Homeworld 2 Point Defense Systems
The Second Era (*Aetas Secundus*)
Version 7.6, 10th Apr 2006

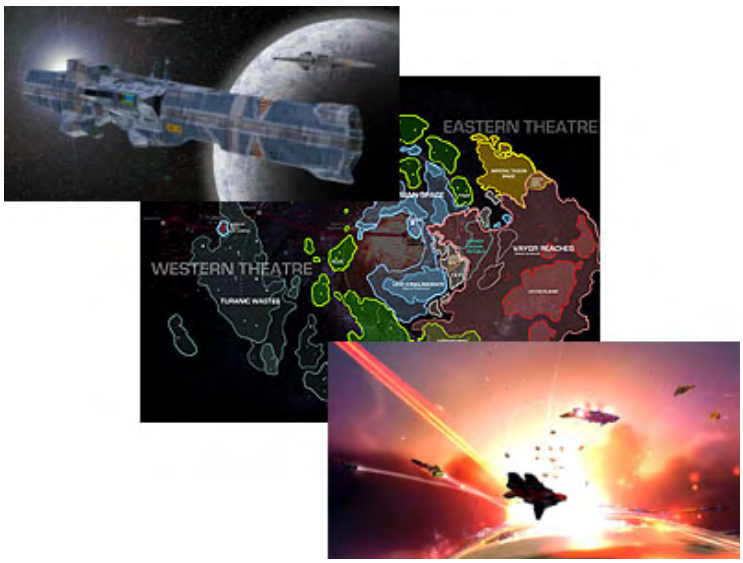
WORLD SETTING AND GAMEPLAY GUIDE

By Kenny Koh (Tel'Quessir/Vajra)
and his Vagyr alter-ego:
Illharess Vel'duin the Second,
CO, 262 Armada,
Frontier Sector C-42

Contents

1. **Foreword**
2. **Introduction to the AS Universe**
3. **The Story so Far**
4. **The Cultures**
5. **War in the Endless Void**
6. **The Warmaster's Art (Gameplay Guide)**
7. **Fleet Intelligence (Ships & Weapons Guide)**
8. **Credits**

Note: If you seek just the gameplay tutorial and ships/weapons guide, skip to chapters 6 & 7.



Left to Right: J5 *Expeditionary Cruiser by Cregg69, PDS Universe Galactic Map by Norsehound, and* HAC-IIB *interceptor by El Mambo and GhostPsalm*

1. Foreword

No doubt many of you would wonder why I would literally discard an entire established universe (and game) to try and rebuild the entire monster from scratch, brick by brick. Many of my former fans have told me that PDS was simply, getting too large and stagnant, and for once I should thank them for their insight and openness. Unfortunately, I was too slow to realize the value of diplomacy…

If you have followed me since years ago on my worthless questing for perfection in post-modern combat simulation then you'd really, need no explanation on the choices I make in life, but just for posterity's sake I'll do so anyway. Especially with a part of the community that actually **like** reading my readme files. You just have to wonder why they do…



Hiigaran Empress *class Fleet Support Station*

PDS at its Version 7.0 state is pretty much a very stable piece of work. The Vagyr and Hiigaran naval orders of battle therein represent their ultimate form after two continuous years in the cauldron of simulated combat. Those ships are not entities of 1s and 0s existing at the mercy of their designers and outfitters, those ships were literally allowed to exist and fight for their own existences, being continually modernized, modified, refitted, reassigned, their crews retrained and even hulls rebuilt during the course of their operational lives. They are indeed, parts of myself. They fly as I would fly it. A capital ship's vast inventory of weapons is what I would wish the ship to have if she were real. Some other ships are even a part of our hearts… ideas on paper we held for years, even since childhood, brought to life by the PDS community and myself.

PDS is nothing more than our childhood dreams.

One classic example to evolution in a ever-changing environment, of course, is the Arbiter class medium cruiser. You can see a figure below illustrating that.

Homeworld 2 Point Defense Systems Ver. 7
1Q 2006 Post-Deployment Review

"The Art of Evolution" Fig. 1

This presentation highlights the "coming of age" of the venerable Arbiter class long-range heavy cruiser, one of the key warship classes to serve in the Vagyr Invasion era. The Arbiter is a 400 meter long vessel that was thought obsolete at the advent of Invasion era technology, but its extremely survivable and functional design led it to be extensively modernised and even rebuilt as the state of the art Harbinger and Arbiter IV classes still in widespread service today. While not as capable as the new LIIRHRA, LAXAMANA, DELIVERANCE and DELIVERANCE II heavy cruiser designs now in production, the Arbiter still proves to be an capable, if not slow warship with steadfast reliability and heavy firepower.

ARBITER class DD (Oct 2003)
"Frigate Destroyer" role

4x dual 320mm heavy railguns
2x bow torpedo tubes (Hydra Mk1)
No secondary armament



ARBITER DD
"Original" configuration
as of Oct 2003.

ARBITER II-III class CF (2-4Q 2004)
Fleet (long endurance) Cruiser role

3x triple 335mm heavy railguns
2x bow torpedo tubes (Hydra Mk2)
6x rotary interceptor missile launchers
1x 10 round fusion cannon array
2x dual 1 Gigawatt ion cannons

SENTINEL class DDE (Feb 2004)
"Escort Destroyer" role

2x dual heavy fusion cannons
6x rotary interceptor missile launchers
2x dual 100mm super rapid railguns
2x bow torpedo tubes (Hydra Mk2)

HARBINGER II class CE (Mar 2005)
Escort Cruiser

2x triple 335mm heavy railguns
1x dual 3 Gigawatt ion cannons
2x dual heavy fusion cannons
2x bow torpedo tubes (Hydra Mk3)
2x dual 1 Gigawatt ion cannons
2x 10 round hypervelocity missile array

ARBITER IVa-IVc class CF (Oct 2005)
Role unchanged from Arbiter III

3x triple 335mm heavy railguns
2x dual heavy fusion cannons
2x bow torpedo tubes (Hydra Mk4)
4x rotary interceptor missile launchers
2x 10 round hypervelocity missile (HVM) array
4x dual 1 Gigawatt ion cannons
2x dual 140mm super-rapid CIWS
2x dual 45mm super-rapid CIWS
(some have broadside 4x dual HV rocket projectors)

ARBITER IVd class CGE (Oct 2005)
Guided Weapons Escort Cruiser

Loadout as on Arbiter IVa/c but with no 335mm and 45mm RGs. Has 40x HVM launchers, up to 14x 140mm CIWS RGs and 12x 1 GW ion cannons.



ARBITER IVc escorting the Hiigaran Navy command ship MS-02 during the Invasion era.
PDS v7.0 Enhanced Singleplayer Campaign Mission 3.

By Kenny M.M. Koh, Jan 2006. HOMEWORLD 2 is a trademark of Relic Entertainment.
POINT DEFENSE SYSTEMS created by Kenny M.M. Koh, homepage http://www.pds.hwaccess.net

That, so called “Art of Evolution” represents one of the basic successes of PDS and is responsible for our early popularity (which was extreme, to say the least); making ships look like they’re part of military history where changing operational conditions coupled to technological progress led to our Homeworld 2 universe ships being used to create entirely new ones of our own specification.



QR-1C Chevalier *Destroyer in action*

PDS V7.0/7.2 has plenty of well-endowed warships from tiny one-man Strike Craft to the ever-popular and majestic Super-Capital ships, each with their own history. The problem was that they outgrew their medium of gameplay.

You can’t ever simulate a realistic space battle if your battlespace was only 6km across, for a capital ship engagement. Sure, it looks good, very immersive like a movie (ever watch Serenity, and Star Wars Episode 3?), but forget about using that as a RP or flight simulator medium. It doesn’t work that way in actual space combat, which eventually would be a part of human future.

Now, say hello to the NGCS Project, which was designed to get around that (while I waited for PDS V7 to mature in the eyes of its playerbase). With an all-new Newtonian and real-world-technology based background it proved that there is no reason why we needed to stick to the small scale that Homeworld 2 battles are fought in.

Our present effort, PDS-AS (or Second Era) takes that even further, refining NGCS battlespace components and increasing the stakes further for what might be the grandest rendition of 3D space combat to date. No other space combat game today will let you experience the deadliness of “war in the endless void” in visual and operational conditions that won’t be far off from when we ever-aggressive humans start to wage war there.

Yet this time we will not alienate those who prefer our usual RTS game mechanics today. Rest assured I have given ample room for that, and have made the AS battlespace as intuitive as possible. Students, and real-world warmasters/mistresses won’t have any trouble understanding the various tactics, doctrines and military concepts that I have incorporated into the game, as always, while if you are lost I would be glad to personally assist you. I’m reachable on the PDS website (www.pds.hwaccess.net) or through email (kennykoh84@yahoo.com). Just take note NEVER to ask me for things like “flak frigates” and “siege cannons”. They already ARE in the order of battle, **without** looking out of place in the naming conventions of a virtual military organization. Game designers take note!

And by the way if you get disoriented in full-scale battles with strategic/transorbital combat, you can always stick to being a Warmaster Grade 1 (which is equivalent to a Hiigaran Navy Lieutenant Junior Grade) and fly an old frontier tin-can. I mean a destroyer, of course. You got to wait for the War Emergency Refit programmes (if you're lucky you'll be able to try one of the Werewolf class DWs in 7.6) to take shape before you can use them as first-rate warships though.

I have no doubt that in future there would be a game made that far outstrips what I am trying to achieve by myself, for no profit whatsoever. (**Supreme Commander** seems to be a prospective stop for me in future – it looks like a superb RTS-Simulation hybrid) But until that day comes, I can say that I am satisfied with what I first set out to do, one night at the end of November, 2003… It has been, no doubt, a pleasant and most productive journey. I have seen both success and failure in leading a global community that accompanied me in my quest – no doubt this experience will benefit my real-world future a lot.

But, that means nothing if I merely speak for myself. So, visit the forums and make your presence known if you want changes in my work – not that I'll be the one doing the post-V7.6 developments. As commander in chief of Vagyr frontier forces in the PDS-AS universe, obviously my influence within the affairs of "blue water" first-rate navies, would be severely limited.

I've come of age, finally, and the matters of like beckon my attention more than I can spare it. Naturally, my various hobbies and internet commitments would be of less importance than that. I've spent enough time on PDS, and in the HW2 Community anyway. I will spearhead the PDS-AS effort by completing the Vagyr 262 Armada order of battle, and the community will complete the rest of the game's features in their own image. I'm leaving the storyboard totally open to your combined imaginations, people!

So, for any enquiries and discussions on specialized topics after the release of V7.6, look for the respective officers-in-charge on our website:

Version 7.2 Post-Release Development: SunTzu, Inert
Hiigaran Navy Order of Battle: Daniel Hawking, Relaxation
Taiidani Second Empire Development: ThorinDP, mrWHO, Yasotay
PDS Fiction Writing, PDS (or real-world) Warfighting Doctrines: Yasotay
Technical Support: Post on relevant forums
Why the Vagyr are Drow: Ask me and see what comes up. Or read the Culture section of this manual.

I'll handle everything else not listed above.
Hey, I **like** getting my hands dirty.

May you find the Hunt worthy.

Kenny Koh (TelQuessir/Vajra)
30 Mar 2006



Hiigaran Navy Home Fleet in action, Vagyr Invasion

2. Introduction to the AS Universe

…and so Peace once again rules in the Galaxy, at least for a short while.

With the destruction of Lord Makaan's Grand Armada in the Galactic Core and over the skies of Hiigara, the Hiigaran Republic has once again proved itself a survivor. Acquiring the secrets of Ancient technology (from the Bentusi, and Progenitor races), and with a highly advanced democratic society, it is now the dominant superpower in the Galaxy.

