNCH SEQUENCE



WORKING IN PROGRESS



- 1: Missiles move up from munitions store via top rail.
- 2: Lower supports slide up for loading.
- 3: Entire lower loading rack slides back to tubes.
- 4: Missiles slide into loading tubes.



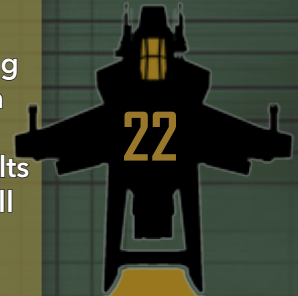
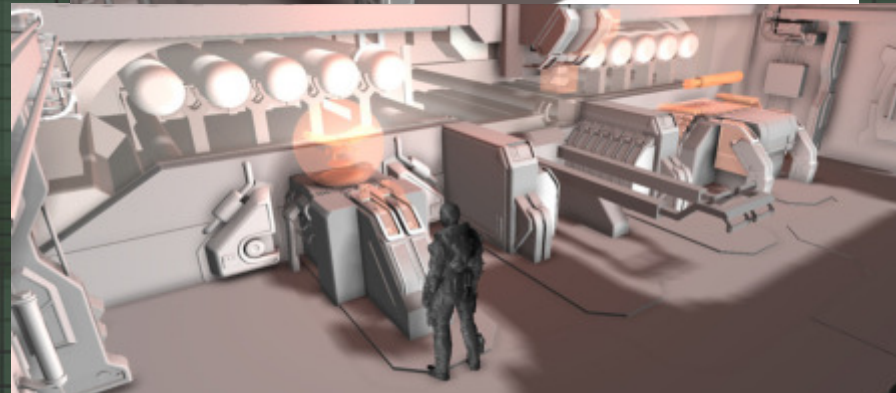
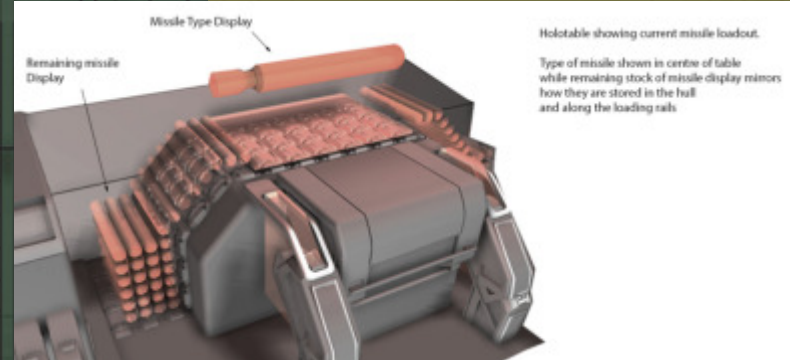
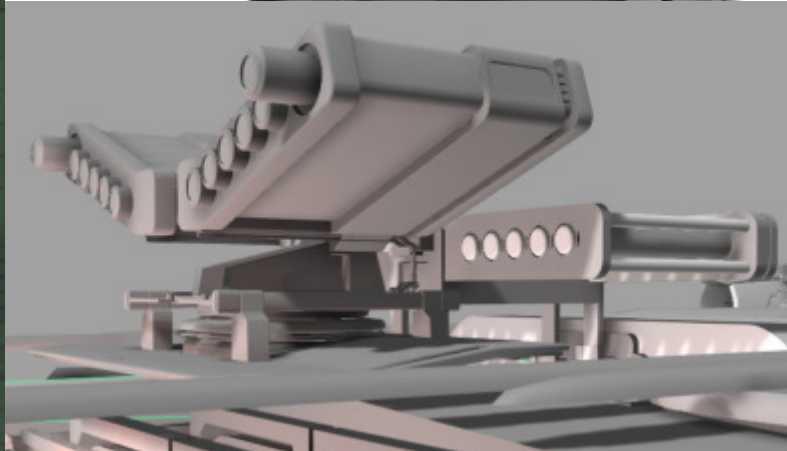
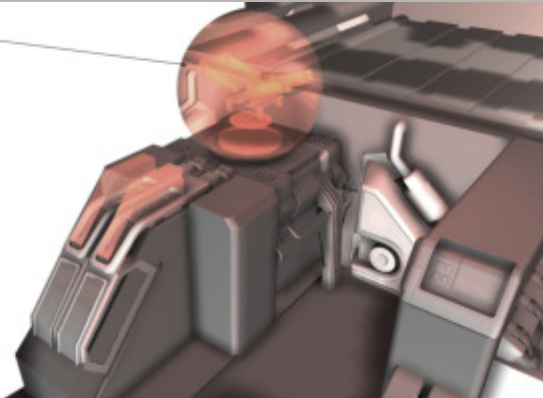
MISSILE LOADING BAY

MN narrative: Andy Ley updated the functionality design of the missile loading system, based on a brief from the design team. The reload mechanism has an element of skill involved, where failure results in a physical penalty –the mechanism will jam and require the PC to clear it.

AL: The request was for a system that could load larger missiles, that would be a self-contained block, and that could easily be installed on any cap ship. The reload system includes an un-jam mechanism in the centre. In the event of a jam, a PC can manually push the missiles into the loading lift. Holo tables in the loading room display info such as missile type, quantity, turret status, etc.

Turret Status Display

Hologram of missile turret shows orientation, ammo count and damage status



WORK IN PROGRESS



NORMAL LIGHTING



ACTIVE LIGHTING



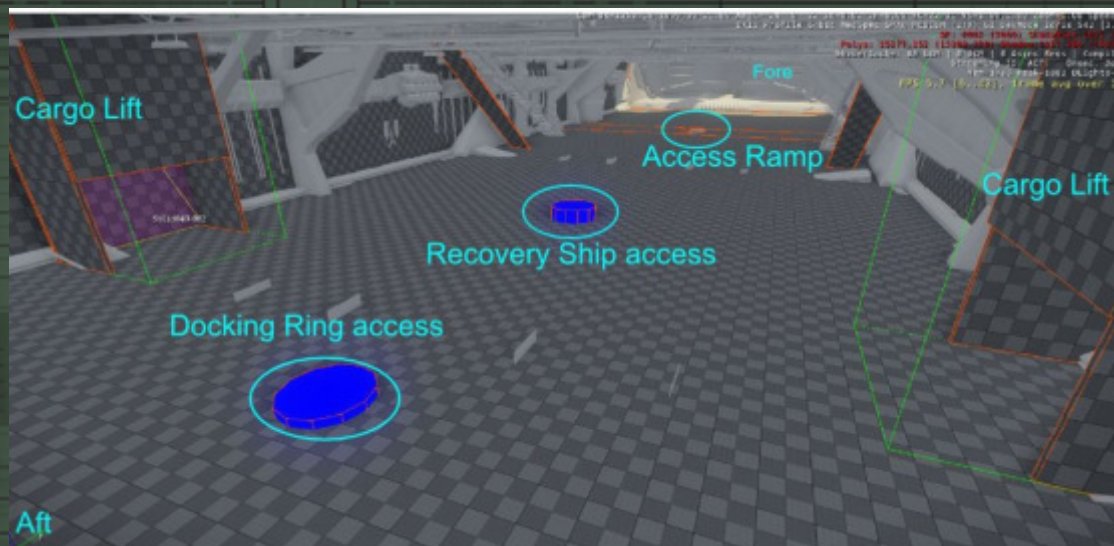
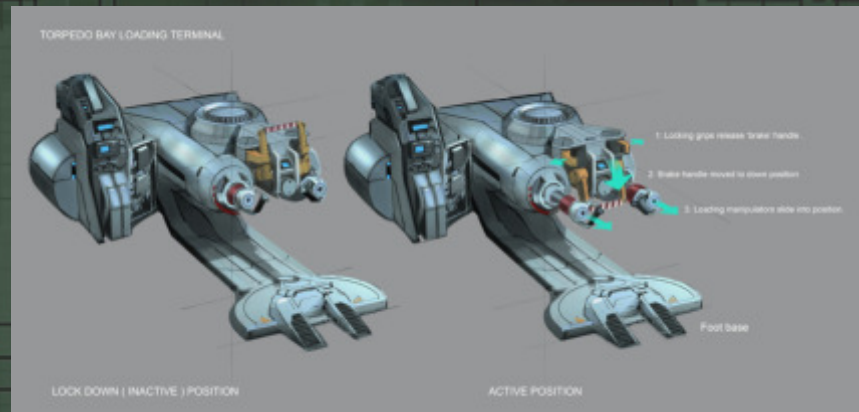
WORKING IN PROGRESS

HANGAR

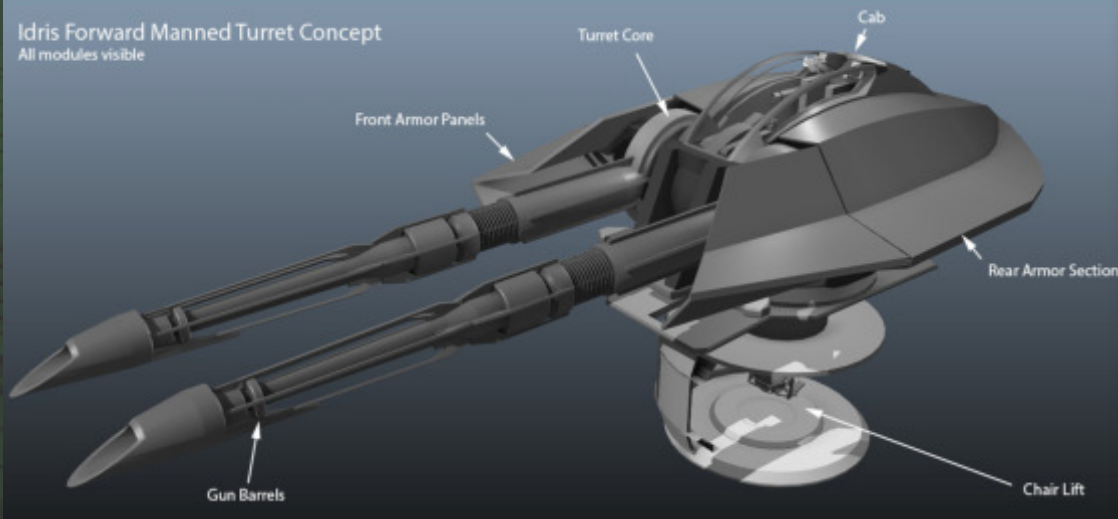
MN: We're planning to keep the hangar height the same at the moment (as discussed with Martin at CGBot).

The changes are as follows:

- A docking ring towards the back of the hangar. This will have a hatch that opens out onto the hangar.
- A docking ring for the Utility Ship, also with a hatch that opens out onto the hangar.
- Access ramp to the railgun and lower turret.
- Additional Cargo lifts to the left and right.



