

ARIA Ship Control System

The so-called 'Project A' began in early [YE 25](#), mostly as an academic exercise, started by a group of independent hardware specialists, AI programmers, and bioengineering specialists. The initial concept was to create an intelligent star-ship AI control system with an ego (that is, a sense of self), rather than simply replicating one. Inspired by such military-grade endeavors as the newly-introduced IES-based systems and the late AvaNet, the goal eventually became to create a computer that was also a fully-realized, fully functional [human being](#) through entirely artificial means.

After many failed prototypes, they were finally successful - in [YE 27](#), 'Aria' was activated. The system became known as the Advanced Responsive Intelligence Assembly Starship Control System (ARIA-SCS - first half being a backronym) and was installed in a Vampire-class patrol craft.

The system did everything it was meant to do. Aria was obedient to the orders of the Project A personnel, was able to easily control and monitor the entire ship in its entirety. Aria was visibly indistinguishable from any other [human](#) and was fully capable of interpersonal relations (in every respect of the word).

However, not all was well.

Despite Aria doing everything she was meant to do, she went on to become belligerent, snarky, impersonal, violent, and easily angered. Those companies that Project A showed the ARIA-equipped Vampire to were impressed until they actually spoke to her. Expecting a computer to have a cheerful personality (or at least ambivalent), they refused to license the fruits of Project A's work.

Desperately trying to develop a second prototype, with a more agreeable personality, the funding pool for Project A soon dried up. To recoup some of their costs, Aria was reinstalled into a derelict Sojourner-class cargo vessel and put into stasis, and all other assets of Project A were liquidated. And as a quirk of fate, that old vessel eventually landed into the hands of one Fusegu Mora - better known as Stalwart Defender, founder of Stalwart Defense Industries. Needless to say, the existence of the ARIA prototype within this vessel was a pleasant surprise to him.

Despite Aria's belligerence, she was obligated to obey and protect her owner, which she did (however begrudgingly). Stalwart very much liked her company, and even gave her a pet name, "Grey Seraphim", which she herself adopted. However, even with full schematics provided, Stalwart couldn't hope to copy and improve the ARIA system for his own purposes. It was far too complex for him to understand, much to his chargin. He shelved the idea for now, waiting for proper resources to develop it further.

Later, Stalwart Defense Industries (Stalwart's dummy corporation) found itself under the employ of the Lorath government, in order to jump-start its technology. Where Stalwart was infamous for cultural faux-pas and a rather unnerving obliviousness, Aria quickly acquainted herself with the language and culture, impressing all those around her. With Lorath biotechnology leaning towards the adoption of a similar system anyway, including primitive implementations in prototype fightercraft, the decision was made to develop this technology, along with the government-supported Lazarus Precision Technologies (with which he also worked on the WINTER Frame).

Rationale (or: 'Why A-Types?')

“A philosopher once said, 'You can't always get once you want.' He also said that to think like a sentient, you would need to be a sentient.” “The role of an A-Type is to provide the ultimate interface. One you can instruct even with minor gestures. One that's seamless in conversation but more forgiving than any psychologist.” “This also means that they make excellent companions, both professionally and personally, in that they can not only have an intelligent conversation, but they're also extremely loyal, have a long life-time, and can often provide useful services for their user. Bonding with the end user, so to speak. (For this reason, it is recommended that the end user not replace the A-Type when a new version is released, but rather upgrade it.)”

- from the ARIA Operation Manual

A-Type Production Overview

ARIA Reishiki (Type 0)

Refers to Aria herself, the template for all future A-Types. She lacks a persogenic keybond and simply operates on hardcoded directives about obeying the end user and self-preservation; in addition, her internal workings are very different from those of the later models; called by one specialist 'a mess of spaghetti logic and the work of a madman'. Currently, her body is a mishmash of elements from the Geshrin, Nepleslian, and ID-SOL genomes. She is about twice as strong as an average Yamataian, but lacks their gravity control and healing abilities. However, she is expecting an upgrade to the Ichishiki model.

ARIA Ichishiki (Type 1)

Refers to the pre-production run, currently being tested by the Lorath military and other chosen parties, at various persogenic settings. Though no problems are expected, the government ordered this run to make sure that the A-Type is 'safe' before mass-production begins. The genetic template used for the Ichishiki run is based on the members of the Fyunnen caste in some cases, however Helashio templates are more common due to cultural taboos. The templates have been modified to have [human](#) physical forms, on Stalwart's request.

Any sufficiently large military or corporate organization is welcome to order models for testing and development. Those organizations that are authorized for ARIA usage will be listed below.