But not without cost. Hundreds of ships had been lost, and with them millions of people, not counting the many Republic worlds now under Vagyr occupation, and many more rumored to have been "sterilized" from orbital bombardments.



Yasotay's Brainchild – LiirHra *Light Cruiser*

The Hiigaran Navy has spent the last two years licking its, and its protectorates' wounds and is only now launching its campaign to retake what territories and off-world resources it had lost during the Vagyr Invasion.

It is not an easy task.

Interstellar space is vast and supporting a taskforce of megaton size warships across the gulfs of Time and Space is an art and science in itself. Worse are the steadily declining conditions in the Occupied Territories – with their leader gone, the Vagyr Empire is rapidly fragmenting, with two parties clashing frequently in a bloody civil war. Loyalists, seeking to continue the war with the Hiigarans ruthlessly put down the so-called Separatists, who seek to make peace and if possible, consolidate their gains from the Invasion.

That's not even considering the prospects having the equivalents of nomadic horsemen have easy access to "61st Century" technology and capital grade naval warships! Just like peacekeeping operations in the real world, the Hiigaran Navy has to be very careful not to step on the wrong toes – not if they want the Separatist factions as future allies, crucial in the little-understood realm of Vagyr civilizations.



Longinus *Assault Frigate, Hiigaran Space Marine Corps*

But that is a different reality altogether, in a far away portion of the Galaxy.

We were called the 262 Armada when Lord Makaan once ruled. We still are, until a better name would risk itself upon us.

We are a dying breed, slaving away to produce enough fusion reactor fuel both for ourselves and for resources as our primary export. We can however, expect no help from our own kind – we are far from our brethren in the South Galactic Sector and the disgraceful Loyalist Fleet had long since disintegrated into a petty, self-serving band of brigands.

That's the reason why everyone looks at us as though were were animals, not men and women. Because of a mere minority we are treated as galactic outcasts.

Our former wartime responsibility, the Imperial Taiidani 35th Industrial Sector, merely observe in glee our weakening presence as they and their greater governing powers plot to one day, return the Taiidan Empire to its former glory. They do make an effort to appear as our satisfied servants (The Vagyr had topped what was left of the Taiidan Empire, one century ago), giving us monthly tributes of trade goods or pieces of technology, yet it doesn't take a child's intelligence to spot the obvious hypocrisy behind it, made more obvious by the fact that their borders are totally closed to us.

As Commander in Chief of 262 Armada, only two choices are open to me. I can gradually disappear from the face of the Galaxy, or using what resources I have at my disposal I can create a better reality for my people. Our ships may be old and many of them would only be fit for the scrapyard in better times, but within our collective hearts there exists still a flame just waiting to be rekindled.



*The "*Nightmare Queen*" over Rashid P-2*

Our salvation is not far – a short hop of 50 light years Galactic West of us lies a fully developed Separatist planet, along with an entourage of supporting off-world industries. A thriving community, it is ripe for the picking as the state of its military forces are no better than ours.

That planet, Rashid P-2, has much to offer us – a habitable planet to house our non-combatants, a developed and self-contained food industry, first-class orbital infrastructure, and so on. We can either assimilate their population, or leave them as they are – we ourselves have manpower in abundance.

We didn't have to wait long before we went to pluck that ripe fruit for ourselves – the Separatist forces attacked us first, in an attempt to take control of our fuel refineries. Obviously we both share similar difficulties in life…

3. The Story so Far

AD262 FTL PACKET//PRIORITYLOW
FROM: WM1 GARCIA//VESSEL AV-6//DATED 120406.AHL130
RELAYED THRU: PCG-55, CV-2, DSRS-1, DHG-13, DHG-14
TO: CA-1

MSG BEGINS

To whom it may concerns this is a journal of our Armada's operations so far, from the start of hostilities one month ago. To minimize discrepancies in our various star-calendar systems in use, all dates below shall be referenced to the start of hostilities.

T-40 Days – 262 Armada low-level mobilization commences. Requisition order for logistics support dispatched to Taiidani Industrial Sector.

-20 – LOREN (Low Observable REcoNnaissance) squadrons dispatched on intelligence gathering assignments.

-12 – Mobilization accelerated due to unexpected Separatist military activity.

-4 – LOREN squadron 6 reports two carriers and escorts launched from Rashid system military base. Possibility of Separatist pre-emptive strikes on 262 Armada installations high.

-3 – Contact lost with Deep Space Patrol Squadron 6 and two LOREN units. Defensive forces increased around key 262 Armada installations and capital vessels.

T = 0 – Alpha Colony attacked and bombarded by Separatist fast attack squadrons "as predicted by High Command", defensive forces annihilated due to enemy electronics superiority. Fleet Intelligence confirms Separatist use of Hiigaran technology on their indigenously-produced warships.

+ 1 – Offensive operations against all Separatist and allied forces authorized.

+2 – Fuel Storage Stations 4 and 5 destroyed, 3x destroyer squadrons, and 2 missile cruisers lost. Heavy contact reported on all fronts, deployed forces constantly under strategic missile attacks.

+3 – MD130 anti-missile autocannon deployed successfully with directed-fragmentation rounds.

+ 4 – SDI-62A Chakra planet-launched Strategic Defense Interceptor (SDI) first combat deployment, annihilating enemy destroyer-raider group under direction of space-based early warning network.

+ 6 – Warmaster Grade 1 Elisha of Task Force 2 secures enemy vessel with tactical AI system intact. Significant reduction in enemy raiding and harassment attempts.

+ 10 - Separatist forces commence ground invasion of Alpha Colony planet. Task Force 19 ships crash-modified to accommodate reverse-engineered version of Hiigaran NGCS Mk. II tactical AI system

+ 12 – TF 19 refit completed, deployed to relieve Alpha Colony, time to target 9 days

+ 15 – Strategic range directed energy weapons experiment, Type 16 Orbital Defense System components mounted on modified Kaghan class fleet carrier.

+ 16 – Kaghan/Type 16 composite weapons platform test firing successful, commissioned as “Cosmic Dragon” class. Electronics suite (S-650 Alanat Windjammer) preliminary testing.

+ 18 – Successful deployment of carrier battle groups as independent strike units, fleet replenishment vessels converted to auxiliary missile bombardment cruisers.

+ 19 – “Al-Mou’akar” class Qwaar-Jet Evolved (QJE) battlecruiser hull purchased from Taiidani Industrial Sector.

+ 21 – First major success against Separatist forces, as TF19 successfully relieves Alpha Colony from siege by a combined destroyer and carrier action. Enemy tactical computer advantages negated.

+ 22 – Spahi class missile corvettes intercept and board a Hiigaran interstellar transport ship en route to Rashid system. Vessel found to be carrying advanced missile engines.

+ 23 – Cosmic Dragon supported by TF19 eliminates Separatist orbital naval base. First deployment of Chakra SDIs as long range carrierborne precision strike, reconnaissance and missile defense craft.

+ 24-39 - Routine operations, no major contact with Separatist forces. Most 262 Armada units retrofitted with refined versions of TF19’s tactical computers.

+ 40 - Experimental commerce raider ship deployed, retaining identity of Hiigaran deep space transport. HGS Moonlight Calamity commissioned.

+ 45 – Counteroffensive begins against Separatist planet Rashid P-2. Task forces 2, 3, 4, 9 and 19, 24 and 60 invasion ships set off, with the CA-1 “Fraulein Alptraum”’s maiden voyage as command ship. Time to target 25 days.

+ 53 – Merchant cruiser Moonlight Calamity and Raider Group 1 intercepts and destroys Hiigaran Naval deep space convoy consisting of 4 MCS escorted by a fleet defense cruiser. Sends warning to stay clear of similar enemy warships at all costs unless SDI support available.

+ 59 – Based on Moonlight Calamity's data on Hiigaran warship capabilities, Werewolf (War Emergency Refit) modernisation project started. Second requisition of support order dispatched to Taiidani Industrial Sector (full escalation), despite them falling short on deliverables by as much as 50% each convoy.

+ 65 – Taiidani Industrial Sector terminates diplomatic contact, full scale mobilization reported.

+ 67 – First SDI-62B "Super Chakra" strategic interceptor squadron operational after crash-modernization programme.

+ 70 – Combined Fleet reaches Rashid system, engages and makes good progress against Separatist defensive forces.

+ 72 – Task Force 3 takes 70% attrition in a single engagement, when engaged by Hiigaran Navy stealth ships. Reserve TFs 19 and 24 deployed in their place.

+ 73 – Task Force 24 conducts assault on Rashid system Separatist military station, and is surprised and annihilated by a pair of Hiigaran battleships (ID: Prince of Hiigara III-J class).

+ 74 – Task Force 19, Cosmic Dragon and Armada command ship (CA-1) mount a successful combined assault on military station, destroying it, the Hiigaran battleships, and a Separatist destroyer group. TF19 destroyer group takes 60% attrition, flagged non combat capable. First encounter with Hiigaran advanced fighter craft (ID: XF-401G TwinEdge Avenger)

+ 75 – Separatists cease resistance in Rashid star system. Contact lost with Eastern Frontier units of 262 Armada. Taiidani Second Empire forces begin rebellion against their former Vagyr Loyalist masters all across the Galactic Eastern Front.

+ 76 – 262 Armada units and support industries begins exodus to newly-liberated Separatist space. Everything left behind is destroyed to prevent them from falling into Taiidani hands. Commander in Chief of 262 Armada holds council of war – deciding whether to fortify and hold their gains against two enemy forces, or strip the newly captured planets bare of resources and migrate to a new region of space.

4. The Cultures

The PDS-AS is home to the following ‘races’, more properly termed star-nations or alliances of which. Note that for various reasons we do NOT conform to official Homeworld universe material on this subject with the exception of Hiigaran history.



F-401C Avengers, *with* Lavi *assault frigates and* Praetor *‘battle island (background)’*

Hiigaran Republic and Navy

The Hiigarans today are children of those exiled from the Galactic Core four millennia ago. After an arduous journey to their ‘new’ world, Kharak, itself spanning several centuries due to the unmanned prison-ships’ lack of faster-than-light engines, they had forgotten whom they were and where they came from, and even their reason for being.

What were left of a proud starfaring nation, which had unwisely challenged one of the elder races in battle, had become primitive savages of an era aeons past.

Over two dozen prison ships set off from their former home of Hiigara, and less than five managed to reach their final destination, their landing points scattered over Kharak’s entire surface.

<Kharak’s history and the journal of the Hiigaran peoples’ return to space is admirably detailed in the Homeworld 1 Manual. It’s a wonder why no game development team ever produces such wonderful world-setting material nowadays…>

But time is a wonderful teacher and equally impressive is human ingenuity. One hundred years ago the Hiigarans had embarked on an epic quest to return to their Homeworld. Uniting their entire, ecologically dying planet and literally stripping it of its resources, they had constructed a massive 25-kilometer long colony ship that bore in its womb 600,000 colonists in cryogenic stasis.

The so named Mothership had a living being at her core and was a primitive but successful indigenous attempt at capital ship neural control. A combination of colony ship, supercarrier, space factory and fleet command station, it had been the centre of the many battles the now-Hiigarans fought against their arch nemesis the Taiidan Empire.

The Hiigarans and their bold plan succeeded, finally reaching their destination in the Galactic Core two years later after having dismembered all Taiidani military units who stood in their way, with the support of some radical elements of the Empire who had wished to break away from its oppressive regime – they had not forgotten the Hiigarans even after 4000 years of occupation.

That would merely be the beginning of the modern Hiigarans' history, and not the end.