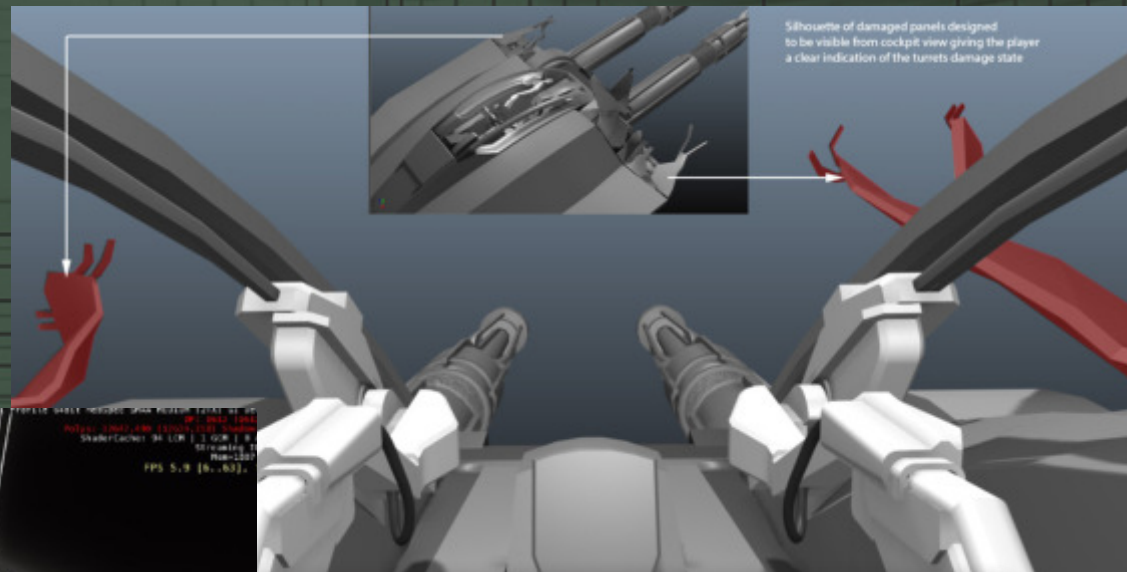
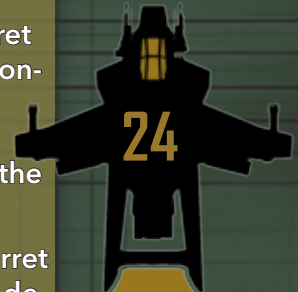
Idris Forward Manned Turret Concept All modules visible



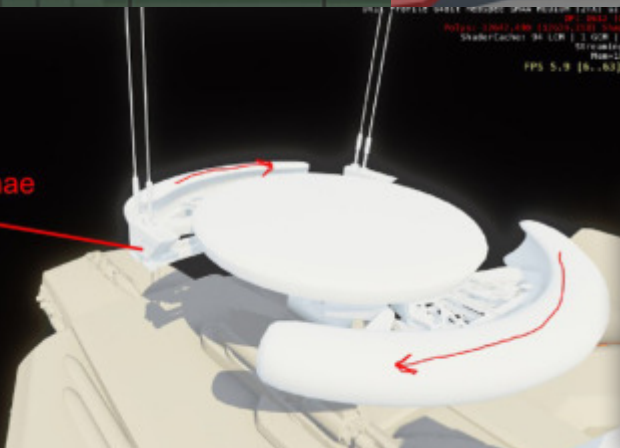
STS TURRET

MN: In order to redesign the front turret so that it was manned, we ran a functionality test on the STS turret at the front of the Idris. Andy Ley developed the mechanism to allow the user to swap the armour plating and gun barrels.

AL: I've started reworking this front turret into a manned turret. It needs interior design and animation concepts for the seat lift, collar hatch and firing controls. Design (Phil) also requested that the front armor panels can be shot off, so I need to rebuild the shell and concept what will be shown when they are destroyed.



Move antennae



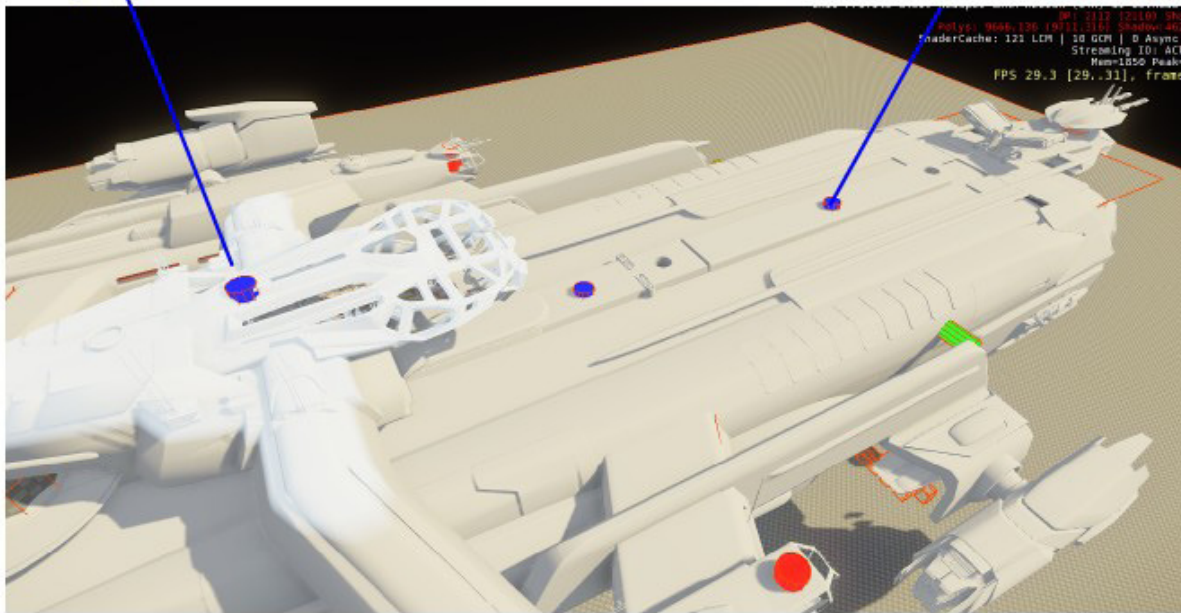
HULL SENSORS / RADAR

MN: We redesigned the sensor array so that the outer "radar" sections rotate. The antennae shown below may have to be moved out a little to ensure that they do not intersect with the spinning radar.

PJ: Yes, the mechanism will need to be remodelled.

Bridge

Bulkhead fore



DOCKING RINGS

MN: The Idris has four docking rings.

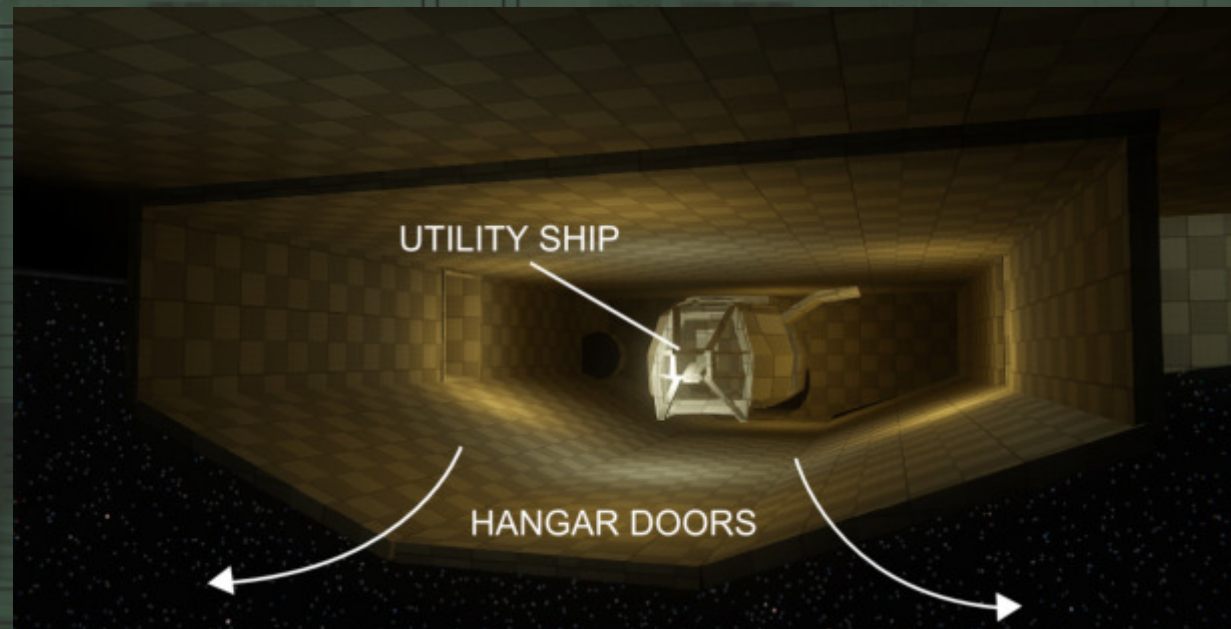
The bridge docking ring remains the same. The bottom hangar docking ring will require a ladder to the hangar and a hatch on the hull and hangar floor. There are two docking rings on the top of the hull that lead into the ship's bulkheads.

Update: Phil Meller would like there only to be one docking ring on the top of the Idris. I've updated the image to reflect this.

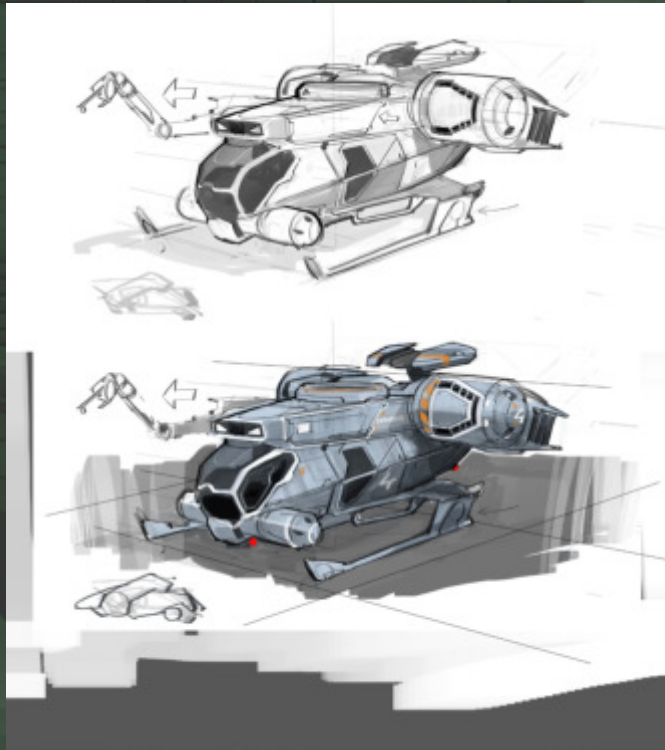
UTILITY SHIP HANGAR

This is a small hangar at the base of the Idris that allows a small lifeboat to dock / launch. It consists of:

- Hangar doors (smaller version of the cargo bay doors which are currently installed)
- A docking ring with access to the hangar
- A small utility vessel (the Utility Ship)

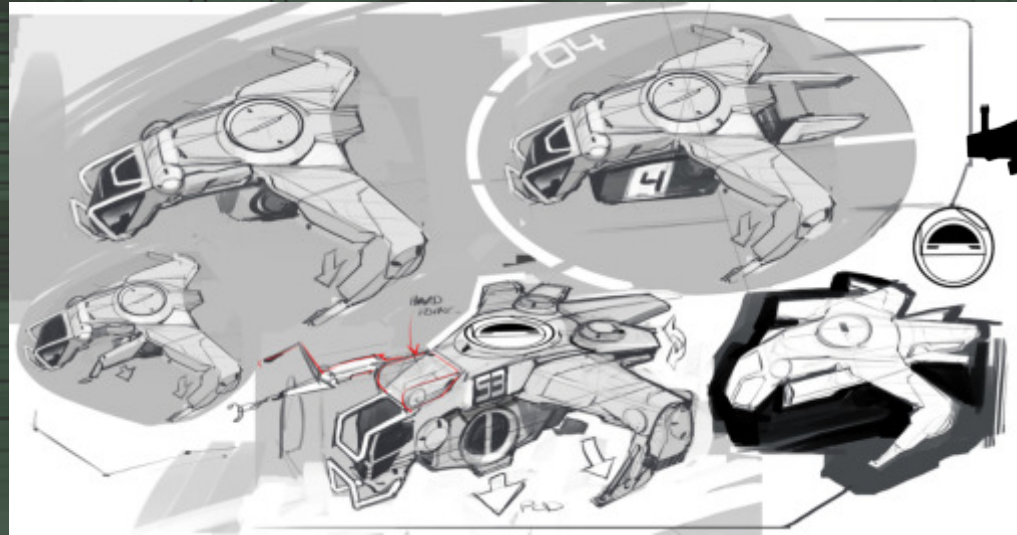


WORK IN PROGRESS



UTILITY SHIP

MN: In the belly of the Idris we added a small hangar that can house a Utility Ship – a small, multi-role craft with a modular unit in its belly section that can be swapped out. For example, an image on the next page shows the ship with a lifeboat modular unit that is used to rescue pilots who have ejected in space. This unit could easily be exchanged for a cargo unit instead.