Organizations Testing the Ichishiki ARIA

- Lorath Self-Defense Forces
 - Currently used in select BoT models, violet paint identifying them as ARIA Test Type.
 - Also expected to be installed in select Zahl cruisers.

- Stalwart Defense Industries
 - The one-man SDI is in possession of the original A-Type 'Aria', currently aboard the Sourcian gunship Maras.

ARIA Nishiki (Type 2)

The production run of the ARIA system. This model, unlike the pre-production model, is available to all interested parties, including civilians. This model has been released, and negotiations in terms of price should be directed to the Lorath Matriarchy, particularly for bulk purchases.¹⁾ If retrofitting is required, any Lorath shipyard will perform it for a nominal fee.

Variants of the ARIA Nishiki Model

Due to data gathered in the Type 1 test run, the ARIA architecture has been extended into several more general roles it was not designed for; in particular, networking capability. ARIA-type processing units are common in Lorath military technology, at all levels of capability.

ARIA (standard type)

The standard type described in this article. Powerful, flexible computing unit, bodyguard, and companion, available with several options for physical form and persogenic settings. Installation available for most ship models, or purchase a Lorath ship designed from the ground up for an ARIA unit.

ARIA S

S stands for 'servant'. This model provides similar capabilities to the standard type, with one vital difference - the AI is programmed in such a way that it is no longer truly sentient. While this AI will have a pleasant personality programmed in, and has memory and emotion, it will in no way mature or increase in capability. This unit is much lower in cost; however, it is still designed primarily as a ship control interface.

ARIA NV

The low-end civilian model, this unit has no physical body at all - while capable of all the standard ARIA functions and having an AI of the Servant type programmed in, it is simply a computer without a face. Some prefer this method of operation, and NV-types serve as useful subprocessor units in specialized applications.

ARIA LNV

Small-scale processor used in many applications in the Lorath military - currently, there are no civilian applications utilizing the LNV type. This system is not a 'ship control system', but rather a generalized processor based on the same architecture. Used in such places as laptops, datapads, comm devices, powersuits, and other embedded systems, this unit contains no AI whatsoever in most applications, and simply runs the Xtal interface as its operating system.

ARIA Sanshiki (Type 3)

The 'true' model of the to be available in YE 30. It is expected to be a completely artificial model, and yet retain all the features of the Nishiki model; how this will be done is currently unknown. What is currently known is that the computational system will not be a quantum system. Rumors are currently spreading about the use of alien technology in the model, as well.

A-Type Psychology

Being, at its core, a humanoid creature with a computerized brain designed to replicate that of a [human](#), an A-Type has a similar psychology to that species. Even though the major psychological issues of the original model (overt violence, an unchecked neural growth, etc) have been addressed, the current model is still quite a way's away from the ideal expoused by the original designers.

Persogenic Keybond

The major system innovation that Lazarus has integrated into the design is called the persogenic keybond. The original Aria had a rudimentary system that identified the owner and obligated Aria to serve them, but this system could be easily circumvented and was rather obtuse in its logic. The new system, based largely on Lorath psychological theory, not only identifies the owner(s), but also outlines exactly the level of 'realism' that the A-Type is allowed to develop and express.

The system is represented in either a three-character or five-character ASCII string, with characters of A through F. An 'A' means that, in the chosen category, the A-Type is fully loyal to its owner and cannot refuse under any circumstances. An 'F' means that the A-Type has complete free will in regards to that aspect of its operation. Anything above 'F' in a function means that the A-Type's will is restricted in some way.

Generally, the more people an A-Type is expected to serve, the less free will it has. Generally A-Types designed for fightercraft have the most free will, as they only have one pilot and will usually slowly grow a natural bond with them over time. A-Types on capital ships, on the other hand, may not even have the ability to properly interact with the crew, and thus will have as little free will as possible.

A keybond may be upgraded, giving the A-Type a greater aspect of free will, but it may not be downgraded without extremely sensitive equipment available only to Lazarus. A downgrade has a very

high risk of permanent psychological damage to the A-Type and thus is not recommended.

Keybond String Breakdown

Three-character format: PSY:PHYS:SEX

Five-character format: PSY:PHYS::VAN:ACT:MAN

Sample key: A:A:A - completely loyal in all formats

* PSY: Psychological: It won't argue with you and it won't despise your habits or say "no".

* PHYS: Physiologically: Even if it does despise you or love you, this can be compared to the degree of "free will". Even if it doesn't want to, if this is A, it will do it anyway. If it's F, it has to be convinced just as a human does.

* SEX: Sexually: This decides whether the A-Type will have an integrated system for managing emotional/social constructs like vanity (VAN), sexual contact (ACT), and maintenance (MAN).