Time flew by in the last 100 years, with the Hiigarans weathering the storm of various events, which had threatened to sweep the newborn Hiigaran Republic into extinction. They brought to the civilized Galactic Core a revolutionary new form of government, called "democracy".

Today, the Hiigaran Republic stands strong, with over a dozen protectorate states that the Hiigarans provide security for and assist in technological development – their goal is obviously to form a permanent coalition against the threat of the resurgent Taiidan Empire, and us, the Vagyr.

Modern Earth Reference:

Hiigaran culture is identical to that of any modern Western democratic nation, for instance the United States of America. Their history however is remarkably similar to that of the Israelis, especially since the Hiigaran Navy had successfully stood up against multiple enemies of superior number and won.

For this reason, the Hiigaran standard of currency used is the Shekel – real world Israeli currency.

Likewise to the above, Hiigaran military culture and mindset is identical to that of Western militaries today.



Prince of Hiigara *battlecruiser*



Invaders over Hiigara's Moon

The Vagyr

We are nomads. Ever since our history was set in electronic databanks we travel the stars in great city-ships – little self-contained planetoids in their own right. Our society is traditionalist and oppressive to most today – but our caste-based system is entirely satisfactory to us.

Each and every profession required for our survival in the dark voids of outer space is sacred – groups of similar professions comprise a 'caste', for instance one of engineers, and another of stellar navigators. By tradition the Lord of a city-ship is its fatherly image, responsible for its protection – he is the military leader of the clan or tribe, which lives in the ship. The Lady of the vessel is chief of domestic and diplomatic affairs.

But we are a very flexible people – whatever works right will be honored and whatever doesn't will be changed.

Once upon a time we were peaceful explorers and traders, until approximately six thousand years ago the Taiidani enslaved us for our technology and people. Nothing needs to be said about this Dark Age, where trillions of innocent people suffered under the evil talons of the six-times-cloned Taiidani Emperor.

Our salvation, ironically, came from the Hiigarans finally and utterly destroying this terrible hegemony. The Empire, and its military arms destabilized, allowing our people to rise up against our oppressors. Our freedom was finally won after years of civil war in the frontier regions of space, but at a great cost to us – for then we had little knowledge of military matters and working with other clans of our brethren.

When we were finally done, our people controlled over a quarter of the entire known Galaxy, under the leadership of the Great Lord Makaan. Our military might, indigenously developed from the Taiidani examples, was unstoppable.



Achaemenes *class destroyers and* Sorceress *class assault carrier*

Alas, our trust in our leader, and our strength proved to be our downfall. We discovered ancient relics belonging to an elder race, which existed in eons past, which greatly improved our spacefaring technologies. Some of these relics, still functional, told us where other pieces of Ancient technology could be found.

Most of these resided in the Galactic Core, and consisted of derelict vessels and space stations – with the largest treasure being a massive hundred-kilometer long starship, named Sajuuk; the name of the god on which many religions in this Galaxy is based on.

Driven by greed, Lord Makaan proclaimed a holy war to “reclaim” these ancient memories of the past from the “infidels” of the Galactic Core. And he led many of us, and our entire culture, to its eventual doom.

(Earth Reference, the **Jihad**)

The combined Armada of Makaan initially fared extremely well against the heavily outnumbered Hiigaran Navy, which stood in our way, attempting to protect those star-nations, which were in the path of the Armada. The Armada consisted of hundreds of clans flying and fighting together, each giant city-ship maintaining an entire fleet of warships.

Our culture, and space infrastructure was not meant to support such a great crusade, and we resorted to stripping entire worlds clean of resources, artificial or natural, to support the grand Armada. In so doing, the more ruthless of our war leaders had utterly destroyed many inhabited worlds, razing them completely with nuclear fury so as to save themselves the trouble of looking after their captured populations…

Once our enemies in the Galactic Core knew of such atrocities, we lost. There is no way that a nomadic, caste-based society can stand up to and defeat a united democratic population which leads the Galaxy in science and technology.

Huge battles were fought over the skies of Hiigara, and the resting place of the mega-ship Sajuuk in the centre of the Galaxy. Key to controlling the Ancient technology were the three Hyperspace Cores forged by the Ancient

race – they were power generators that were the main components of the god-ship, which we later knew to be the Ancients' flagship.



Another battle over Hiigara

Makaan initially had in his possession one such Core, the Hiigarans another, and the Bentusi, another elder race that was nearly extinct, held the third.

The rest I need not tell you – we lost the war.

(**Homeworld 2 Singleplayer Campaign**)

But foolish as our quest was we still gained much in territory, technology, and knowledge. The Hiigarans are only just starting their counteroffensive to retake what we had captured from the so-called civilized sectors of the Galaxy, and I'm sorry to say that they will never complete their efforts of liberation.

Many of the clans that composed the Armada of Makaan had now ceased offensive operations against the Hiigarans and their allies, and are consolidating their gains, settling on captured planets and developing their infrastructure, where the clans' city-ships had long ago been evacuated and used as military bases, most of them being lost in the war along with much of our naval power.

(Earth Reference – dissolution of the **Mongol Empire**)

There would be no more foolish annihilation tactics employed for most of us, I believe, have learned better than to give in blindly to the corruption of power.

Up to a third of these new star-nations peacefully co-exist with one another, and strive to make and maintain contact with the nations of the Galactic Core. For better or for worse, we are here to stay – I'm sure the "civilized" folk can see that displacing ten billion women and children from the occupied planets we control is indeed an impossible task: their governments will never have the heart to kill us off entirely, thereby ensuring our survival.

Space here, unfortunately, is a very dangerous place here in the Vagyr Reaches. The trade routes are rife with brigands (usually warship owners not affiliated to any clan) seeking their own profit, while new Vagyr star-nations are always prepared to invade their neighbors to secure what commodity that trading could not provide. Some hire privateers to sabotage their opponents' shipping lanes.



Bombers attacking a carrier-transport

In response, every single one of our merchant ships have become capable military vessels in their own right. Our main fleet carrier can be, in a whim, converted into a cargo ship so as to increase peacetime profits – then refitted as a missile cruiser with minimal effort when it is sent back to military service, the venerable vessel being too old and weary to accommodate the latest in carrier technologies.

I realize that I speak easily of war. Indeed for the past century, we live in dangerous times and our culture seem to always respond to the challenge by seeking to be even *more* dangerous than what we face. Much of our male population have now been reduced to their component atoms in service of the now-dead Great Lord, and so now the women, and sometimes children too, have to go to war. Such as witchcraft as cybernetic and genetic engineering are also widely pursued in order to maximize the potential of every single organism in our slowly dwindling population.

(Earth/Medieval-Fantasy reference – **Drow/Dark Elf culture**)

Today we fare no better, caught between two enemies. The Hiigaran Navy strikes deeply into territory controlled by any still loyal to the dead Great Lord, and it was natural for those newborn star-nations to rally to their brethrens' defense as well.

We are rapidly adapting to the Hiigarans' superior technology and military culture, and a stalemate is developing in the Western Front to our favour. But in the East a new storm rises from the horizon – that of the resurgent Taiidan Empire. In fighting the Galactic Core Nations our hold over our former masters – now the servants – had been slackened. So they now seek to do unto us what we had done to them.

Merely one hundred years had passed since the Taiidani Emperor was struck dead and the Empire destroyed. There are many who hate the Hiigarans more than they hated their old Emperor…

(The above paragraph is written in honor of **Yasotay**, who keeps telling me that on the **PDS website** forums. Yasotay as a one-time Warmaster in the real world was a great help in the military-styled development of PDS, and a

very good friend who had always stood by me even when I had doubted his...loyalty)

Besides these two, there exist another pair of star-nations that hold some influence in the C-42 Campaign, namely the **Taiidani Industrial Sector** representing a part of the **Second Taiidan Empire**, and the **Separatists** representing the **Independent Vagyr Federation**, which is described above as a member of those “newborn Vagyr star-nations” that have risen from the ashes of the Vagyr Crusade.



A wing of elderly Thaanar class attack craft deploying from a cityship in a nebula

5. War in the Endless Void (Or: Why do we need a Space Navy)

The concept of space warfare I do not need to describe. After half a century of exposure to the realm of science fiction (much more in fact, if you count the books), we Earthlings don't need much inspiration to call upon visuals from such as Star Trek and Star Wars, where I mention the topic of "war in the endless void".

There are many fundamental differences between ST and SW, and my PDS universe, though. First of all, the military backing behind the PDS universe's design, which affects what goes into the game and how the battlespace is operated by its (now) almost fully automated denizens.

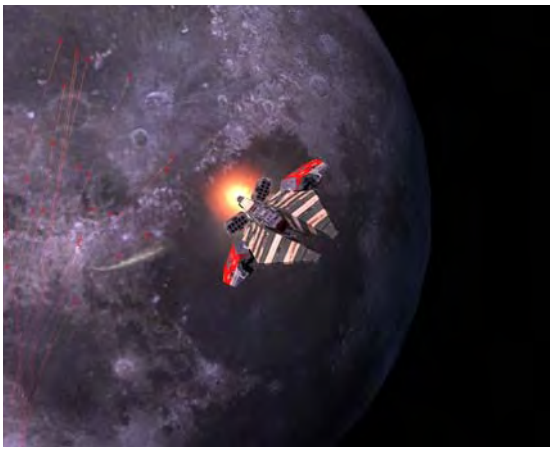
Second, and more obviously, you should use books like Starship Troopers and The Forever War as a base for visualizing how one of our warships would be fought.

While we took some… liberties with our technological base in the old PDS versions (V6-7.2) to allow for anti-gravity and inertial drives being used to improve ship maneuverability – we find that such "programming excuses" are unnecessary with the new truescale battlespaces of NGCS and PDS-AS.

Rather, the morbid and ever-present horror of life support systems failing in combat is a natural fact of life, if our plasma-driven warships would be to constantly put down acceleration rates not limited to fifty times Earth gravity.

It's not a matter of preference, but rather – do you want to be able to evade missiles and ballistic shells projected towards your orbit? If not you could serenely float towards your objective like in the movies, and you'll find that you're a literal sitting duck against unpowered weapon attacks due to your constant trajectory. And in space warfare, weapon power in most cases far outstrips defensive capability in direct impacts.

The Homeworld universe is a war-ravaged one, an observation made much worse by the elder races' departing the Galaxy (or made extinct) by recent events in its official history. This means that military technology would have had a great boost in maturity because the most effective way to win a space war is to bring it to your enemy's doorstep. You do that with a Navy.



SDI-61A Chakra *launches from a moon*

With a Navy comes the capability of mobile force projection and it functions as a natural bargaining tool and object of deterrence. That's far more effective than barricading yourself behind a planet with a few thousand obsolete orbital

defense weapons – weapons that naturally shall be made obsolete with the mere passage of time because of your isolationist policies. Defensive capability is undoubtedly necessary, yet it is offensive power that allows you to control the will of another. Both are necessary and balance is the key.

So the Navy can be said as the right-hand organization to a successful spacefaring civilization where the prospect of undeclared war is one of the realities every nation in our universe has to deal with. Not to mention, an organized space navy brings a wealth of opportunities in peacetime as well. One of these is security for trade routes – a star-nation with a strong Navy is naturally a desirable commercial location based on the security it can give to its patrons. No one would want to dine in a place rife with Mafia activity (unless you're one of them) and the same rule applies here to civilized society in a different realm.

Second is the sheer power of military space lift. In our Earth history, we can see that the Berlin Airlift almost singlehandedly prevented a premature outbreak of World War 3. While at the same time operations like Desert Storm could never have happened for the sheer air and sealift efforts behind it, transporting men and materiel to the theatre of operations.