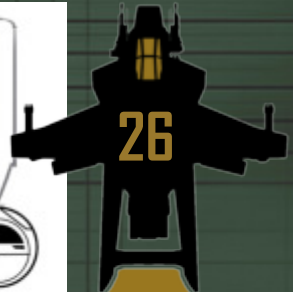


STUART JENNETT on the Utility Ship

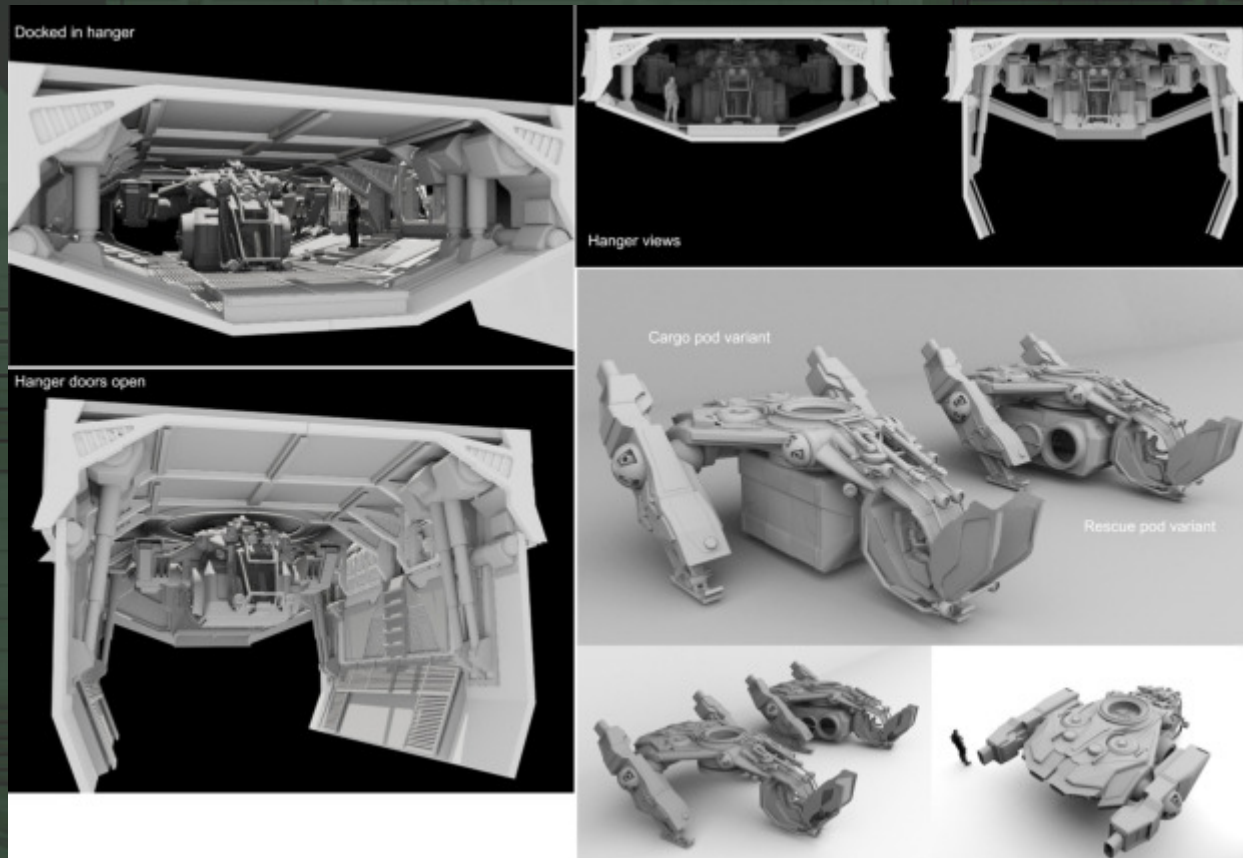
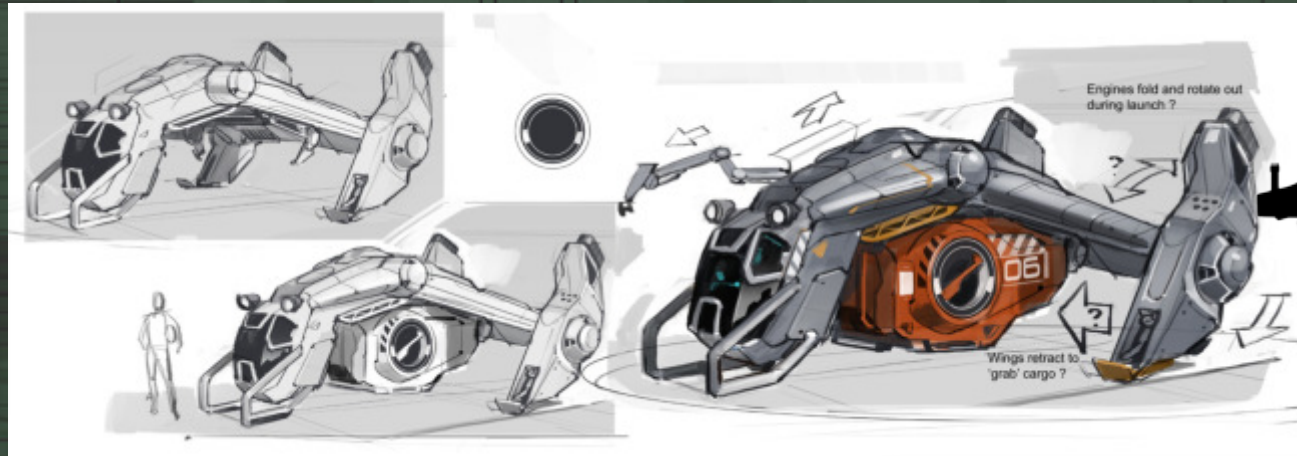
The initial brief for this ship was for it to be used as a sole rescue vehicle for downed/ejected pilots, something along the lines of a mini sub. Working from the rough dimensions provided by one of our designers, my initial concepts approached it as a more chunky single-body vehicle along the lines of a 'Huey' helicopter with a slide door for access and large twin side engines for forward thrust. I even played with giving it large landing skid runners to help reinforce its helicopter origins.

After this initial round of rough sketches, it got a multi-role function, so we decided to break the rescue pod off into a separate module that can easily be swapped out for modules with other small cargo and repair units. My approach from here was to scoop out the belly section and give the vehicle a more swept, predatory stance, taking in elements of the Sikorsky 'sky crane.' I also added bull bar elements to promote a more rugged multi-role appearance.

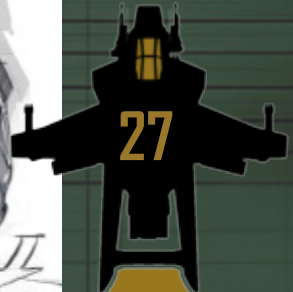
I was aware that this vehicle also had to fit within the tight confines beneath the Idris main hangar section, so once I moved into a 3d block I also introduced the rotating engine feature to give the vehicle a sleek, fold-away profile. We'll also be able to upgrade the ship with repair 'arms' utilising cutting equipment and gripping features.

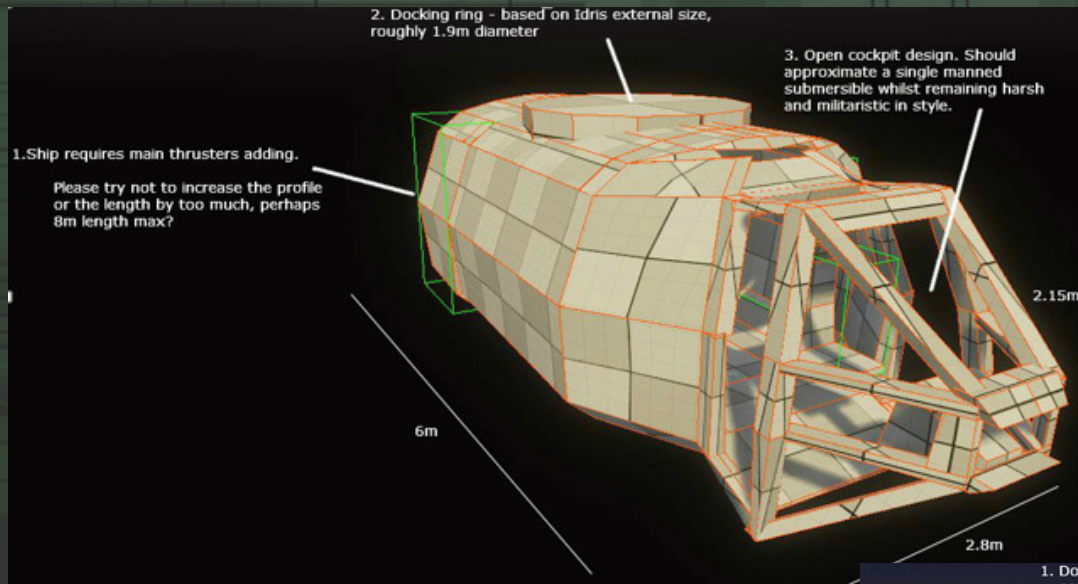


MN: The Utility Ship multi-role VTOL recovery craft is found throughout the UEE fleet and serves aboard its capital ships, from the smallest Corvette class to the largest super-carrier. Despite its size, the Utility Ship performs several roles, including:



- Retrieval of EVA pilots and crew in combat areas (can accommodate three). When it locates an ejected pilot, the side door to the rear cabin opens up, the ejected pilot clambers in, the door closes and the cabin is repressurized.
- Assists in outer-hull repair work. This will be done via two shoulder arms ... one being a pincer, the other being a welding torch. The jury's still out on this one, to be honest. Let's see what the concept guys come back with.
- Personnel transport, both ship-to-ship and planetary landing. It would be sweet if when it goes planetside we could have some sort of fold-out wing mechanism in place.
- In extreme cases, the Utility Ship can assist in boarding actions and planetside drops or retrievals.





MN: In the whitebox mock-up, the canopy has a conventional frame, but we could run with a bubble canopy (like an underwater sub).