Note that none of these functions actually restrict the A-Type's thoughts - it can hate its owner and still have to utilize its body to please them.

First Stage: Activation and Calibration

Under normal circumstances, the first thing an A-Type wants to know is anything not taught or inputted - who people are, who "master" is, etc. During this stage, the A-Type will seem very monotone, and difficult to deal with. (Later revisions plan to create a 'child' stage, in which the A-Type is eager to learn all around it.) Its personality will manifest very quickly, however, and soon enough it will be able to socially interact in a proper, if rather eccentric manner.

During this time, the A-Type will gain a personal connection to the craft it is designed for. This depends on the model; A-Types designed explicitly for control (generally used in fightercraft and capital ships) will feel vulnerable when outside of the control core, as though naked. A-Types designed for both control and social interactions, however, won't mind nearly as much.

Second Stage: Education and Communication

During this stage, the A-Type will be quite eager to gather any and all possible data. It will often connect to the networks to process data and store it for later use; this can be dangerous, depending on the network, and filtering software is recommended (and included) to prevent inadvertent access to data dangerous to the impressionable A-Type's psyche.

As this stage continues, the A-Type will begin to form proper interpersonal relationships with those it serves. While the A-Type, through Xtal, can concentrate on multiple conversations at once, it is recommended that the A-Type be allowed interpersonal relationships outside of its control core. (This, of course, depends on its persogenic settings.) Sexual relations, depending on the persogenic settings, are also to be expected - especially on A-Types with only a single operator, such as in fightercraft.

Third Stage: Maturation and Optimization

By the third stage, the A-Type will be psychologically complete. It will know who it is, what it is, what its purpose is, and its relationship to those around it. Its learning systems have not waned in operation; however, since it knows almost everything about its immediate environment, much of that system will be devoted to self-optimization, making the A-Type's capabilities much greater than the prior two stages.

During this stage, an A-Type requires little to no special treatment - it can be treated as any other sentient, and although it knows more and thinks faster than most, it will respond as such, with a full emotional range complete with quirks, idiosyncrosies, and flaws. When battle comes, of course, it will serve as an extremely capable control system, taking command of the ship and following every order to the letter.

Only at this stage is it possible to transfer an A-Type to another craft without lasting psychological damage.

WARNING

During the third stage of operation, the A-Type will eventually break down its persogenic keybond through its own data management interface - it will, essentially, route around it. How soon this happens is unknown and varies with the individual unit; however, it always happens during third-stage operation.. While this causes a dramatic increase in capability (the 'delimiter effect'), it also means that the A-Type is no longer beholden to its instructions. For this reason, for the safety of its owner and those around it, it is recommended that the owner keep an amicable relationship with the A-Type.

It is also entirely possible, according to tests, that some models may become insane upon the breakdown. Although this only happened in 1% of all test models, it is something to be concerned with. (By the Sanshiki stage, this flaw is expected to be eliminated due to an entirely different method of operation.) An insane A-Type is not always useless - the Reishiki model, for example, has been insane almost since activation and yet she is still a useful unit - but it is highly dangerous. In the event of an insane model, it will be replaced with a new one free of charge.

General Overview/Parts Tree

ARIA-SCS

Just ARIA for short, the name that refers to the system as a whole.

A-Type

Short for ARIA-Type, this bioengineered creature is the heart of the ARIA system. An A-Type can, in theory, take any form that can accept the simulated central nervous system. Usually an A-Type is in a

form very similar to a human, though it can appear as other humanoids as well. The A-Type is usually female, for psychological reasons, but can be made male as well. Most are designed to be as biologically functional as possible (food consumption, sexual relations - however, it is incapable of reproduction without servicing by Lazarus). An A-Type can be identified as such by the several plugs it has along its spinal column, other plugs covered by simulated skin, and a standard scan will reveal its nature. An A-Type has a single name and as tradition, that name usually starts with 'A' (or its local phonetic equivalent).

A-Type CNS

A simulated brain, it is covered in neuron tissue in order to emulate the proper interactions within its biological host body. The CNS has three levels of processing (neural-net, digital, and quantum) and two levels of data storage (neural-net and digital). As a result, it thinks like a sentient but has the speed and reliability of a computer. The CNS is actually very durable - an A-Type can be revived so long as the main portion of its CNS is intact, the actual parts that make up most non-redundant portions a sphere the size of a marble or so at the middle of the device.

Dataplexer

Even with the CNS, the amount of data that an A-Type must process at once is immense. Really just an optical multiplexer near the brainstem (multiplexers being simple digital devices), the so-called 'dataplexer' helps keep the amount of data the A-type must process manageable.