After the 1991 Second Gulf War, we start to then see that same lifting power used for humanitarian operations. There are also many examples of today's militaries with little real warfighting experience that use humanitarian operations as a means to increase their nation's reputation. The recent Operation Flying Eagle undertaken by my nation's armed forces in 2005, is an example of this. Now, I'm not bad-mouthing – but if I had the capability to make a desirable influence on global politics just by contributing much-needed help, I wouldn't have any qualms on the prospect. I'm sure most of us would think the same, practical realists as we are in these times.

Now imagine the scale of such operations multiplied hundred-fold. Instead of a single nation on Earth, your target for assistance is now an entire dying planet. They might be a farming economy with their crops ravaged by some alien disease, have some trouble with their atmospheric conditioning equipment, or require immediate evacuation of the entire population because there is something extremely bad going to happen in X years time. Take your pick.

You see this in your next intelligence report, and decide to intervene. You organize a task force for the mission, crash-load the ships' holds and crash-refit them from warfighting trim if necessary, and send them on their way. A fleet carrier or interstellar transport in our realm could easily take objects as large as one of today's supertankers in the hangar, hold, or simply bolted on to an external hardpoint (remember to reprogram the flight control system for the mass distribution). The present trend of modular configurable vessels eases this task even further, as you could rapidly convert a say, carrier into a refugee transport without much hassle.

But of course to command such an operation requires a wholly different set of personnel competencies from what we are used to today. But in defense of the human operator, the monitoring of a spaceborne operation should be not much different than playing a computer game today. If in today's reality there exist (most albeit in prototype format or too expensive for mass proliferation) laser-holograms, optical or even quantum computing, virtual and enhanced reality interfaces – then in a "61st Century" timeline all of these technologies would have been developed a long time ago and subsequently matured, if not already replaced by newer and better human interfacing technologies.

One such popular concept in sci-fi of course, is the neural command interface. Why operate a machine with your hands if you could merely think of what you wish to do? The command system registers the change in your brain-waves, identifies the thought, and executes a task.

Nope, it would not ever fully replace the flexibility of manual controls, but for 99% of the "1s and 0s" tasks done by a machine, especially a large one, even a limited neural control facility is a worthwhile investment. Today, a team in a CIC might be responsible for the warship's offensive and defensive capabilities, with one or more person operating each system. Using a combination of all the human-interface gadgets there exists in a fictional 61st Century reality, we could use a computer to combine the inputs and outputs of all the ship's systems and just have the human do the decision-making.

These concepts even are achievable today – see sensor fusion and the like.

Another proponent for neural control systems – what if you couldn't move at all at battle stations? Ironically it is an aquatic environment that is most suitable in keeping we fragile humans alive at constant 50G accelerations or more. In the excellent book The Forever War, ship crew and passengers are connected to life support suits in acceleration couches that will serve as their berths during periods of maximum-performance flight (which includes battles being fought at close to the speed of light).

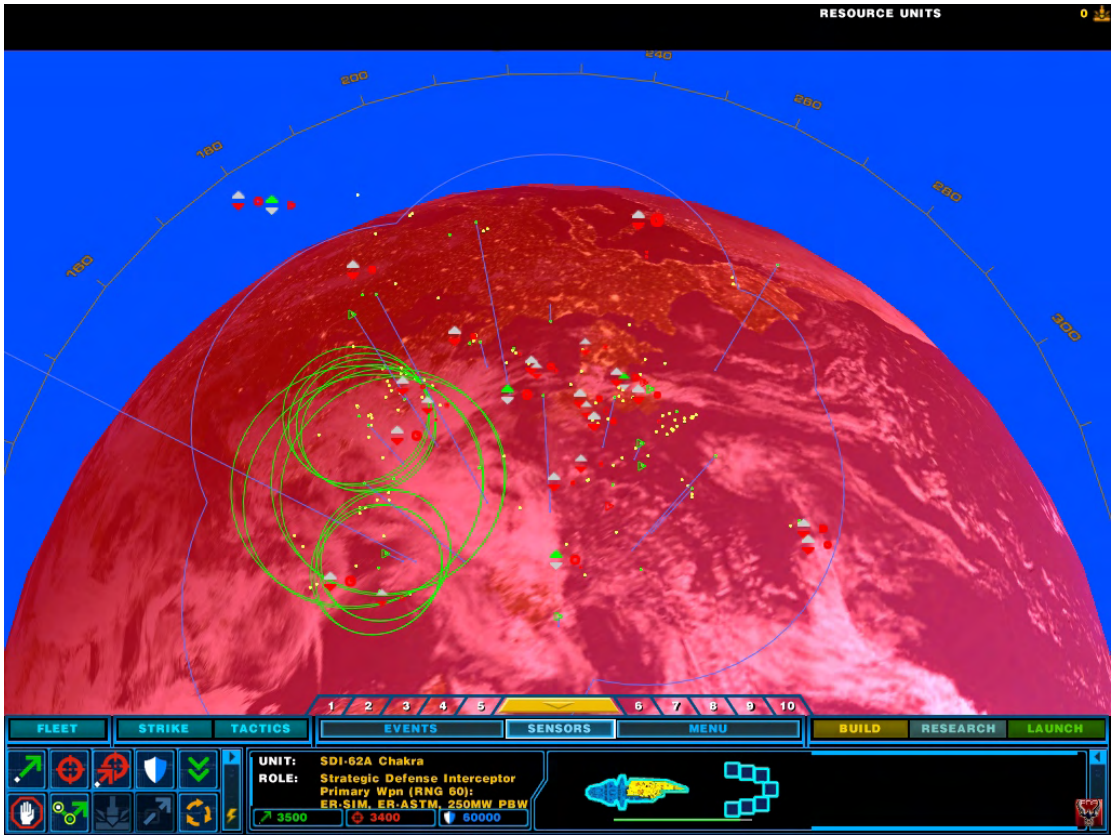
It was not enough to simply suspend the humans in a liquid to damp the literally gut-wrenching effects of extreme acceleration – the body had to be physically filled with liquid as well (along with other measures) so as to prevent destruction of internal organs by keeping internal and external pressure equalized.

If that is not gruesome enough, instant death awaits if life support systems fail during the course of max-performance flight, be it from battle damage or hardware/software failure. Even minor suit damage could be fatal…

Clunky as it is, that is what has to be done in the absence of gravity and inertia controlling technology that has been the staple diet of most sci-fi ships for as long as I can remember. We can simplify the process using the guise of "61st Century" technology, and that's all.

Artificially transforming a human being into an aquatic organism is a very painful and unpleasant process – I have written a short story on the PDS Website Forums on this topic, as a gesture of roleplay. Look for it in the **Chronicles of War** sub-Forum.

Writer's note: This chapter was written some time before I did the above chapter's short-story/roleplay. It would explain why this chapter so different.



Symphony of Chaos – sensors manager overview of SDI wing-level exercise (48 vs 48 dogfight)

6. The Warmaster's Art

(I **told** you to skip to chapter 6 if you wanted a no-nonsense gameplay guide!)

Before playing (or even installing) PDS-AS V7.6 it is highly recommended you spend some time going through the Homeworld 2 (unmodified) Singleplayer Campaign. This allows to you familiarize yourself with the game interface (especially the camera controls), basic concepts (although researching and building is not a facet of AS gameplay) and the like. Or else you will, literally, see the AS ships zip off into beyond-visual range and you wonder helplessly how to control them.

Not that micromanagement would even be possible or desirable in a real-world battlefield, most of the time.

Then if you'd like to see what the "First Era" PDS was like, get Version 7.0 and the 7.2 update. If not (or you'd just prefer AS's gameplay), read on.

For a Start:

Let's take a look at a basic ship duel for an idea of the PDS-AS combat resolution system.

First, install PDS-AS by unzipping the "V7.6" archive you downloaded into your Homeworld 2 folder. (Default is C:\Program Files\Sierra\Homeworld2\)

Then, modify the properties of your HW2 desktop shortcut (make a duplicate if necessary) so it says in the Target line:

"C:\Program Files\Sierra\Homeworld2\Bin\Release\hw2.exe" **–overridebigfile**

This will tell the HW2 executable to load user-modified files. Now start up HW2 from the modified shortcut – if the installation is successful you will see a custom menu background. If not, review the above steps.

Next, head to the Skirmish vs CPU option on the menu to access the PDS-AS features. At the top right of the Skirmish interface, open the drop-down menu and select **PDS-AS 7.6** to access the missions I have created for this version. No need to concern yourself with setup options – there is none needed as all existing actions are executed with fixed, pre-assigned forces.

If you want such as player-managed deployment, or even a Grand Campaign with technological progress modeled, ask the PDS community! Look at the example of **Sun Tzu**'s (the community member!) Refinement project for PDS V7.2. He and the community can achieve such a vision much better than I am able to, I assure you.



Go to the panel on the left and select one of the EX maps – these simple duel style missions are there to showcase basic ship to ship combat, and do not need user intervention for play. So just move the in-game camera around and watch.

Note the rather unique trend of ship classification, based off that of the modern US Navy but with individual ship tonnage incorporated – much like indicating the number of guns on an Age of Sail lineship like this example:

HMS Warrior 74 – a fictional 74-gun lineship of the Royal Navy

In the same way, a “PCG 12” classification string here in my realm means “Patrol Combatant, Guided Weapons, 12 kiloton mass”. The larger the mass rating, the heavier, and usually, larger the hull is.

This does give an idea of how capable the ship is, but most ships today don’t follow this rule. How capable the ship is in battle depends on infinitely more factors than just its tonnage, which doesn’t even tell you how agile the ship is!

Acceleration depends on thrust to mass ratio – so it does not mean that a small one-man fighter is more maneuverable than a 50 kiloton destroyer. In fact, if the fighter had a compact electric powerplant (like on NASA’s Deep Space One probe today), the destroyer with an interplanetary fusion/plasma drive would literally leave the fighter in the dust.

In the same way, my ship the only “CA 450” in 262 Armada, is far more agile than all her smaller counterparts of an earlier generation. Just look at the size

of her engine array! Of course, her structure better be strong enough to survive the resultant acceleration – the same could be said for life support but that's already dealt with in a roleplay essay I wrote…

Have you grown bored and started a EX mission already? Try selecting the DHA75 ones for a display of fourth-rate (frontier) destroyer action, where combat tends to occur at what amounts to be point blank range in space; missiles, plasma guns and low-end ballistic weapons being cheap and adequate for frontier patrol ships.



DHG75 Bayandor *launches missiles*

Ramp up the level of technology to strategic missile operations with the CV160 Kaghan class or the DHG63, or the SDI-62A for fighter operations. Note how different it is from standard Homeworld 2. I have aimed to stretch the capabilities of the HW2 engine as far as I can with this.

By now you shall note the sheer lethality of the new battlespace. PDS-AS is built on the principles of modern naval warfare, and ship survivability is achieved mainly by not getting in a position to be hit by deadly fire in the first place. This is achieved most simply by destroying what can harm you before the other guy has a chance to fire. Some of the scenarios based off the above war journal require you to perform defense suppression (or wild weasel in today's air combat terminology) missions with SDI craft in order to pave the way for conventional attack with ships of the line.