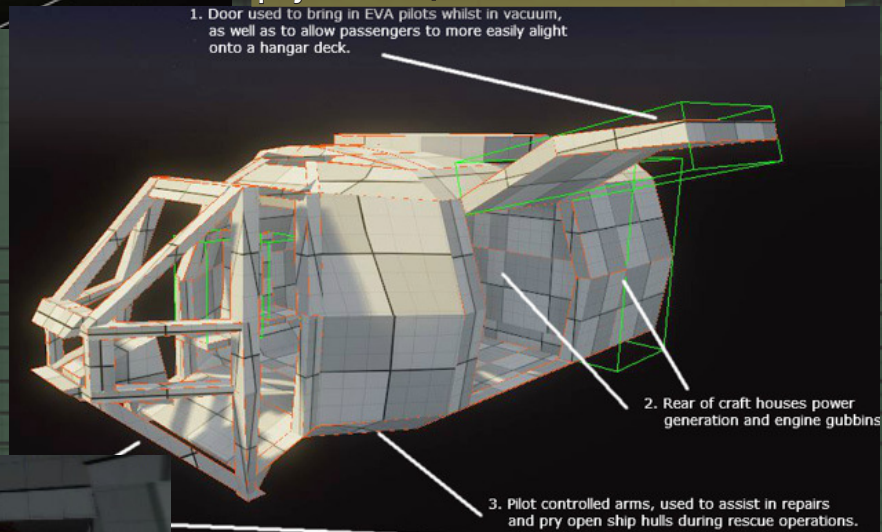
The mock-up images are missing the required landing gear (we're thinking along the lines of helicopter skids with retractable wheels for moving around when landed).

Also missing from the mock-up is the engine configuration. I imagine we'll have two bigger rear engines, with and smaller ones at the front bottom (all rotatable). The positioning of the maneuvering thrusters we'll have to look into, with the whole physics issue, etc.

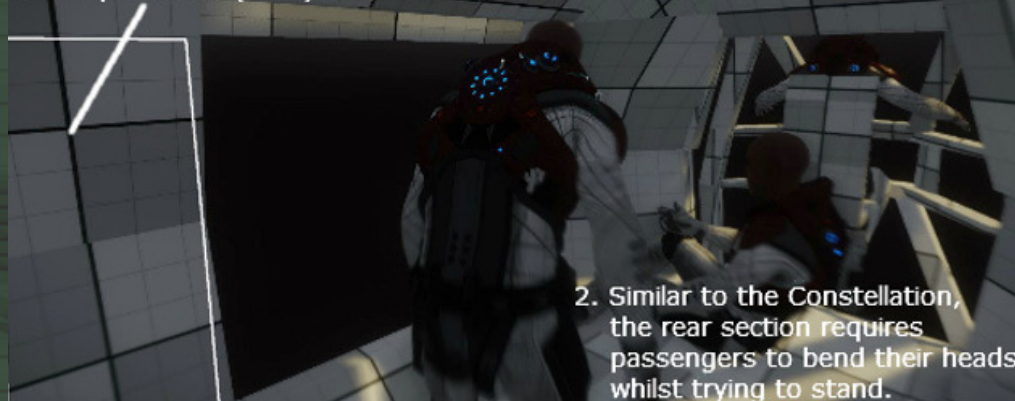
MN: There are two ways for the pilot to gain access:

a) Through a docking collar/ring on the top side of the rear cab, then straight through Helicopter style into the cockpit. (I realize it seems odd, but on the Idris we have it tucked away below the landing deck and this ring would come in handy for ship-to-ship scenarios.) Once seated, a door will close and seal the cockpit off from the rear cab.

b) Through a side door in the rear cab, much like a helicopter.



1. Weapons rack (rifles).



WORK IN PROGRESS

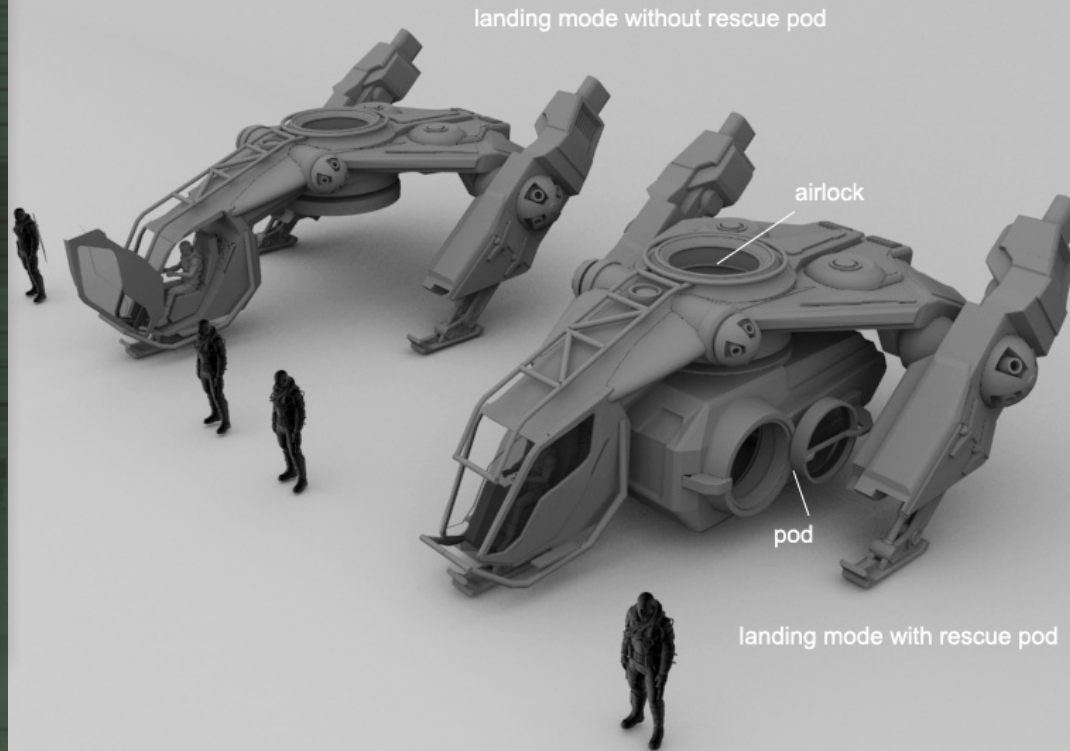
CR: Looks really cool! We should make sure it can also carry the basic cargo container that was specified for the PU.

Repair arms would be cool.

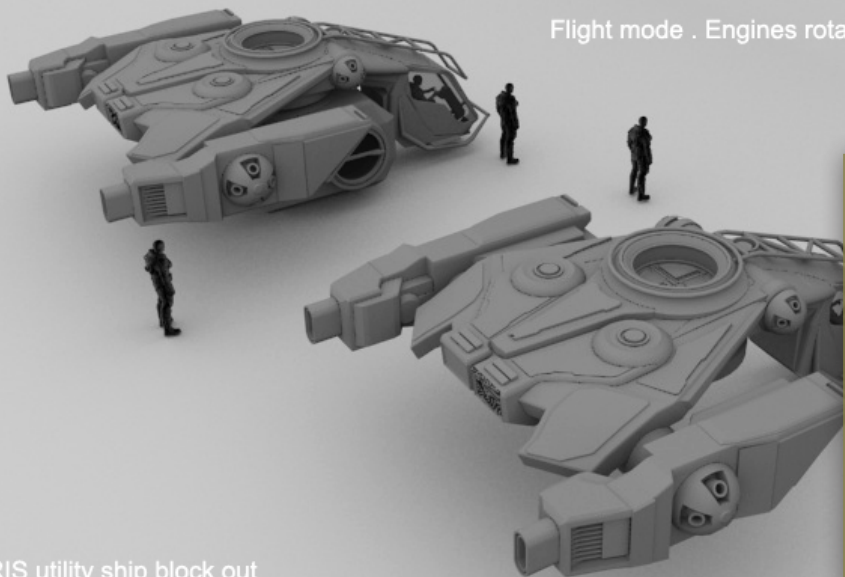
What about tractoring in the pilot? Where would the tractor beam go?

PM: The plan was that the Pilot EVA'd into the rescue pod. But if you want a tractor beam built in, I can't see it being a problem. I guess if the rescue ship pilot wanted to goof around – start tractoring in the ejected pilot then hit full thrust, or start aggressively rotating – we could just break off the tractor link.

IDRIS utility ship block out



Flight mode . Engines rotated into flight position



MN: Chris, we are more and more convinced this ship is a frigate, not a corvette. It's 100 meters longer than it began, and a lot wider. What do you think?

CR: Well, as a corvette it was a solid fit ... until we realized the interior wasn't sized to fit the Hornets it was supposed to carry (in both *Squadron 42* and the persistent universe). Now that we've made the adjustments for the flight deck to work, it's hard to deny it – the Idris is a frigate. We need to start working on an actual corvette.



WORKING IN PROGRESS



Prior to 2943, Original Systems was best known as the creator of the *ULTIMATE* series of action roleplaying games. In just eight years, Original has gone from teenagers developing MobiGlas games in their parents' hangar to a worldwide multimedia concern, with all indications being that even bigger and better titles are in the works. Most recently, the company saw a massive sea change (and a stratospheric rise in units sold) this year with the release of the massively successful *Arena Commander* space combat game.

Corporate History

Original Systems' history dates back to the late 2920s, when eventual founder Henry Garrity began dabbling with MobiGlas game design in his father's Self-Land hangar. The end result was *Ackbar*, a roleplaying game unlike anything released before for the system. The game sold well, becoming a hit in the burgeoning mobigaming marketplace. Garrity treated the game as the prototype for *ULTIMATE*, the roleplaying scenario that would spawn a dozen sequels and heavily impact the face of gaming. The success quickly landed Garrity a professional publishing deal with industry

powerhouse Oakhurst Online, who would go on to publish the first three *ULTIMATE* titles until a dispute over the quality of included holographic maps split the parties.

In 2936, Garrity joined with his brother, a financial expert, and fellow game developer Charlie Bass to form Original Systems. That same year they launched both Bass' *Caves of Terra*, a platforming action game, and Garrity's *ULTIMATE IV*, still considered by many to be his masterpiece. By 2940, Original Systems had a dozen titles under their belt and employed 300 developers at multiple studios. The company had carved out a strong niche in the market, with the consensus being that they were the roleplaying game designers to beat.

Little did anyone know, there were yet mountains for Original to climb! In 2940, Garrity struck up a friendship with up-and-coming Terran developer Tristan Blair. Blair had published a variety of successful games for interactive home display walls and was eager to break into the higher powered world that was possible by going beyond MobiGlas development with dedicated gaming hardware. Garrity quickly offered to publish his latest title, an *Ultimate*-esque RPG

ULTIMATE

called *Times of Myth*, and then hire him to design further titles at Original. The end result was nothing short of game-changing: the release of *Arena Commander*.

ULTIMATE Series

Borrowing heavily from Garrity's varied and esoteric tastes, the *ULTIMATE* series allows users to enter a world populated with a mix of everything from medieval fantasy tropes to present-day space adventure themes. A typical *ULTIMATE* scenario might include everything from horseback swordplay to ranged laser warfare, all wrapped around compelling stories that force the players to make value judgments rather than simply gunning each other down. To date, six main series *ULTIMATE* titles have been released, each continuing the main player's adventures through a bizarre fictional realm.