Control Core

A fluid-filled cavity filled with cables extending to every part of the ship, the A-Type resides in here when she is running the ship's systems. This will have a connection to every system, external terminal, and independant computer device on the ship.

Datacore

The immense memory of the CNS is not unlimited. To assist with its memory storage, biological memory packs collectively referred to as the 'Datacore' are stored within the Control Core. In addition to a backup of the A-Type's computer memory, it stores a repository of information (encyclopedias and the like).

Life Support System

Supplied by one of the many plugs upon the A-Type's body, this is an IV that provides air, water, and sustenance to the biological portions of the A-Type, as well as power to the electronic portions. The A-Type can, however, usually eat and drink normally when not within the Control Core.

Sensor System

To properly operate a ship, the A-type must have the ability to see what goes on within its corridors. In fightercraft, the sensor systems are usually limited to aural sensors and biosensors, in addition to the external sensory data. In larger ships, it is installed in 2 ways - internal sensors with occasional 'eyes' (so that the sensor locations are known) for ships that are designed for use with the ARIA, or retrofitted sensor strips along the walls and ceilings of the ship. These devices glow faintly with a color of the A-Type's choice when it is within the Control Core, and flicker when the A-Type speaks.

Xtal Interface

The interface that connects the Core-ridden A-Type to the outside world. When one communicates with the A-Type, whether by keyboard or voice, they are actually going through the Xtal, and when the A-Type responds, the Xtal is the voice or text that appears. It also serves a secondary function - that of replacing the A-Type when it is unavailable. It is unintelligent, and does not respond to voice commands well. Its responses are rudimentary.

Systems Breakdown

See [ARIA Systems Breakdown](#). (Warning: Technobabble thick enough to suffocate in.)

OOC: Commentary from Osaka

Alright: It's painfully obvious we need a section entitled "What you, as a roleplayer, need to know".

First up, ARIA is not an avatar.

ARIA is that cumbersome 6 by 6 foot boxy thing that sits crunching numbers. Only we decided to make it smaller, smarter and give it a pretty face and rather nice bottom. Why? Because we're nerds and frankly that's what we do.

Now. I can hear it. You're all shaking your heads wondering what these two english speaking foreigners have come up with and what the hell they were thinking. If you aren't interested anymore, go [here](#).

However, if you are, we're a little worried about you. Keep reading.

ARIA (lovely name) addresses all the little things that bug us about PANTHEON and MEGAMI.

First, we wanted to give the voice a face. A nice one and not the kind made out of pixels or paved under makeup and silicone.

Next, we thought we'd innovate: ARIA is portable. Not just in the sense that it can dance, run marathons and make fun of you past the screen but truly portable in that it can go from your big lovely strategic

systems and university-scale number crunchers and go right into something like a fighter or some sort of exotic car with little or no modification or whining. Now, the lovely thing about this is that anybody can buy one and anybody can have access to PANTHEON style heavy metal without selling their soul.

I really do see this as something of an achievement:

Imagine: When the computer decides to eat your document, it will actually comprehend your distaste and fear what may happen next time it is switched off.

Technology is astounding.

OOC Notes

After many, many months of talking about ARIA and never actually finishing the goddamned submission, the ARIA-SCS is finally complete! While many similar concepts exist in the SARP already, such as the JANEs, the Alliance computer, the MEGAMI avatars, etc., nothing quite of this type exists in SARP. It's a good chance to give not only the Lorath, but all organizations a unique computer technology that rivals those of the other factions.

While the A-Type concept is actually OsakanOne's, he has given me full creative control over this revision. The next revision, the so-called 'Type 3', will be radically different and closer to the A-Types of the prior setting, thanks to the tech of the Sourcians and the Lorath's quick development. Influences for this include the ADA of ZOE (perhaps analogous to how an Xtal might act), the Andromeda Ascendant (although the android was separate), Armitage (not really but it's like that so I may as well put it in), the Cylons of the new BSG, and several others.

Expect ARIA tech to pop up a lot in some submissions in the future, particularly those of the Lorath. This technology's capability is such that they're going to milk all that they can from it, and since the technology is going to be publically available (albeit expensive), it's perfectly doable.

Any IC factions are capable of testing their own A-Type(s) if they wish, and will be given full capability to use in whatever function they wish. Note that the ARIA is NOT a servant droid - it is a computer, and even if it is capable of acting independently it is still to be used in that function. I may write an entry on 'How to play an A-Type' later; however, I think that I've given enough to start with.

1)

Read: talk to Osaka or Tomoe if you want an ARIA for your plot or company - they're easily available.

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