Notice as well how deadly directed energy weapons like lasers and particle beams are. Members of my community forums will tell you how a user named **Deathblow** mathematically predicted the prospective weapon ranges in actual space warfare – PDS-AS is based on that logic. Deathblow's work is stored on the NGCS section of the forums…

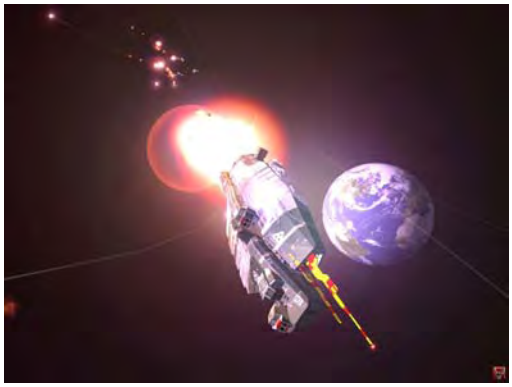
Now to experience the real deal of an automated, truescale-format space battle. Select the scenarios named "**Serpent's Pass**" or "**African Macabre**".

The former is a AI directed commerce raiding operation while the latter is a SDI wing-level exercise over the globe of our earthly home. (Don't ask me why I kept the Earth 3D model from the NGCS-Earth project – planet models are all created by **evillejedi** of the **Relic Entertainment Forums**, by the way)

Air combat enthusiasts should be able to appreciate some aspects of SDI fighter combat, be it in missile evasion how the African Macabre mission appears like a Battle of Britain photo of contrails in the sky (computer-generated ship path renders, in this case), or even the presence of directed

energy weapons in a “dogfight”. Indeed, in an actual PDS-AS scenario (like **Werewolves**, the final Day 76 mission) the dogfight is an obsolete form of combat.

It should also be noted that the Patrol Combatant class is intended to operate in a similar manner to missile corvettes of today’s navies. They are still capable laser carriers and missile attack craft but the Spahi’s old technology drags down its potential. The patrol craft are currently expensive and poorly protected units, where the Strategic Defense Interceptors – large fighters, possess far superior military utility in both attack and defense.



Casualty of war – PCG12 engine explodes

On to actually **commanding** an operation – enough of watching the AI work by itself.

Select the **Harbour of Tears** mission from the PDS-AS Skirmish menu.

This mission puts you in command of a seemingly underpowered attack force sent against an enemy space station that is responsible for jamming (i.e., electronically hindering) our communications and surveillance efforts in this region of space.

Four destroyers of Task Force 19 have been dispatched to eliminate this pain in the rump. They are accompanied by 262 Armada’s (note the date of the mission, refer to war journal above) carrier of its latest experimental weapon systems, namely the Cosmic Dragon space dominance vessel and carrierborne Chakra SDIs.

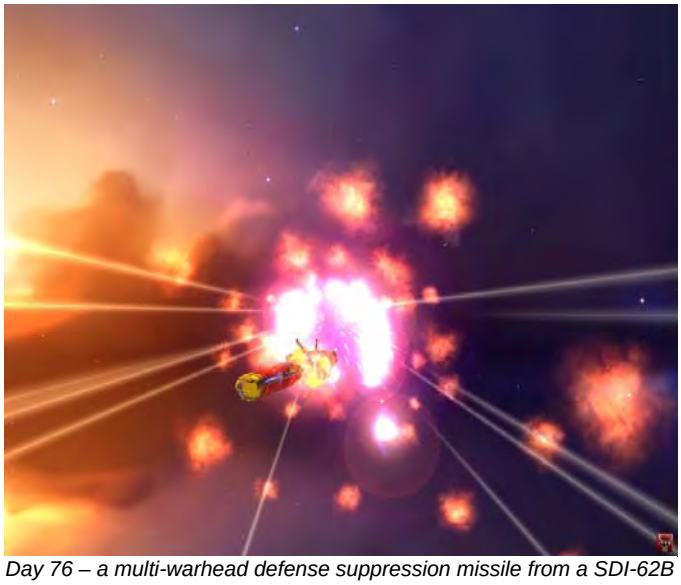
Bringing a strategic range directed energy weapon into a frontier warship engagement is like bringing a .50 caliber sniper rifle into a pistol fight. With it you can eliminate key targets in the opposition’s force composition from a safe distance. In this case it means you can destroy enemy ships from range 360 while they would need to close to under range 200 to engage you with long-range multi-stage missiles.

Unfortunately at mission start your “safe distance” is nonexistent. If you would fire the Dragon Lances at the enemy space station or defending carriers you will be under what may be termed *counter battery fire* from enemy orbital defense satellites. Don’t mention too the carriers’ attack drones which launch at any target within range 750 of the parent vessel. So, charging in blindly like a movie hero is virtual suicide.

Thankfully you do have in your possession tools to make the Dragon lady’s life easier. The squadron of Chakra interceptors in this mission function as tri-role reconnaissance, strategic missile defense, and precision attack platforms, at least from my perspective.

What I would do is to send one, or both of the Chakra flights close enough to the space station for their sensors to *burn through* the enemy jamming screen, thereby revealing their true force disposition.

Following which I will identify what poses a threat to the Dragon and employ the SDIs in the "wild weasel" role, eliminating the most effective of the enemy defenses. In this case, look out for the pair or Type 16-P orbital defense satellites, which are, armed with, for the lack of a better description, Dragon Lances. You can of course engage in an artillery duel and win half the time due to sheer luck but that is a very unhealthy option, especially with the enemy carriers still operational.



Day 76 – a multi-warhead defense suppression missile from a SDI-62B Chakra destroys a Type 16 *orbital defense satellite*

Blew up those orbital defense satellites yet? They are sitting ducks against directed energy weapons, you notice – now, a problem, the enemy carriers have actually launched their fighters against your Chakras, which is both a blessing and a curse. First, they are your only high-mobility assets in this mission, and they are highly effective in defending your battle line against long range missiles.

Would you risk the valuable SDIs in a dogfight versus a swarm of enemy attack drones? I would say that is not a desirable proposition. Turn tail and run, and leave to fight another day. Make sure you use the WAYPOINT order to disengage them and hit the F4 key – this will allow the SDIs' rear guns (less capable fighters don't enjoy the protection of CIWS – close in weapon systems) to engage the incoming drones and missiles.

This mission is even more enjoyable if you had kept one SDI flight in reserve to cover the defense suppression mission – because as the SDIs disengage their kindred in the other half of the squadron will cover their retreat with long range particle beam attacks on the enemy attack drones.

(SDI basic technique – strategic missile defense: Simply park the SDIs near a ship you want to defend against missiles. They will automatically intercept missiles by priority, and are highly effective in this role)

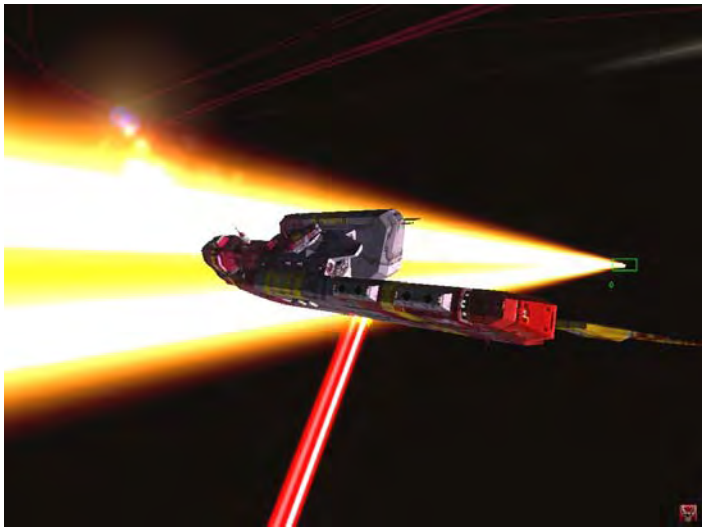
Now of course the enemy knows you are here and mean serious business. If you haven't already, have the Cosmic Dragon attack the enemy carriers – this will put a halt to their launching attack drones. However, doing so would have the enemy carriers react immediately to your modified carrier's attack and launch drones in your direction. If you have lost all your SDIs, you may need

to have the Dragon perform a disengage maneuver to get the hell out of Dodge while your destroyers try to screen her with their MD130 anti-missile cannon.

(Disengaging/velocity reversal for capital ships – This high-G maneuver can be manually executed by giving the ship a move order above and behind it. Try giving a destroyer a move or waypoint order 40k to its rear and upwards about 25 degrees. Watch what it does. It is a particularly useful missile evasion tactic which you can see in action quite frequently in the DHG63 or CA450 exercises)

Eventually the carriers will run out of drones (each Kaghan carriers 72 drones and launches one every two seconds – do the math) and your carrier will be devoid of enemy opposition. While the Dragon's Lances have only twenty shots per main particle beam weapon it should prove adequate in annihilating every enemy contact on screen.

You have a choice of directing your "artillery" against the weakest enemy targets (the space station and destroyers) or against the most powerful ships to keep them from interfering with your operations. The latter is what you have already done, attempting to disable the enemy carriers to keep them from launching drones in the first place.



Dragon's Fury

I find that flowing with the situation is the best tactic, similar to swordplay where is no particular "ultimate" move that will win you a duel every time.

As such redirecting Lance fire to provide close support to a heavily engaged destroyer of yours, even just a single well-directed shot, will earn you much appreciation from the DH's crew.

And that's enough spoonfeeding Warmaster! Go ahead and try the rest of the missions; figure out by yourself how to use the tools I have given you. The above principles I have outlined should serve you well no matter if you're commanding a fourth-rate frontier tin-can or a pack of modern Werewolf advanced destroyer. And god forbid you wreck my beloved mount the *CA450 Fraulein Alptraum*, we have only **one** such hull you know?

Next up – Ships & Weapons Guide. I don't want to have my prospective contributors get all confused as to who is shooting whom with what, you know?

7. Fleet Intelligence

It should be noted that this intelligence report only covers those vessels and weapon systems that have participated in the war so far. The contents of report are to be deemed accurate as on Day 76 of the C-42 Campaign.

As V7.6 focuses on the Vagyr order of battle, the pair of Hiigaran ships included in this release shall be treated as alien craft. They exist solely as examples for the PDS community in creating their own rendition of a foreign military. So, if you want more Hiigaran ships – take their 3D models from PDS V7.0/7.2 and convert them to the AS universe, using my programming as reference.

Ships

- Fighters and Attack Craft
- Small Capital Ships
- Large Capital Ships
- Orbital Assets

Weapon Systems

- Ballistic
- Self-Propelled (Missiles)
- Energy

Fighters and Attack Craft

1. SDI-62A Chakra



Mass: 1000 tons
Range: Transorbital (not capable of interplanetary endurance)
Roles:
(as designed)
Strategic missile defense
Planet to space anti-starship interception
(additional, as required)
Carrier-borne reconnaissance, precision strike and defense suppression
Vulnerabilities (against):
Directed energy weapons
Fleet defense massdrivers
Interceptor missiles
Loadout:
2x 250MW particle beam weapons on outrigger pods, RNG 120
2x twin rail 3MT ER-ASTM launchers, RNG 120
2x 12 round ER-IM pods, RNG 60
3x multi-barrel 50mm massdrivers (one twin, one single turret), RNG 20
Description:
The Chakra was designed to be a single-purpose planet-launched interceptor, launching at short notice to deliver anti-starship payloads into space. After several spectacular successes as defensive craft we have found such craft to be effective tools for the offensive as well. As anything would if it were designed to perform one-pass kills at closing velocities exceeding 200 kilometers per second.

These craft may be short ranged but their firepower is especially effective for fleet strike missions. They are today, frequently docked externally to capital ships and function as the larger ships' rapid power projection appendages.