Most unexpectedly, *ULTIMATE* has proven unusually popular among the Xi'An. The Xi'An C-sphere Organic Entertainment corporation reached out to Original Systems to request that they port *ULTIMATE III*, the first piece of Human entertainment software adapted for alien usage in this fashion. The resulting advertising blitz made Garrity a minor celebrity among the Xi'An, and brought in an entirely new audience for the game.

Arena Commander

Lauded by gamers around the galaxy and by every reviewer from Optimum Glas (the only six-star review ever issued) to the New Terran Journal, *Arena Commander* has completely changed Original Systems' reputation and altered how games are developed. Unlike *ULTIMATE*, *Arena Commander* focuses on visceral immersion: playing the game is as close to flying a present-day Aurora or Hornet space fighter as it is possible to simulate with modern technology.

Also unlike *ULTIMATE*, *Arena Commander* is not a Mobi-Glas title. Instead, it makes use of the highest powered computers possible. It can be played on everything from dedicated gaming desktops to (most ideally) the internal computers found aboard starships. While many game developers would shy away from creating a game that suggests end users equip a starship to play, Blair was unfazed ... and thus far, sales have borne out his claim that users will upgrade for the best possible experience!

At its heart, *Arena Commander* pitches pilots against each other in one-on-one dogfighting and a variety of different environments. Seemingly everything is simulated, from visual damage states down to the sensation of the players' hand moving on the flight stick. What's more, the game's functionality expands with a series of optional expansion



ULTIMATE



packs, each adding more ships and scenarios for an additional fee. Actual military pilots were used to help test the game during its development and they unanimously claim that there has never been such an accurate space combat simulation available for home users.

Arena Commander has created a dedicated fan base across the UEE, with fans hanging on Blair's every word, attending *Arena Commander* conventions and eagerly awaiting each next expansion. The game has already begun talk of an expansive franchise, with plans for an *Arena Commander* holo-vid series or even a feature film being in the early stages. Talk of *Arena Commander 2*, even mere months after the release of the first game, has already reached a fever pitch.

The Future

Analysts suggest that Original Systems' incredible success in the last 18 months may also be their ultimate downfall. Until recently, the company had a publishing agreement with Brainscape, Inc. that helped defray the costs of publishing new games. The public demand for *Arena Commander* has been so great, however, that all parties involved have spent heavily just in order to deliver on outstanding orders. The creation cost of that infrastructure means that Original's next title, be it *ULTIMATE VII* or *Arena Commander 2* (or Blair's pet project, a historical air combat sim) will need to sell similarly big numbers in order for the company to survive. Most worrisome, some fear that the company is in jeopardy of a possible hostile takeover from a larger publisher. If this happens, the impact on Original's unique culture and genuine creativity in game development may be catastrophic.

ULTIMATE VII



ANIMATION SUMMIT



BEHIND THE SCENES

You're looking at an animated group of animators. There, it had to be said sometime, and we might as well get it over with and move on. Animators from four different studios got together in late February to discuss what they do and how they do it for Star Citizen. CIG's Bryan Brewer lead the effort, and sat down with us afterwards to talk about what they accomplished.

JP: *What's an Animation Summit? Why did you need to get together?*

BB: The goal was to get all the animators from all the studios we're working with together in one spot and discuss tools and pipeline for our game. It was also a chance to teach our main tool, "Motionbuilder," and how to properly

edit motion capture to a team that has little to no experience with mocap.

JP: *Why was this better than Skype?*

BB: Having a person in the same room allows for a better 1-on-1 experience. As good as video conferencing is, and even though you can share screens, it isn't the same as sitting next to someone and discussing it. Also it helps promote team building and camaraderie, something you don't get nearly as well over video.

JP: *What did the summit accomplish?*

BB: All the animators now have a better understanding of our tools and pipeline. They also have a better understanding of how to edit motion capture footage. Also, something

I didn't anticipate as a result of the summit was a trust that these guys know what they are doing and you can count on them to get the job done.

JP: *What are the different ways that animation will be used in Star Citizen?*

BB: Everywhere you go and everything you do in the game

will have animation associated with it somehow — from characters and ships to doors, elevators and other environment elements.

JP: *What's the most unexpected way that it will be appear?*

BB: I don't think there is anything unexpected. For me it is all straight forward.

JP: *Now that you've had the conference, what are you going to do differently than you had originally planned?*

BB: Now that a trust has been built I can see handing off more work to the other studios. And for someone like me, that's a hard decision to make. I'm used to doing everything myself.



WHAT IS YOUR NAME?

Bryan Brewer

WHAT IS YOUR QUEST?

In the past I have worked on television, commercials and movies. I have also had a chance to work on high profile games. Now I'm back in my element, developing for the first-person-shooter aspect of our game. In the future I hope to deliver a visually stunning game. My whole goal is to entertain people, and I hope the games I work on do just that.

WHAT IS YOUR FAVOURITE COLOUR?

I wish I had a hobby, but really I am doing my hobby for a living. I would like to give a shout-out to my wife Ruby. It is hard to be the wife of a game developer and even harder to be the wife of an artist, because we are just as married to the job and our work as we are to them.



**JAY BRUSHWOOD,
CIG AUSTIN**



**DANIEL CRAIG,
CIG AUSTIN**



BEHIND THE SCENES



UISDEAN ROSS,
FOUNDRY 42



VINEET CHANDER,
FOUNDRY 42



STEVE ALLARD,
BEHAVIOR

JP: *What is each studio doing for our games?*

BB: Vineet Chander and Uisdean Ross, at Foundry 42, are working on *Squadron 42*. Dojun Lee, Greg Yoder, Bryan McConnell and Chris Palen, are working on the first-person-shooter animations. Steve Allard, at Behavior, is doing a lot of little things that make the world feel real, like fish in the fish tank and props that animate. And here in Austin, Jay Brushwood, Daniel Craig and I are working on the persistent universe.



DOJUN LEE,
FPS TEAM



BRYAN MCCONNELL,
FPS TEAM



GREG YODER,
FPS TEAM



CHRIS PALEN,
FPS TEAM



BEHIND THE SCENES

MOCAP SHOOT

PRODUCER HARRY JARVIS AND
SOUND MIXER REID MANGAN
CONSIDER THE OPTIONS

Mocap has been a hope for Star Citizen from the beginning of its development. With the enthusiastic support of our backers, we have begun to make it a reality. I sat down with Harry Jarvis, Art Producer and shoot producer, to see how it went.

JP: What is "mocap"?

HJ: Motion capture is the process of recording (or "capturing") in some way a computerized data representation of a performer's movements, and then converting that captured data into 3D animation data that can be applied to a computer-generated character so that the CG character's movement replicates what the performer did.

JP: Why are we doing motion capture, rather than simply filming actors? It looks like it's a lot the same.

HJ: Using motion capture data on character models in our game, as opposed to filming actors in live action, is a stylistic choice as well as an immersion choice. Live filming is 2D (even 3D film is really just 2D that is faked to seem 3D in a single plane) and locks the player into the view that is filmed. It's also slightly jarring to see real actors in our gameplay because, as realistic as we are making our universe, it is still slightly stylized to create the universe we want our game to exist in. Live actors can't really match that stylization. Using mocap data on our characters allows us to keep players immersed in the 3D universe — they can move around and examine things from whatever angle they like.

JP: Are you also recording the actors' voices, or will that be dubbed in later?

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BEHIND THE SCENES

HJ: We're doing full-performance capture, meaning we're recording each actor's voice while we capture their body motion and facial animation, all at the same time. This provides the greatest fidelity of performance. It also eliminates many of the frustrating issues of motion capture that were common in the past, when voice performers and body/facial performers were separate.

JP: *Does this mean that you try to use the same actors for the same roles throughout, or does it matter, since they're all going to be converted to CG data?*

HJ: We absolutely want the same actors whenever we will be using them for dialog, as the goal of performance capture is to get as much of the actor's performance nuances as possible. The difference would be very obvious if you switched from one actor to another.

JP: *What was your job on the shoot?*

HJ: I was the Producer and also acted as Assistant Director. I helped with planning, casting, scheduling, crew hiring, equipment rental, spec'ing the gear, budgeting, etc.

JP: *What do you look for in a Mocap actor? Is it any different from casting a "regular" actor?*

DIRECTOR CHRIS OLIVIA AND SCRIPT WRITER DAVID HADDOCK DISCUSS THE NEXT SCENE.



HJ: Mostly it's the same. We want to grasp what that actor brings to the performance of the character, in voice, face and body. An actor that has a very flexible and expressive face is a plus, as facial animation capture loses a little range in translation, but it's not essential.

JP: *What does it take to make a MoCap shoot — what equipment? How many cameras? How many people, doing what different jobs?*

HJ: Things get more complicated when you do full-performance capture. For body mocap, we are using about 40 cameras right now, to make sure we have really good coverage of markers on actors, but a larger space, a larger stage, might necessitate even more cameras.

JP: *What are markers?*

HJ: Mocap actors have small reflective markers, like balls or knobs, carefully placed all over their bodies. The motion of those markers is what the cameras are recording.

For facial animation, each actor has one camera mounted on a yoke on a helmet on his or her head. The body mocap requires a minimum of two PCs total, while recording the

LEAD ANIMATOR BRYAN BREWER AND ANIMATOR DANIEL CRAIG CHECK THE PRECISE POSITION OF AN ACTOR'S MARKERS



facial animation requires another PC per headcam. Plus, our video capture device is essentially another PC, and we use another for setting up sets and props and lining up shots. We also use video cameras for reference video, so later we can look at a scene and see what is supposed to be happening in a scene and to select which takes to use.

JP: *What else is there?*

HJ: In addition to the cameras and stands and PCs needed for body motion capture, you need:

- helmet cams for facial capture video
- additional PCs and monitors for that
- a production sound mixer and microphone operator to record audio professionally
- reference video and video capture
- time code and blackburst sync to keep all the different electronic devices in sync with matching time codes
- a projector for lining up sets and performer feedback
- additional animators and headcam supervisors and even makeup artists to keep it all running.

It's a much bigger production than straight body mocap is.



AS THE ACTORS RUN THROUGH A SCENE ...



JP: *Makeup? What's that for? If it's going to be computer generated, why does it matter whether an actor has makeup on?*

HJ: We use makeup to put tracking dots on actors' faces, so that the facial animation software can translate the video of their faces into motion.

JP: *What scenes did you shoot this time?*

HJ: We shot scenes for our next few ship commercials, as well as some test footage for a post-mission debrief for S42 to see how it all works together.

JP: *Now that you have these scenes, how soon can we expect to see them?*

HJ: The first stuff people will see will be in the next commercials that get released. The test footage may or may not get shown, depending on how successful it is. It's a first test of both performance capture and how we are doing scenes in S42, and we may find that we have to modify how we either script or produce the scenes to give a better result.

JP: *If this is just a test for Squadron 42, when do you plan to shoot the actual S42 scenes? How long will it take to shoot that game?*



HJ: The full-fledged production of cinematics for *S42* is scheduled to start this summer. The exact start time is still being worked out. And the exact amount of script to produce is still being worked on. That will determine how long it will take to “shoot” the cinematics, but we anticipate several months of performance capture will be needed.

JP: *How about the PU? How much motion capture will there be in that? And when will it be shot?*

HJ: The bulk of what is used in the PU will be pulled from our character locomotion sets for males, females and aliens.