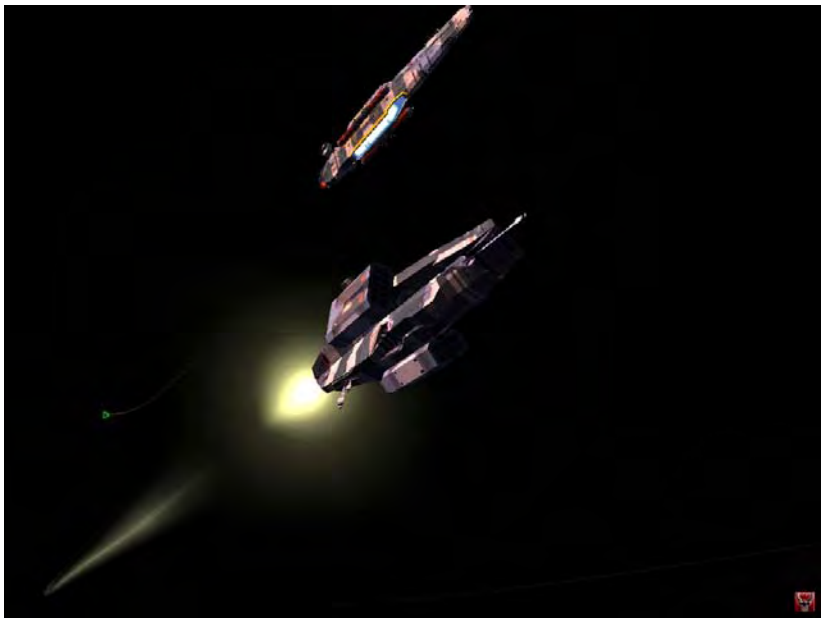
2. SDI-62B Super Chakra

Appearance identical to SDI-62A
Mass: 1000 tons
Range: Transorbital (not capable of interplanetary endurance)
Roles:
(as designed)
Strategic missile defense
Anti-starship interception
(additional, as required)
Carrier-borne reconnaissance, precision/heavy strike and defense suppression
Vulnerabilities (against):
Directed energy weapons
Fleet defense massdrivers
Interceptor missiles
Large nuclear missiles
Loadout:
2x 12MT HV/ER-ASTM launchers, 1 round, RNG 400
2x 1.5GW pulse lasers on outrigger pods, RNG 200
3x multi-barrel 50mm massdrivers (one twin, one single turret), RNG 20
Description:
As we have gained access to technology better than our own through the course of conquest, so have we improved our ships with it. The SDI-62B is an improved version of the older –62A that is designed keel-up as a fighter for use in space fleet actions.

The 1.5GW pulse lasers and hypervelocity unguided torpedoes are based on Hiigaran and Separatist technology superior to our own, allowing such craft unprecedented reach in transorbital interceptions. While the Super Chakra does not have the capacity to perform saturation missile attacks, battle logic and all experience so far mandates that a single, powerful weapon is superior to a few less capable and long-reaching devices for the same tonnage.

The new craft are also equipped with their own electronics warfare suites in response to those Warmasters who had requested such, improving greatly both surprise strike and reconnaissance capability. All this of course, for a significantly higher production and upkeep cost compared to the older model.

3. Type 2C Attack Drone



Mass: 200 tons
Range: Interplanetary (if on fully autonomous mode and non-return trajectory)
Roles:
(as designed)
Carrier-borne strike
Vulnerabilities (against):
Directed energy weapons
Fleet defense massdrivers
Interceptor missiles
Large nuclear missiles
Loadout:
2x 2 round 3MT SR-ASTM pods, RNG 80
Description:
Before the advent of the SDI-62 Chakra series, we have long thought the age of the space fighter obsolete. Having discarded the Invasion era light fighters (nothing more than manned missiles) for attack drones, this is the result.

Type 2s are expendable remote attack platforms, usually deployed en masse from fleet carriers for saturation missile strikes. The craft are recoverable on short range missions but don't concern yourself with preserving them – they are cheap to produce and are unmanned.

Recently, they have been launched successfully from field-modified destroyers and commerce raiders, and we have updated our doctrines to reflect that successful trend – the Werewolf Type 2 advanced destroyer is a dedicated drone carrier.

4. PCG 12 Spahi



Mass: 12000 tons
Range: Interplanetary
Roles:
(as designed)
Orbital patrol and interception
Fleet sensor picket, missile attack, counter-fighter escort
(additional, as required)
SDI tender
Commerce raider
Missile bombardment
Vulnerabilities (against):
All weapons fire
Loadout:
3-6x 300MW lasers on bow mounts, RNG 200
2x 12MT 2S-ER-ASTM launchers, 9 rounds per launcher, RNG 200
2x 3MT SR-ASTM launchers, 24 rounds per launcher, RNG 60
1-3x 6 tube ER-IM launchers, RNG 60
2-4x multi-barrel 50mm massdrivers (hull CIWS), RNG 20
4-8x fleet defense 130mm massdrivers, RNG 35
Description:
The frigate class vessels of the Invasion era are now more or less obsolete for fleet actions, save for the role of the fast attack platform. Even so all the Spahi seems capable of doing is carrying a lot of weapons into an operational area and delivering them from maximum range. The aging hulls do not lend themselves well to modernizations and they are too heavy – owing to ship outfitting trends of the Vagyr Invasion period.

Starbase commanders have lately taken to doubling the Spahi's laser power and removing the rest of its weapon systems except the 130mms and extended range anti-starship missiles, producing a leaner ship without the weight problems. But SDIs have all but replaced them in their offensive duties.

Small Capital Vessels (DD, CL)

1. DHG 63 Achaemenes



Mass: 63000 tons
Range: Interstellar
Roles:
(as designed)
Orbital patrol and interception
Missile bombardment, capital ship hunter-killer
(additional, as required)
SDI tender
Battlegroup escort
Vulnerabilities (against):
Anti-starship missiles (esp. saturation fire when not maneuvering)
Heavy capital ship weapons
Loadout:
4x 12MT 2S-ER-ASTM launchers, 9 rounds per launcher, RNG 200
5x 3MT SR-ASTM launchers, 24 rounds per launcher, RNG 60
3x 12 tube ER-IM launchers, RNG 60
2x twin 3GW particle beam weapons, RNG 120
10x fleet defense 130mm massdrivers, RNG 35
Description:
Destroyers represent the smallest capital ship class in service today, built for function over form. They can be limited in capability yet can be produced en masse and are simple to operate.

This missile destroyer is a general-purpose warship that has proved its effectiveness in a wide variety of tactical conditions.

2. DHA 75 Bayandor



Mass: 75000 tons
Range: Interstellar
Roles:
(as designed)
Orbital patrol and interception
Short range assault
Vulnerabilities (against):
Anti-starship missiles (esp. saturation fire when not maneuvering)
Heavy capital ship weapons
Loadout:
2x 275mm massdrivers, nuclear payload, RNG 60
1x 6 GW plasma cannons, RNG 60
2x twin 2GW plasma cannons, RNG 60
6x 3MT SR-ASTM launchers, 24 rounds per launcher, RNG 60
3x 12 tube ER-IM launchers, RNG 60
10x fleet defense 130mm massdrivers, RNG 35
Description:
In the present conflict, the plasma assault destroyer has proven to be a less desirable configuration over the lighter missile destroyer.

This is because plasma cannons are by nature, short ranged. Bayandors have however been employed successfully against large capital ships that were well defended against missile attacks. The difficulty in this lies in getting the DHAs into range without them being targeted and destroyed first. Sacrificing acceleration for improved armour plating, in the context of space warfare and such an already capability-limited craft, is a foolish gesture at best.

The Bayandor's short weapon range otherwise makes it almost totally useless in a task force engagement save as specialized assault ships. In this role they excel.

3. DW70 Werewolf Type 1



Mass: 70000 tons
Range: Interstellar
Roles:
(as designed)
Multi-role capital ship
Vulnerabilities (against):
Heavy capital ship weapons
Loadout:
2x 16 GW particle beam weapons, 20 shots per generator, RNG 360
1x 12 MT HV/ER-ASTM pod, 9 rounds, RNG 400
4x 12 MT 2S-ER-ASTM launchers, 9 rounds per launcher, RNG 200
2x 3MT SR-ASTM launchers, 24 rounds per launcher, RNG 60
4x 1.5 GW pulse lasers, RNG 200
2x twin 150mm hypervelocity fleet defense massdrivers, RNG 160
1x 3 tube ER-IM launcher, RNG 60
10x fleet defense 130mm massdrivers, RNG 35
Description:
Destroyers as workhorse vessels of the Armada suffered greatly in prolonged combat operations, and as strategic range directed energy weapons dominate the present conflict the destroyer is nothing more than cannon fodder.

As this offspring of the CA450 *Fraulein Alptraum* advanced cruiser project would prove however, their time in our order battle is not yet over. Sharing many components and systems with the pride of the fleet, the DW70 additionally is armed with a pair of Dragon Lances mounted on external weapon pods – unheralded firepower for such a small ship.

The Lances' self-contained engines may also be employed as propulsive devices for combat maneuvering and emergency power. Even more revolutionary however, is the level of automation in these ships – just one commander may control an entire squadron of Wolves.

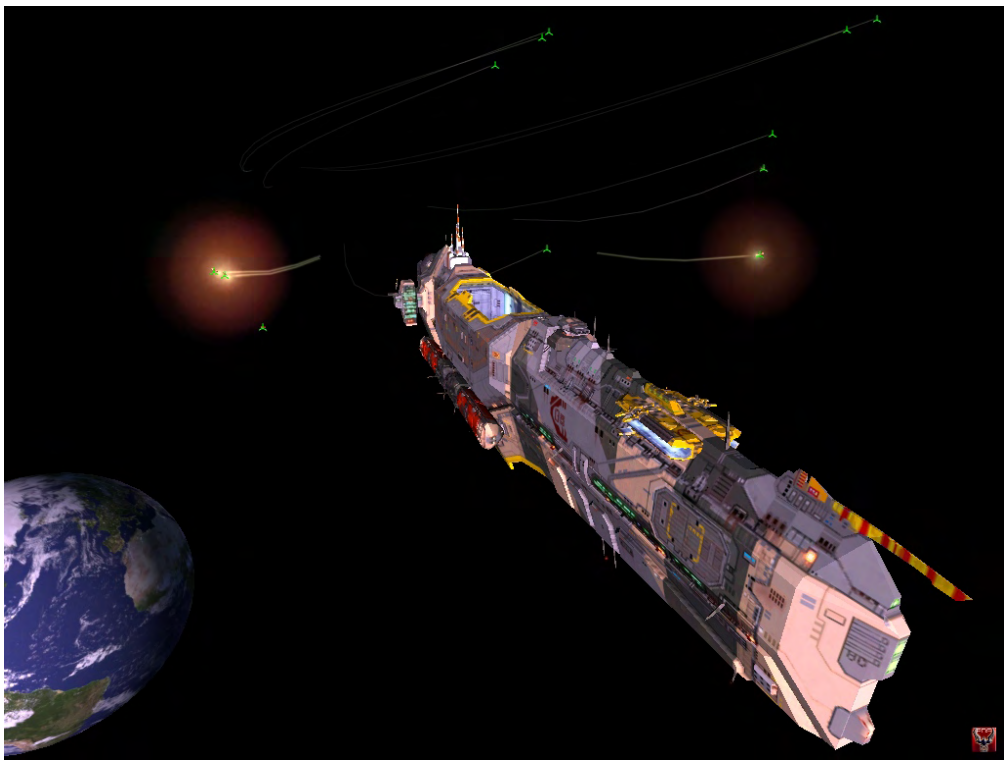
4. DWV 70 Werewolf Type 2

Mass: 70000 tons
Range: Interstellar
Roles:
(as designed)
Light attack carrier
Vulnerabilities (against):
Heavy capital ship weapons
Loadout:
30x Type 2C attack drones, RNG 750
2x twin 6 GW heavy pulse lasers, RNG 300
1x 12 MT HV/ER-ASTM pod, 9 rounds, RNG 400
2x 12 MT 2S-ER-ASTM launchers, 9 rounds per launcher, RNG 200
2x 3MT SR-ASTM launchers, 24 rounds per launcher, RNG 60
1x 3 tube ER-IM launcher, RNG 60
10x fleet defense 130mm massdrivers, RNG 35
Description:
This is the drone carrier variant of the Werewolf advanced destroyer, used as a highly agile offensive weapons platform. While the 30 Type 2 drones take up much of the destroyer hull's capacity, it has an efficient secondary weapons inventory for fire support duties.

It has less combat maneuverability than the Werewolf Type 1 as this carrier does not bear the auxiliary engines required for the Dragon Lance weapons.

Large Capital Vessels (CA and above)

1. CV 160 Kaghan



Mass: 160000 tons
Range: Interstellar
Roles:
(as designed)
Fleet carrier
Vulnerabilities (against):
Plasma weapons
Anti-starship missiles
Loadout:
72x Type 2C attack drones, RNG 750
2x 275mm massdrivers, nuclear payload, RNG 60
2x 12 MT 2S-ER-ASTM launchers, 9 rounds per launcher, RNG 200
4x 3MT SR-ASTM launchers, 24 rounds per launcher, RNG 60
36x ER-IM launcher, RNG 60
14x fleet defense 130mm massdrivers, RNG 35
Description:
A venerable ship design dating back to the War for Independence against the Taiidan Empire, the Kaghan's elegant lines are well known in Vagyr space. The ship's modular design makes it extremely versatile.

Various older Kaghan class vessels in 262 Armada serve as transports, replenishment and second-rate missile bombardment cruisers, but most of the others retain their traditional carrier taskings. They are however, long due for a refit adding energy based defensive weapon systems.

2. BCG 131 Vikrant

Appearance similar to CV 160 Kaghan
Mass: 131000 tons
Range: Interstellar
Roles:
(as designed)
Bombardment cruiser, underway replenishment vessel
(additional, as required)
CoW, SDI or PCG carrier
Vulnerabilities (against):
Plasma weapons
Anti-starship missiles
Loadout:
6x 275mm massdrivers, nuclear payload, RNG 60
6x "Carriage of Woe", 24x ASTM or 48x ER-IM each, RNG 450
3x 12 MT 2S-ER-ASTM launchers, 9 rounds per launcher, RNG 200
6x 3MT SR-ASTM launchers, 24 rounds per launcher, RNG 60
24x ER-IM launcher, RNG 60
14x fleet defense 130mm massdrivers, RNG 35
10x 50mm multi-barrel massdrivers, RNG 20
Description:
Converting a Kaghan transport ship into a missile cruiser is a relatively simple task. While the resultant second-rate warship is no match for any trueborn military cruiser, it is adequate for frontier space.

Vikrant BCGs are most commonly seen today as tenders for shorter-ranged craft, refueling and rearming destroyers while carrying SDIs and patrol combatants on external docking points or the empty main hangar. At other times they carry "Carriages of Woe", huge detachable missile pods, for saturation strikes and interdiction missions.

Like our Kaghan carriers, these overworked hulls are due for energy weapon refits.

3. CVA 140 “Cosmic Dragon”



Mass: 140000 tons
Range: Interstellar
Roles:
(as designed)
Space control and dominance platform
(additional, as required)
CoW, SDI or PCG carrier, orbital bombardment
Vulnerabilities (against):
Plasma weapons
Anti-starship missiles
Loadout:
2x 16 GW particle beam weapons, 20 shots per generator, RNG 360
2x 275mm massdrivers, nuclear payload, RNG 60
3x 12 MT 2S-ER-ASTM launchers, 9 rounds per launcher, RNG 200
4x 3MT SR-ASTM launchers, 24 rounds per launcher, RNG 60
18x ER-IM launcher, RNG 60
8x fleet defense 130mm massdrivers, RNG 35
10x 50mm multi-barrel massdrivers, RNG 20
Description:
In order to counter the Separatist forces’ initial numerical advantages against us, and to minimize destroyer corps casualties, a pair of Type 16 orbital defense satellites, and an experimental strategic electronics warfare system was attached to a Kaghan reconnaissance carrier undergoing overhaul.

The Dragon concept involved direct-fire offensive capability across entire planetary orbits using all available target acquisition methods including optical and emissions-homing. With the Alanat Windjammer electronics warfare system (based off the Invasion era reconnaissance carrier payload), the Dragon will additionally function as an intelligence gathering and electronics suppression platform. First deployed in combat on Day 23 of the C-42 campaign (“Harbour of Tears” scenario).

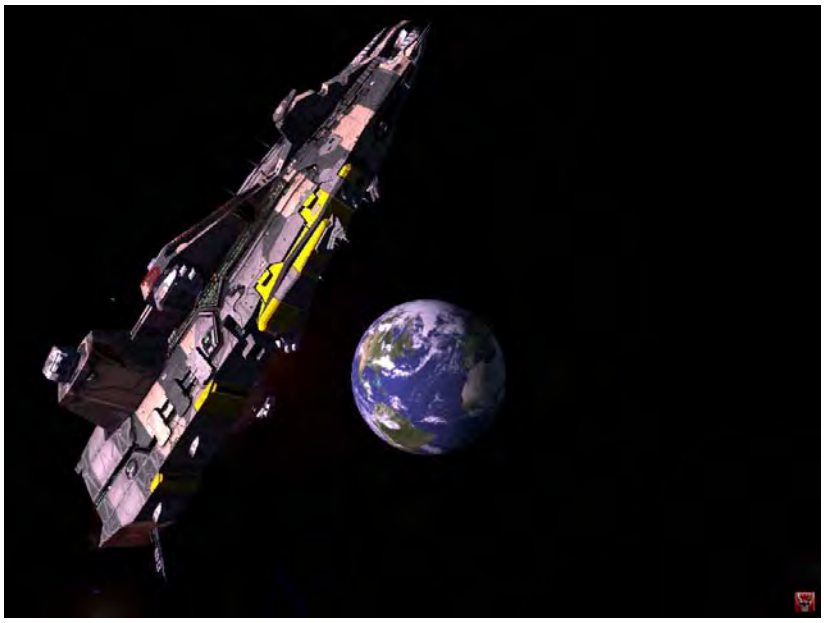
4. CM 200 Moonlight Calamity



Mass: 200000 tons
Range: Interstellar
Roles:
(as designed)
Commerce raiding and covert operations
Vulnerabilities (against):
Plasma and nuclear weapons
Loadout:
12x "Carriage of Woe", 24x ASTM or 48x ER-IM each, RNG 450
4x 275mm massdrivers, nuclear payload, RNG 60
4x twin 2 GW plasma cannons, RNG 60
12x fleet defense 130mm massdrivers, RNG 35
8x 50mm multi-barrel massdrivers, RNG 20
Description:
Someone obviously decided to get creative with a lone Hiigaran interstellar transport ship we captured. Don't even mention the cargo containers as mass-attack missile pods.

The Moonlight Calamity for a time performed its designed commerce raiding role with distinction but with increasing numbers of deep space convoy escorts, commerce raiding with converted transport ships today is a highly risky prospect. She is today a task force flagship and underway replenishment vessel.

5. CA 450 “Fraulein Alptraum”



Mass: 450000 tons
Range: Interstellar
Roles:
(as designed)
Command ship/assault cruiser
(additional, as required)
SDI carrier
Vulnerabilities (against):
Strategic beam weapons
Loadout:
2x 12MT HV/ER-ASTM multiple launchers, 18-round cells, RNG 400
2x quad 6 GW pulse laser array, RNG 300
16x 3MT SR-ASTM launchers, 24 rounds per launcher, RNG 60
8x ER-IM launcher, RNG 60
2x twin 2 GW pulse plasma cannons, RNG 60
4x quad 2 GW plasma cannons, RNG 60
4x twin 150mm hypervelocity fleet defense massdrivers, RNG 160
16x fleet defense 130mm massdrivers, RNG 35
Description:
Where I got this ship you needn’t concern yourself with. What you need to concern yourself with is the protection of this vessel, as she represents our operational reality of our cutting-edge technology.

This ship has seen action against Hiigaran warships and has proven itself far superior to the Prince of Hiigara class battlecruiser in terms of maneuverability and main weapon firepower.

Orbital Assets (Space stations and satellites)

1. Nashiir Orbital Defense Station

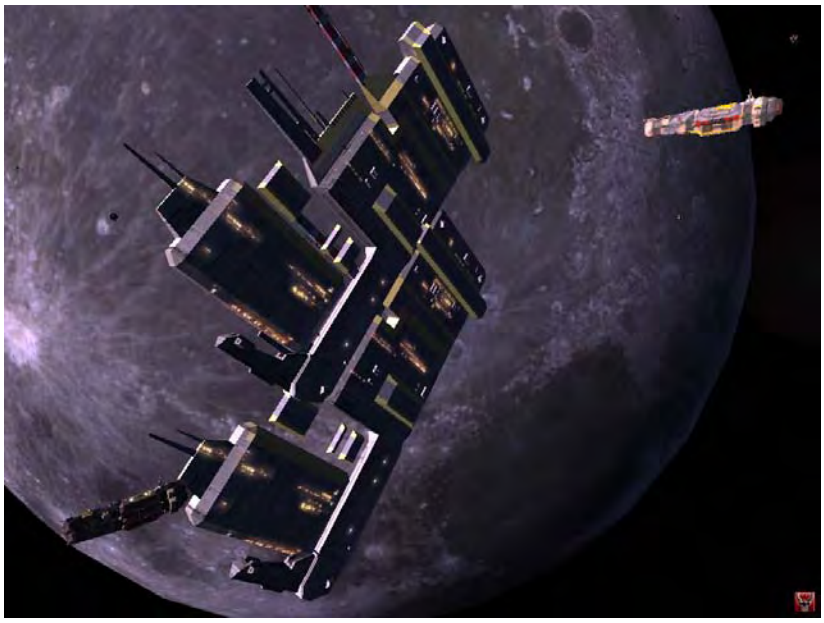


Mass: 741500 tons
Vulnerabilities (against):
Strategic beam, nuclear and plasma weapons
Loadout:
8x 6 GW heavy pulse laser arrays, RNG 300
4x 12MT 2S-ER-ASTM launchers, 9 rounds per launcher, RNG 200
4x twin 2 GW pulse plasma cannons, RNG 60
6x fleet defense 130mm massdrivers, RNG 35
Description:
Such massive installations serve as headquarters for system defense forces. Usually located in around developed planets and orbital industries, the presence of such a station also serves as a indicator of prosperity.

The “mushroom”’s main assets are its extensive sensors, interstellar communications arrays, and starship berths. Vessels under 200m in size may dock in its internal hangars while larger ships are berthed at the “arms”.

Such stations may house well over ten thousand people if used as emergency accommodation, and if properly supported by defensive ships and satellites, may withstand naval assaults with ease.

2. Scaffold Station



Mass: 20,000 to 200000 tons
Vulnerabilities (against):
Strategic beam, nuclear and plasma weapons
Loadout:
Usually “peaceful” payloads, though some have been known to function as surveillance or electronics warfare platforms.
Description:
Modular stations such as these are cheap and easy to construct for whatever purpose. Multiple scaffolds may be joined to one another to form larger space stations.

We commonly use these as temporary off-ship accommodations, communications relays, orbital storage facilities, or sensor outposts.

3. Orbital Defense Satellites

Loadout:
Variable
Description:
ODS satellites come in various shapes and sizes, the most powerful of which is the Type 16 P strategic lance unit. ODS units comprise static components of global defense networks around planets, or as point defense systems deployed around non-maneuvering installations like space stations.