JP: *What’s a character locomotion set?*

HJ: A locomotion set is the full set of animations we use to move a PC or NPC around in the world: various walks, runs, turns, jumps, squats, climbing, boarding ships, etc. These sets will be filling out and expanding for a long time, and will keep expanding as we add unique NPC animations (animations specific to bartenders, salespeople, mechanics and so forth.). Again, while we will be doing a lot of these motion capture sessions over the next few months, we anticipate that this will continue on a regular basis for the foreseeable future, though not as heavily as up front. It’s all interesting, but it’s definitely work.



what is your name?

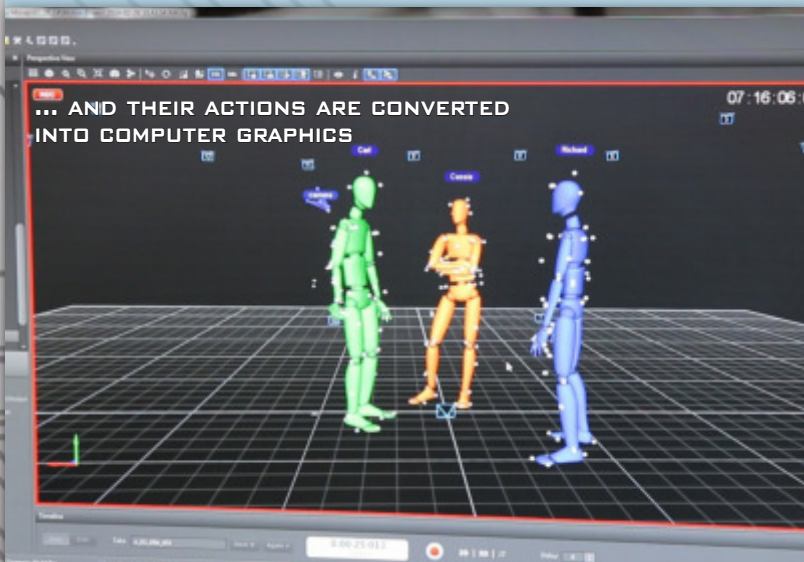
Harry Jarvis

what is your quest?


My holy grail is to have 1) cinematics in games be indistinguishable from the best of Hollywood CGI, and 2) game storylines (and production) be as immersive and emotionally satisfying and artistic as the best of Hollywood films. I think both goals are starting to get there!

what is your favourite colour?

I make and drink my own wine and beer. And I’m a foodie snob, so it’s pretty good stuff, too.



BEHIND THE SCENES



PYRO SYSTEM RUIN STATION

*"Yo ho ho, there's a place I know,
The slam's all clean and the wenches glow,
Yo ho ho, a-Ruin I'll go,
Mark my jump off to Pyro."*

- Traditional Space Shanty

If Spider is the face of piracy in the galaxy, Pyro is unquestionably the beating heart. An otherwise desolate, lifeless star system crippled by a prolonged nova phase, Pyro is most notably the home of the shared pirate outpost of Ruin Station. Like Spider, Pyro is a case of pirates filling (and expanding upon) a void left when the system was abandoned by civilized developers; unlike Spider, Pyro's station has not settled into an orderly system of black market commerce

equivalent to that founded for proper traders on standard worlds. Here, opposing packs constantly struggle to own the station and all of the nearby action.

BACKGROUND & DISCOVERY

Any prospect of developed life in the Pyro system vanished several million years ago, when the system's star began to go nova. Astrobiologists who have examined the remains of its theoretical green-band planets have found little evidence that higher life forms would have been likely in the first place; nothing but algae-like fossils have ever been discovered. The system consists of six ruined worlds circling a bright, but ultimately dying, star. Were



it not for the fact that jump points from two inhabitable systems have been discovered linking to Pyro, the system would likely never have been settled at all.

The system was ostensibly discovered in 2401 by the Roustabout, an Earth-flagged tanker ship moving through the Taranis System on the safe-route alternative to Kellar's Run. The ship's watch officer noted a gravitic anomaly thirty thousand kilometres off the transport's port bow and left it at that. It was not for another forty-four years that the ship's corporate owners, seeking new mining territories, dispatched an explorer to the region and formally charted Pyro and its environs. This survey simply noted the overall disarray of the planetary system, the difficulty of finding transportable resources and the unlikelihood of terraforming anything there successfully.

In addition to its development as a center of organized piracy, Pyro is also a household name in the UEE today because it served as the backdrop for one of Original Systems' Arena Commander's first levels. The icy blue nova and the frozen hellscape of planets slowly moving towards their destruction seemed an ideal location for Arena Commander's designers to show off how interesting 3D space combat can be!

PYRO I

Pyro I is a charred black rock that is slowly disincorporating into Pyro proper. There is little of interest here; the space around Pyro I is difficult to navigate with anything but the highest quality shields and no significant mineral deposits have been located on the planet's surface to make ever landing here worthwhile.

TRAVEL WARNING Any improperly shielded spacecraft will sustain residual damage from Pyro's star while making transit through the system.

PYRO II

Pyro II is a coreless planet that will, in time, also fall into the star. During the system's initial discovery, Pyro II was a major focus: the planet held seemingly significant deposits of cadmium, titanium and gravity-forged gemstones. A minor "metal rush" saw human tradeships quickly deplete these deposits; within five years, for all practical purposes the world had become an empty husk.

PYRO III

The third planet in the system is the only one believed to have once existed in the green band, pre-nova; this is where tiny algae-like fossils have been discovered. For this reason, it was the initial focus of non-profit research efforts during Pyro's initial exploration. Making life more difficult for researchers, the nova process has rendered Pyro III a largely magna world. With little left to discover, the scientific community quickly grew tired of Pyro III and the system in general. Pyro III is technically listed as a potential terraforming candidate by the UEE, although taming a magma world would be extremely difficult and no interest in this project has ever developed.

PYRO IV & V

The combination of Pyro IV, a rocky Mercury-like protoplanet, and Pyro V, a massive yellow and green gas giant, is one of the more striking stellar landscapes yet discovered in known space. Arguably a single entity now, Pyro IV and V are the result of a massive meteor strike which altered the orbit of the former into the latter. Pyro V now appears to be subsuming Pyro IV in slow motion, a visual difficult to top anywhere else in the galaxy. Pyro V is considered a low-quality refuelling point because of the poor hydrogen mix present in the upper atmosphere.



PYRO VI & RUIN STATION

The outermost planet in the Pyro system, this subdwarf would be unremarkable if it were not the home of Ruin Station, populated by Pyro's only permanent inhabitants. Though the station's lineage was originally unclear (and is today often referred to as being secretive or conspiratorial), it is now known that it began life as a Gold Horizon terraforming base but was abandoned when it became clear that there was no reasonable terraformation to be had in Pyro or at nearby star systems.

Once the original settlers abandoned the prefab station, Pyro quickly fell into use as a meeting place for black market dealmaking. From there, it was only a matter of time until it followed the same path as Spider, with active pirate construction and the development of a unique subculture. However, where Spider's culture centers around honor among thieves, Pyro is based more around the men with the most guns winning.

Make no mistake: Ruin Station is the home of unrepentant pirates and no one else. It is not suitable for tourism, regular trade or even experienced bounty hunters seeking the

MARKET DEALS — RUIN STATION

BUY: NARCOTICS	+2
BUY: ATOMICS	+1
SELL: OXYGEN	+3
SELL: BASIC FOODSTUFFS	+2

thrill of combat. The pirates that do crew the station are the best of the best, constantly ready to stab each other in the back for a bigger piece of the action. Xeno Threat is the current pack in control of the station, although this can change at a moment's notice.

Gun combat on Ruin Station is so common that shop owners have actually installed a series of armored doors; when infighting erupts, local shops and facilities automatically seal themselves off. A highlight of Pyro's dimly lit halls is Corner Four, a sequence of former research labs converted into drug factories and no-questions-asked medical treatment facilities. Neutrality, the station's requisite dive bar, is the only arguably safe place on the station: armoured toughs called the Cousins keep the peace here, at least in so much as they are needed to protect the bar's staff and facilities.

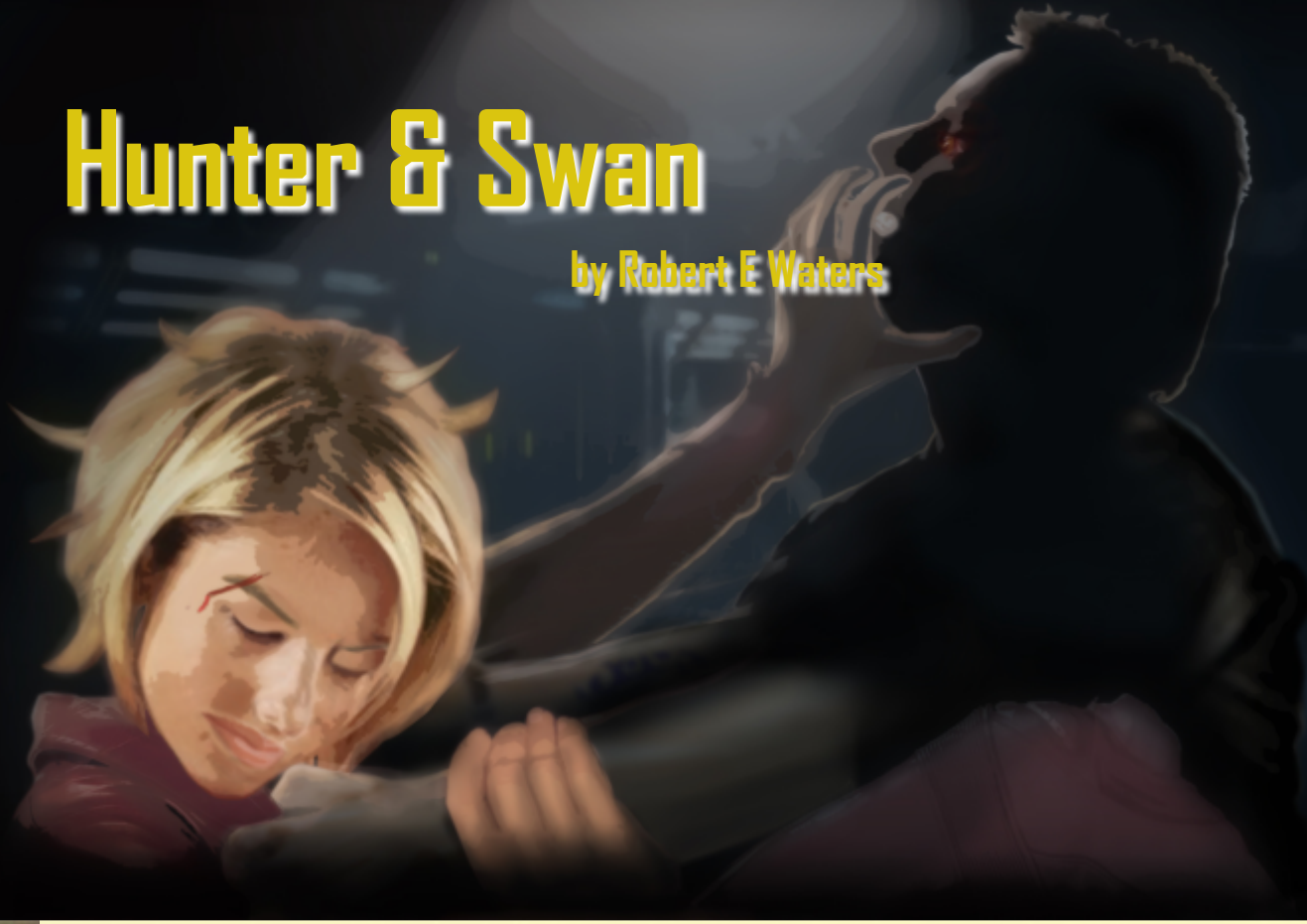


RUIN STATION



Hunter & Swan

by Robert E Waters



Part 3

Bounty hunter Benito Redmoon has been given a pending bounty on Kimmy Swanson, wanted by tycoon Angus Barone for the murder of his son. The kicker in the deal is that run-away servant Swanson is now the Swan, idolized pop singer and daughter of the Hurston family consortium. Redmoon has escaped a trap and is now in search of answers . . .

Redmoon brought them out of jump into the Nexus System. None of the damage that his ship had sustained in the fight against Bosch's men gave any trouble. He was glad of that, but they had much further to go. Their next jump would be into Taranis and then on to their destination of Nemo, where

local authorities would be waiting to take the Swan (Kimmy Swanson) into custody for murder. Assuming, of course, that the UEE didn't find them first. That dust-up with Bosch's Auroras had probably triggered a spike on the Empire's monitors.

How did he feel about delivering her, now? He searched his thoughts, but they yielded nothing concrete on which to settle his anxious mind. After what Bosch had said about Garryn Barone, things had become more complicated, uncertain. But did that really matter? In the life and business of bounty hunting, there was little room for soul searching. Mirage had always made it clear that a bounty hunter

who searches too hard for the truth often finds more lies than answers. *'Your client will have a truth,'* he would say, *'and your bounty will have a truth. Which truth is the right truth?'* But as he set the *Ahagahe* to a soft, comfortable course toward their next jump point, Redmoon wondered . . . *If I ask her, would she tell me her truth?* Maybe at gunpoint, under duress. But that was not his style, not for someone like the Swan. She deserved better.

He laid his head back to take a moment. Swan had not spoken since they had thwarted the Auroras. She had sat quietly in the co-pilot's seat, although he could hear her snuffle as if crying . . . Then she began humming softly. It was a song that he had heard before; in fact, he had played it through the ship's sound system more than once. It was not a Swan original, but a cover of an old tune from Sol's earlier days:

*I promise, child, the sun will rise,
and Earth will shine again,
be patient, love, for doves will fly,
and save us once again.*

She was singing to herself, he knew, trying to calm her nerves, and he didn't want to interfere. Redmoon closed his eyes and dozed. When he awoke, he felt fingers at his ribs.

He pulled his pistol and set it against Swan's forehead. "Please," she said, pulling away her hands and holding them up in surrender. "I just wanted to see your wound. It's bleeding again."

Redmoon unbuckled and stood up. "It's nothing. Just needs a new dressing."

"I'll do it. Where is the med kit?"

He paused, sighed, then told her. He sat back down and waited until she returned. He tried grabbing the bandage but she pulled it away. "No. I said I'll do it."

Redmoon growled then pulled up his coat and undershirt. The cut was still painful. He gnashed his teeth but refused to let her see his pain. He looked away as she applied a new bandage and taped it up. The silence lasted awhile, then she said, "A Freelancer is a big ship for just one man. I'm surprised you pilot one."

Redmoon shook his head. "You don't know my business. I need room for cargo. You think that cell back there can fit comfortably in a smaller ship? Besides, it's not mine really. It was my partner's."

Swan closed the med kit and set it aside. "Where is he?"

Redmoon cleared his throat. "He's dead. A few years now."

"I'm sorry."

"That's the way of it. The universe exacts its revenge on us all in time."

Swan moaned and shook her head. "You are one gloomy creep, you know that?"

"Look," he said, taking her arm and guiding her back into the co-pilot seat. "We don't have time to talk." He knelt down beside the chair to stare her in the eye. "Why don't you come clean and tell me the truth of it. What happened between you and Garryn Barone five years ago?"

She tried pulling away. "What the hell do you care? Toss me back in the cell if you want. I don't care."

He was about to say something else, but sensors began to wail from the cockpit. He jumped up and returned to his seat.

Two blips were approaching fast from the Magnus jump point. Bosch's ships? No. Impossible. Bosch's were local craft, a hodge-podge of Aurora parts, incapable of jump. These were something else, these were . . .

"M50s!"



CHRONICLES

Swan blurted it out just as he reached the next conclusion. "Advocacy ships," he whispered. His heart began to race. While not unexpected, he had hoped that he could avoid their pursuit until he delivered her to Barone. He closed his eyes and recited the chant. "*Let them not see me, for I am of the sun . . .*"

"What?"

"Nothing. Strap in!"

"You can't outrun these, Benito, and they have more than enough firepower to bring us down. Give up, and I promise I'll plead mercy on your behalf."

Redmoon huffed and punched in new jump coordinates. "Not on your life, bird. I've never been caught, and I won't start now."

"You can't jump to Taranis clean. They'll get us before we make that jump."

"We're not going to Taranis. We're heading to Cathcart."

"Cathcart . . . why?"

Redmoon smiled. "To see the pirate king."

He grabbed the sticks, banked to the left and gunned it hard.

The M50 pilots were tossing warnings at him as he fled, telling him to surrender peacefully, but he ignored them. He pushed his engine as hard as it would go, its own warning lights flashing madly as they neared the Cathcart jump point.

Missiles and laser fire from the M50s struck the *Ahagahe* in several places. Warning lights flashed in his cockpit, indicating a drop of fifty percent efficiency in his jump drive. It was clear that they weren't trying to destroy his ship; they knew perfectly well who was on board.

"They're trying to knock out the JD," he said. "We'll have to

hit the jump point in roll to keep them from succeeding. Can you handle it?"

Swan said nothing at first, then whispered, "Go."

The *Ahagahe* spun like a top, faster than he had ever made it spin before. Then again, he had never been in this kind of danger before. It was all so new. Perhaps too deadly? Perhaps . . . but two million credits. Even now, the number staggered him. Even after all that had happened, all that he had learned, he could not deny the long-term value of such a prize. All he had to do was deliver the Swan to Nemo, and he'd be rich beyond anything he could have imagined. *Then again . . .*

Laser fire scraped at their hull as they rolled into position for jump. Redmoon counted it down through his dizzy mind. *Five, four, three . . .*

The jump drive sensor dropped to 25%.

Two, one . . .

Redmoon tapped the drive panel, and they were gone.

* * *

They emerged from darkness. Internal lights were out, and the *Ahagahe* was spiraling through space, but not at top rotation, which meant that the IFCS was trying to level it out. He had a headache, but considered that lucky. It could have been a lot, lot worse.

"Where are we?" Swan asked in a groggy voice. He looked over at her; thankfully, she hadn't puked again.

"In Cathcart . . . I think." He shook the cobwebs from his mind and flicked on auxiliary lights which bathed the display in soft white. He did a quick check on systems. Most were operable but would require reboot. At least the jump drive coordinates were still functional, and they showed the correct numbers. They were in Cathcart. Redmoon sighed relief, then sent out a coded distress signal on all channels.



CHRONICLES

“What if they come after us?” Swan asked.

Redmoon shrugged. “I hope not. It’s a possibility, but with only two of them, they’ll probably wait for backup. This is Cathcart after all. Pirate country. It’s a dangerous place.”

Cathcart was nothing more than a junkyard of old starship hulls bolted and fused together to create habitats for the most ruthless and nefarious pirates, killers, mercenaries and bounty hunters in the UEE. This cobbling together of old ships was called Spider. That’s where they needed to go.

“Are you okay?”

He checked himself. A few bumps and bruises, but no worse for wear. “I’ll live,” he said. “You?”

She coughed. “I’m fine. I’m tired, though. Can I go back and sleep?”

“Not yet,” he said, assessing the damage on the forward hull. “Soon.”

Fifteen minutes later, a gruff voice came through radio. “*Who’s out there?*”

Redmoon chimed in. “This is Benito Redmoon of the *Ahagahe*. Requesting escort to Spider.”

“*State your business!*”

“I’m here to see Beddick O’Van.”

Cheeky laughter. “*Nobody sees O’Van without a prior —*” The man yelped out the last word as if he had been punched in the gut. A scramble for the mike ensued, then, “*Son of a bitch! Benito, is that you?*”

He recognized the voice immediately. “It is. How are you, Beddick?”

“*Surviving. What brings you into the Spider’s web?*”

“Business,” Redmoon said. “Serious business. Tow me in, and I’ll explain.”

There was a pause, then, “*Very well. Sit tight, and we’ll get you.*”

While they waited, he allowed her to eat and shower. He took a few nibbles himself on tough jerky and desiccated orange slices, and even splashed a little water on his face. Life support had been damaged as well by the M50s. Down to forty percent and dropping slowly, but steadily. He sighed and leaned against the small sink in the mess.

“It’ll be all right,” she said after she had finished and dressed.

“What are you talking about?”

“Your ship. She’s hurt, but she’ll get better, and so will you.”

“How . . .” He stopped himself. Not another one. Mirage had a similar talent, capable of reading people no matter how much they tried to mask it. It could be a very frustrating skill to be around. She had to be that way, given her line of work and given how she had so captivated the audience at the concert. The Hurstons may have given her the tools and the access to become a star, but she had made herself one. Being able to connect with people — empathy — was not something that can be taught, Mirage always said. A person was born that way.

The pirates came loaded for bear and tugged the *Ahagahe* into safe harbor on Spider. When they saw it, even the Swan marveled at its gangly beauty. As its name implied, it was an arachnid monstrosity of old ships bolted together to create a swarm of iron and steel. It was impossible to tell where the landing bays were. There were hundreds spread all around the structure, but mostly hidden from plain view. This was by design, for if the UEE ever got up the nerve to come into Cathcart and try to assault it, they’d be hard pressed to figure out where to land the Marines. To an outsider, it was intimidating. To Redmoon, it was like home. He had lived here once for ten years.



CHRONICLES

They were taken into a bay complex near the central hull. The *Ahagahe* was brought in delicately, tethered and sealed to equalize the pressure in the ship to the bay. Pirates had trouble with the damaged hatch, but with Redmoon's help from inside, they manage to pop it open. Redmoon led the Swan down the stairwell. They were greeted by three pirates Redmoon did not know. But one pirate didn't look much different from another: like Spider, they were a hodge-podge of clothing, cobbled together personal sidearms, and body augmentations. These three looked relatively new, as they lacked the gruff facial hair and scars some pirates wore as badges of honor. They appeared to have most of their teeth. They were young.

"Follow us," one said.

They were led into a small room with a few chairs and a table off the bay. Beddick O'Van waited for them.

He was all arms and trunk, a big man that swooped Redmoon's much thinner frame into a bear hug that rattled the bounty hunter's spine. Redmoon allowed the older man his friendly greeting. "Damn your mother, it's good to see you, old friend!" O'Van's voice was deep but smooth, much like his large bald head. "What brings you back to Spider?"

Redmoon motioned to his cargo. "This is Cassidy Hurston, better known as the Swan."

He didn't need to say more. Everyone in the room knew who she was. O'Van's expression turned sour, his eyes glaring into Redmoon's. "Do you realize that the whole damned UEE is out looking for her?"

"Yes," Redmoon replied. "Have you seen my ship?"

"And you dare to bring her to me? I've got enough problems to deal with, Benito. Admiral Darring is breathing down my neck. There's talk of a fleet action against Spider, and he'll do it too. He's a crazy son of a bitch. I don't have time to deal with celebrity kidnappings."

"It's not a kidnapping. It's a bounty. I don't intend to stay long," Redmoon interrupted, "but I need your help. Let's talk in private. Please."