They are very cheap to produce, being no more than a weapon system and station keeping thrusters, but also extremely vulnerable to attack – ODS commanders will always keep their sensors on passive mode to preserve low observability and feed them targeting information through network-centric measures.

Weapon Systems

Note that this section exists more as a glossary of terms than anything else. You all should be familiar with weapon systems of the real world, anyway – or else take a look at the reference section on www.fas.org to see how weapon systems' concepts could be written. Most things that find their way into PDS have a place in the military history and future of our real world.

1. Ballistic

Ballistic weapons are simple in principle – intercept an enemy by projecting a round towards it. Spaceborne ballistics weaponry however typically have very short effective ranges against maneuvering targets, which the light speed "muzzle velocity" of a directed energy weapon counters. A so called "hypervelocity" railgun with a 30km/s muzzle velocity is horridly slow compared to a laser or particle beam. Even a single second of time to target can allow it to perform evasive action. Guided terminal attack munitions (basically a missile as the cannon payload) and computerized directed fragmentation munitions decrease an enemy's capacity to evade a ballistic weapon attack, but only marginally in the vast expanse of space.

All PDS-AS ballistic weapons are termed massdrivers, and they may use the following technologies:

Coilgun
Railgun
Chemical

A coilgun or CG employs an electromagnetic coil in accelerating a projectile out of the business end of the tube, while a railgun or RG accelerates it between two rails, in physical or electrically conductive contact. RGs can achieve higher muzzle velocities but cannot be used for rapid fire – they tend to wear out their rails. Large-bore semi-automatic naval guns can thus be assumed to use the RG system at least half of the time.

Chemically powered weapons are still effective for short range work in space (as the shell's propellant is entirely self-contained, requiring no atmosphere) but are only used in specialized conditions where their strengths are most apparent, for instance, in rapid fire close in weapon systems. Use your imagination!

Listing of ballistic weapons in V7.6:

Massdrivers (MD)
MD50
MD130
MD275

Hypervelocity Coilguns (HVCG)
HVCG50

HVCG150

MDs generally have muzzle velocities in the range of 6-12km/s, while HVCGs are assumed to be the state of the art in ballistic weapons technology, firing projectiles at up to 35km/s velocity. CG system is used here because the tremendous friction of the RG is known to vaporize shells from high velocity deployment, even for today's versions.

While a large solid slug is utterly devastating to whatever stands in its way, the larger the shell gets the slower it could be projected given the same accelerator length and power. Nuclear payloads are preferred for large-bore MDs (the rare MD275 in the AS universe) and are used mainly for defense suppression. Capital ships also carry "utility" payloads for at least one massdriver in their inventory of armaments, sensor probes, target drones and the like.

The dominant MD type is the 130mm "fleet defense" weapon (MD130), which operates in a principle similar to the AHEAD gun system today (Google it, no spoonfeeding). This system employs a computer controlled fuzing, individually programmed for each shell, to deploy a veritable cloud of flechettes in the path of a target. It is very efficient in the anti missile and small craft role.

HVCG technology was derived from the desire to counter strategic range missile and drone attacks, where the limited muzzle velocity of conventional MDs did not afford their charges much in the way of reaction time or effective interception range. Furthermore it was and still is very desirable to destroy a strategic missile before it deploys its multiple terminal attack vehicles, rather than after (you would then have multiple targets to shoot down).

HVCGs are also highly effective against all but the heaviest capital ships. While hypervelocity projectiles are theoretically inefficient against armour due to extreme-pressure fluid mechanics, most spaceships outside of those intended for close assault duty would not be built as armoured boxes for various reasons. One of which is the mass. A warship with a poor thrust to mass ratio is simply inviting ballistic weapon attacks.

Regardless of technology, MDs and HVCGs have a maximum of 50% efficiency in hit percentages against maneuvering targets, as your fire control system would, all the time, have an infinite number of firing solutions against an enemy vessel conducting evasive maneuvers. The FCS would deploy a spread of munitions to intercept the target at the most probable vectors of evasion but that is merely guesstimation. Terminally homing munitions, of course (MD275 is large enough an investment to warrant development of TAMs), increase the probability of a successful intercept by a certain amount reflected in the weapons configuration files.

MDs are employed in concert with energy based defenses for those well-endowed first rate combatants – anti missile lasers destroy strategic attack projectiles long before they get into range, while HVCGs, MDs and interceptor missiles form redundant lines of defense. Here in frontier space, SDI craft are

commonly used as beam anti missile platforms for the many ships that still do rely on ballistic weapons for missile defense.

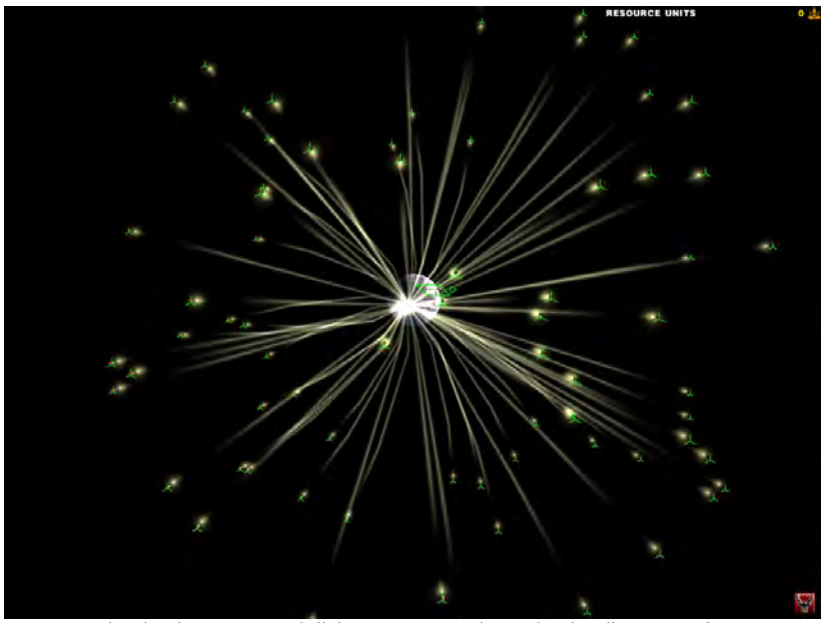
2. Missile

Termed “self-propelled ordnance”, missiles generally have the advantage of salvo fire capability over massdrivers. The most effective devices here combine high velocity massdriver projection with a rapid multiple launch missile system. Such systems are the cream of the crop, and parallel-massdriver banks are both bulky and very expensive. (Think of those WW2 destroyer torpedo tubes here)

Below are the various missile types in AS from least to most capable:

ER-IM (Extended Range Interceptor Missile)
SR-ASTM, MT3W1 (Short Range Anti Starship Missile, 1x 3 megaton nuclear warhead)
ER-ASTM, MT3W1 (1x 3 megaton nuclear warhead)
2S-ER-ASTM, MT12W3 (2-stage, 3x 4 megaton nuclear warhead)
ER/HV-ASTM, MT12W3 (Extended Range Hypervelocity)
XL-ASTM, MT50W1 (Large 50 megaton strategic attack missile)
“Carriage of Woe”, containerized detachable weapon pod used for saturation bombardments (24x SR-ASTM or 48-72x ER-IM)

The **ER/HV-ASTM** is an example of a massdriver-missile system hybrid, mounted on the CA450 *Fraulein Alptraum* as her main bow battery. The objective of such an unconventional unguided missile system is to seed a designated area with as many warheads as possible in the shortest time possible. Multi-vector attacks are commonplace with such a system, in order to neutralize a target’s evasive action. It is simply a multiple-launch version of a massdriver based terminally guided attack munition concept.



A containerized weapon pod disintegrates to release its deadly cargo of ER-IMs.

3. Energy

Energy weapons here may be roughly divided into two “schools” – beam and non-beam weapons

Beam weapons employ a continuous wave of energy for damage potential while non-beam weapons function like energy-based massdriver systems (ie, plasma cannons).

Plasma guns are utterly devastating weapons and have a higher “muzzle velocity” to massdrivers so enjoy greater reach, and may be found in reactor-feed or self-contained versions. Self contained variants have the benefit of lower complexity and cost but are “ammunition” based systems that expend reactant mass for plasma generation. The most common of such systems is the “laser-plasma” or “fusion” cannon, which converges multiple lasers powered by the ship’s service generators onto a pellet of fusion-engine fuel.

Surrounded by a magnetic bottle, the “micro sun” of the plasma globe is then accelerated through a coilgun system towards the target.

Given the risks involved in physically channeling superheated plasma through a ship’s hull to its weapon batteries, the ancient reactor-fed plasma weapon systems, dangerous and difficult to maintain, have long ago fallen out of favour in the frontier regions of space.

Beam weapons have two sub-types – laser and particle.

Skipping the scientific talk, lasers have the longest reach of all the AS universe weaponry while particle beams have more damage potential but shorter range (compared to a laser of similar capability).

These dominate the battlespace, practically unstoppable beams reaching out at the speed of light out to over 10,000km (in real world scale) and are mandatory components of a capital ship’s armaments.

The range of beam weapons is dictated by the following criteria:

How far out does the beam dissipate? (limit of beam focusing/projecting ability)
How far out can you ensure a certain amount of power reaches the target to actually damage it/achieve the desired effect of firing? (attenuation)

That said it is possible to fire a beam weapon from way outside its physical-damage range, in order to, for example, force an enemy ship to shut down or stow its sensor arrays or suffer irreparable damage.

Credits

That's the end of my first complete attempt at a full-sized piece of documentation for PDS.

For a time I wanted to write a full list of "who does what" for this gargantuan global-scale effort to improve Homeworld 2's gameplay…but later decided that simply stating the basic rules of PDS progress would achieve the same.

It is the community, which is responsible for PDS's success and continued survival against the test of time (games *do* age fast nowadays) and competition.

As the creator of Homeworld 2's first successful major modification effort I would like to say that I am deeply impressed by the diverse range of talents exhibited by the combined Homeworld 2 Community, whose forums may be found at http://forums.relicnews.com.

Just as well in helping me get both PDS-AS 7.6 and this manual out I would like to thank the Drowtales community (http://www.drowtales.com) and in particular **Starlitdragon** for allowing me to successfully restart my creative engine, which has largely lain dormant for the past several years.

Indeed I was quite stuck midway through this version's development due to the stresses of the mortal realm and a chronic lack of inspiration. Thanks mostly to you, those problems have been put aside.

I would also like to mention the excellent men and women of the **Singapore Armed Forces Centre of Leadership Development**, and the crew of **Sports Chanbara Takushin-Kan (Singapore)** – the former for respecting my interests and personality in the course of our professional dealings, and the latter for their seemingly limitness patient in developing my martial prowess.

Those of you who think that swordplay and naval warship dueling are totally unrelated would probably need proper motivation! In both combat environments, granted, they are at two extreme ends of both scale the technological spectrum – but you'd be surprised at how similar they both are in terms of basic principles.

Especially with my trademark "personalities" for certain favored ship classes – well, see for yourself. Tell me if a cruiser dogfight doesn't resemble a "dance of weary blades". PDS-AS 7.6 will have been released as of today, the third of April 2006, one week ahead of schedule. While various features of AS were left undone in this release, this is deliberate – if the community effort in Hiigaran and Taiidani order of battle and ship construction would be successful, we will end up with realistic depictions of various military organizations totally alien from one another. In the real world, there is no such thing called "game balance". Neither would it be necessary in the AS universe, if standards of believability were adhered to. That's where roleplaying comes in.

And finally for the all the aforementioned parties – you all have a larger place in my heart than what I would ever bring myself to express. Again, my thanks.