O'Van scratched his head, rubbed his face, sighed deeply, and finally said, "Fine. You two come with us. You . . . guard the girl. And if she so much as steps one toe out of this room, I'll blow your head off. Do you understand me?"

The young pirate nodded and took a position at the door.

"Okay, Benito. This way."

Redmoon followed O'Van through the door and back into the bay. He turned to Swan and said, "Sit tight, and behave." He shook his head at her. "Don't make a mistake."

Swan nodded meekly and took a seat at the table.

* * *

She sat at the table and boiled. *Don't make a mistake!* The nerve of the bastard to say such a thing. He had made a serious mistake grabbing her at the concert, and despite everything she had done for him since then, he was still intent on taking her to Nemo. *Bastard!* Well, it was clear to her now that she had to take matters into her own hands. *I've done it before, I'll do it again.* She had trained on Garryn; this kid should be easy.

"Hi," she said with a smile, standing up and moving toward the boy. "What's your name?"

* * *

The pirate king was annoyed. "Look, we can repair the damage on your ship. Some of the parts won't be new. We'll replace your jump drive with something inferior, but it'll get you to Nemo. We can recharge your lasers, fill your missile tubes. But I can't give you escort through Taranis."

"Bullshit," Redmoon said. "You always have the manpower."



CHRONICLES

“Not anymore. I’m telling you, this Admiral Darring is becoming more than a nuisance. He’s got the packs pinned down in Olympus Pool. I can’t even communicate with my own son. I don’t know where the hell he is. And with threats against Cathcart . . . I can’t engage in another dispute with the UEE right now. I can’t provide cover so that you can carry a silly bitch to Nemo.”

“She’s not —” He suppressed his unexpectedly emotional retort, and then more calmly answered. “She’s a very capable woman.”

O’Van grew still and smiled. “Then why are you taking her back to Nemo?”

“I’m a bounty hunter, Beddick. That’s what I do. She’s a murderer. She should answer for her crime.”

O’Van laughed. “There are murderers, Benito, and then there are *murderers*. You know the difference as well as anyone. At least you did when you were my second in command. The best I ever had, in fact. You should have stayed with me. You would have been a king yourself by now. Instead, you chose to run off with that crackpot.”

Redmoon checked his words, gnashed his teeth. “Mirage was no crackpot.”

O’Van’s expression turned serious. He placed his hand on Redmoon’s shoulder. “I’m sorry, my friend. I know you’re in a spot. We can make your repairs, but I just can’t jeopardize an escort large enough to help if the UEE finds you before you reach Barone —”

He was interrupted by the comm link buzzing on his belt. “What is it?” he asked.

The voice was young, and in pain. “Sir, I’m sorry . . . but . . . the girl. The Swan . . . has escaped.”

* * *

She grabbed the boy’s rifle and security card, cleared the door and ran for her life. She didn’t know where she was going; like five years ago, she just ran. And ran and ran. Through poorly lit corridors, popping and sparking with substandard electrical ballasts. It was cold, and the air was thick and smelled like copper. She wished she had a Breather. Her lungs were working double, but she kept going, pausing at each intersection, looking both ways, then blowing through the opening, or turning left, then right until she came upon rooms. She knocked on the doors. Silly of her. She had a weapon and a card. She tried the card a few times, but none of the rooms opened. She knocked with the butt of the rifle, yelled out, trying to find someone, anyone who might take her in, give her shelter, and then . . . who knows? Perhaps the person would keep her hidden until Redmoon gave up the search. Then she could make her way out of here, contact her father, and get free from all this.

She found no one. She began to cry, her voice sore and scratchy from all the yelling. She made a wrong turn, and the corridor ended at a thick bay door. She tried the card again. Nothing. She pounded the door with her fists, the butt of the rifle, her foot. Nothing. She turned the rifle toward the door and put her finger on the trigger.

“Look what we got here, boys,” a voice said from behind. “The bird is out of its cage.”

Swan turned and sent an accidental shot into the floor. A man was on her instantly, knocking the rifle from her hands and grabbing her arms. His face was a patchwork of scars and whiskers. His eyes were wild. “Can the songbird sing for her life?”

Three other pirates came up behind him, giggling like children, all equally thin with vicious faces. “Look,” Swan said, trying to reason with them. “I’m Cassidy Hurston. Help me. I’ve been kidnapped. Get me out of here, and I’ll pay you. Get me home, and you can have anything you want.”



CHRONICLES

The man was not budging. He grabbed her by the collar. “I know what’ll make you sing!”

She cringed, as though resigned to what was about to happen, but when the man relaxed just a little, she brought her head forward quickly, striking against his nose. It broke in a shower of blood, and he fell back. The strike, however, left a cut above her eye, and she fell to her knees.

Another man was on her, screaming, tearing at her clothes. All around her laughing and cursing echoed through the corridor like some mad circus show. She screamed and pleaded for him to stop. But when that didn’t work, she closed her eyes, trying to numb herself from what was about to happen. *God, not again, she said. Not again.*

Then the distinct, hot whoosh of a laser beam cut through the clamor and struck the man on top of her in the shoulder. He howled and fell away. She opened her eyes. Another assailant tried to run, but Beddick O’Van’s fist caught his chest and he went down in a wet crunch of ribs. Redmoon was beside her immediately.

He picked her up and carried her down the corridor, his words soothing. “It’s okay. You’re okay. You’re safe.”

“Thank you,” she cried into his shoulder. “Thank you.”

Redmoon nodded. “Then do something for me. It’s time to come clean. Tell me what happened five years ago.”

* * *

They sat in the galley of the *Ahagahe* while repairs were being made on the hull. Swan sat at the table, looking withered, defeated, her arms clutched across her chest. She didn’t want to speak, but she did. Redmoon sat beside her and cleaned the cut above her eye. O’Van stood in the walkway.

“My parents were graduates from Rhetor,” Swan said.

“They moved to Croshaw right before I was born. Starving artist types, you know? My mother, unfortunately, was too much a free spirit, liked to spend lazy afternoons getting high. She fell in with bad people and just up and left us. My dad struggled for years as an assistant professor of art history in one of the universities there, but he liked to drink and gamble too. He was always trying to strike it rich with that one big score. He particularly liked pit fighting, and there was an arena in the warehouse district where we lived. That’s where he met Garryn Barone.

“Garryn had come to Croshaw for an event. My father, so sure that his fighter could best Barone even on a bad day, bet everything we had against Garryn himself. He lost, of course, and Garryn came by the house to settle up. My dad didn’t have the money, so he tried bribery, offering him the chance to participate in some wild scheme to bilk the university out of millions. Garryn looked like he was going to accept the deal, and then I caught his eye.

“I was fifteen at the time, and I had just started noticing boys. Garryn was young, confident and built like an ox. He had the most charming smile, a pleasant way of speaking. I was swept off my feet. And he must have noticed, for his demeanor changed immediately. He rejected my father’s proposal and pressed him physically to pay up. My father pleaded to give him time to earn the money. Garryn refused and made a counter offer. I would go and work for the Barone family on Nemo, a two-year contract, after which all of my father’s debt would be paid in full.”

“Your father let you go?” O’Van asked.

Swan nodded. “Of course. He really had no choice. Either that or get his head bashed in. Besides, he wasn’t prepared to raise a daughter on his own. Hell, he could barely take care of himself.”

“You must have been scared.” Redmoon said.



"I was, at first. When I got there, I had assumed that I was going to work in the main complex, where Angus, his wife and their younger children lived. That was the agreement my father had signed. But instead I was taken directly to Garryn's personal home, which was in a different part of the city."

"He was lying from the beginning," Redmoon said.

"Yes," Swan said, "but it wasn't bad initially. There were a few other girls my age there, and we did what we were brought there to do. We cooked his meals, kept his house, and catered his parties, which he threw quite often. Times were pretty good."

"How long did that last?" O'Van said.

"About a year. He'd come down to the kitchen after the parties and flirt with us. He was usually drunk, and so it was pretty easy to brush him aside. He'd laugh, tell jokes, try to paw us, but we'd fight him off. Then it got worse. He stopped letting us push him off, and when we tried, he'd get angry, and sometimes he'd drag one of us out."

"What would he do?" Redmoon said.

Swan shook her head and was silent for a few moments. "He was a strong man, and he wasn't above hurting us."

"He did this to you too?"

"A few times. Although I was lucky. I was able to keep him at bay for most of it. He'd wind up thinking he'd done something when, in fact, he'd passed out and couldn't remember it the next day. Then one night, things changed. He came down real furious. I think he had lost a lot that evening in the pits. He looked beat up too, bruises, a cut on his cheek. He grabbed one of the other girls, but she had had enough. She struck him with a pot, knocked him for a loop. She tried to get away, but he grabbed her and threw her very hard against the cabinets. She hit the floor and didn't move. The rest of us ran out and hid till morning. The next

day, the girl was gone. He claimed that she had been taken to the hospital and then discharged from his service. We never saw her again."

"He killed her." O'Van said.

Swan nodded. "That's what we suspected, but we didn't know for sure."

"How did you kill Garryn?" Redmoon asked.

She breathed deeply, wiped a tear from her eye. "About a month later, he came down when I was alone."

"Angus said there were witnesses."

"That's a lie. I was alone, although people did see me run from the house later. Anyway, he came down and started getting rough with me. He pushed me against the stove. He was disgusting. His breath stank, he smelled of stale smoke and vodka. When he put his hands on me, I pulled out one of my hair pins, and jammed it into his throat. I didn't mean to kill him, you understand. I just wanted him to stop. But he fell back, clutching his throat, blood pouring out through his fingers."

"From a hairpin?" O'Van asked.

She nodded. "This was no ordinary hair pin. It was silver, about four inches long. Garryn had given them as gifts to all the girls. Anyway, he fell to the floor, and that's when I screamed and ran. I ran right out of the house, past the guards at the gate, and kept running until I collapsed near the loading dock of one of Barone's factories. I hid there until I saw a chance to sneak into a ship and hide in its cargo bay. I wasn't discovered until after departure."

"And it was a Hurston ship," Redmoon said.

"That's right. I didn't know that at first, of course, but I was discovered and handed over to Phillip Hurston. The rest is history really. He took me in as his daughter, had me work as his assistant in a number of his proving sites.



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That's where I learned about weapons, and that's where they discovered I could sing. I've been singing ever since.

"And I have no regrets," Swan said, standing firmly now with her arms crossed. "I know I killed him, and I've always known that, someday, I would have to face that crime. But I'm glad he's dead, and I would stab him a thousand times again if I could."

"See, I told you, Redmoon," O'Van said, a smug smile on his face. "There are murderers, and then there are murderers." He said that last word making quote marks with his fingers. "So what are you going to do now?"

Redmoon sat there, speechless. He didn't have a good answer, as several options flew through his mind at once. He rubbed sweat from his forehead, concentrated on the banging and clinking of the hull as men swirled around the ship.

He glared at the pirate king. "My decision would be a lot easier, Beddick, if you would agree to my request."

O'Van mumbled something indecipherable, threw up his hands, paced up into the cockpit, then returned in a huff. "Fine. You win. But a small one. Three ships only."

Redmoon nodded as a plan developed in his mind. He smiled, stood, and put his hand on Swan's shoulder. "Go in the back, Ms. Swan, and get some rest."

"What are you going to do with me?" she asked.

"I'm going to do what I've contracted to do." He smiled, then winked. "I'm taking you back to Nemo."

To be continued



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