IRATA.ONLINE – A Community For Retro-Computing Enthusiasts

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What is IRATA.ONLINE?

IRATA.ONLINE is an on-line service aimed at all of the various retro-computing communities. It takes the recently released implementation of PLATO that the CYBER1.ORG community provided to the public, and attempts to build a complete community infrastructure around it so that vintage computer users can have something truly unique, and compelling, to connect to.

It all began with PLATO.

IRATA.ONLINE's roots, are in the legendary PLATO system. PLATO, which stood for Programmed Logic And Teaching Operations, provided a time sharing system originally chartered to investigate the potential for computers within the context of education, but the system and the community which grew up around it, proved to be so innovative, and resourceful, that it not only encompassed the cutting edge of education, but grew to create many firsts in social networking and on-line gaming, as well as providing a blue-print for collaborative software development through its built-in development environment.

PLATO started, at the University of Illinois in Urbana-Champaign, in 1962, initially hosting two terminals on the ILLIAC-I computer system, before scaling upward to more terminals, better display technologies, and ever faster computers from Control Data Corporation. It reached its peak in the late 1970s, with many thousands of custom made plasma flat-screen, touch screen terminals connected to Control Data CYBER super-computer hardware, providing graphically intensive multi-user full screen interactive content, very rare for the time, when most time-sharing systems were still operated by teleprinters, and video terminals (and dedicated video displays) were extremely rare.

Necessity and the Mother of Invention.

I mentioned the flat plasma panel display, in passing, but it is a fantastic example of the cutting edge ingenuity possessed by the PLATO team. One must understand, that to create a graphical bit-mapped display requires memory, and in the mid 1960s, memory averaged a cost of $4 a bit, not gigabyte, megabyte, kilobyte, or even byte, bit. This meant that the traditional mechanism for providing the needed memory for a graphical display would have made the video terminal itself prohibitively expensive. The solution was to create an entirely new display technology, which would not need to constantly be refreshed; once a gas plasma display has a pixel enabled, it stays enabled without further assistance, effectively merging

the display and its memory into one cost effective package, and making full screen interactive graphics possible on a per -dot basis, and without the drawbacks of a vector display. While most displays today now use liquid crystals, the modern plasma television and monitor displays descend directly from this technology.

Through PLATO's history, you can trace the beginnings of many of the things we take for granted today all in full use by the mid 1970s:

> **Discussion forums** (in the form of Notes, in fact Lotus Notes descends directly from PLATO NOTES) (first on-line in 1973)
> **Multi-user dungeons** (games like Wizardry, and Ultima owe their direct existence to Avatar, Moria, and other such dungeons on PLATO, which pioneered a first person display, multi-player interaction, character storage and development, and more.
> **The first multi-user chat system**, in the form of *Talk-O-Matic*, providing the ability for multiple people to talk, over multiple rooms, simultaneously.
> **The first 3D dog-fighting flight simulator**, *Airfight*, allowing multiple players to fly jet aircraft, shooting each other down, with realistic flight physics, thanks to the floating point capabilities of the 60-bit supercomputer it ran upon.
> **The first space conquest game**, *Empire*, grand-daddy to such games as Elite, and Conquest, provided a Star-Trek™ (trademark of Paramount) themed Space conquest game where you are pitted against other players to conquer planets and resources.
> **The system sported screen-sharing**, allowing users to send their screen, to other users, while talking back and forth, providing an early form of instruction and collaboration for instructors, authors, and students alike. This works from anywhere in the system, regardless where you are, in a menu, playing a game, developing some code in the system, it is ubiquitous.
> **PLATO not only provided a programming language to write new programs**, TUTOR, but it also provided a complete programming environment, even with dedicated visual full screen editors for code, for drawing new graphics, character sets, and even proportional fonts (in the form of line-sets). This was bolstered with excellent on-system documentation, replete with tutorials and examples so that anyone who wanted or needed to could write new software for PLATO.
> **PLATO terminals were very extensible devices**, which could connect to all sorts of external devices, such as the Gooch Synthetic Woodwind (GSW), which provided a multi-channel "sound card" for musical output.
> *And so much more.*

Many of these innovations, as well as the detailed history of PLATO and its community are detailed in an excellent book: The Friendly Orange Glow: The Untold Story of the PLATO System and the Dawn of Cyberculture by Brian Dear, who spent over a decade authoring the book; the result of which is an unbelievably engaging and inspiring historical tome. This book is the very reason that I became an active contributor to the PLATO community, and why I ultimately started IRATA.ONLINE, to bring this system to retro-computing users who otherwise would never have known about it.

All of which I have previously mentioned is present on IRATA.ONLINE, it is not a re-implementation of PLATO, but an actual PLATO system that is running inside an emulation of a Control Data CYBER-170/865 60-bit supercomputer, emulated by the excellent DTCyber emulator written by Tom Hunter. Various members of the CYBER1.ORG community acquired the requisite permissions to be able to allow others to use the content for non-commercial purposes, and to this end, I am providing this service, for no charge or am otherwise asking for any form of donation or making profit from the hard work that CYBER1.ORG pulled off to make this available for anyone who wanted to run their own PLATO system.

Where do I sign up?

You can sign up by going directly to the IRATA.ONLINE website. The website contains not only an overview of the IRATA.ONLINE service, it also provides everything needed to be able to access the service, and even includes a media library of demonstration videos showing various aspects of the service, as well as a detailed technical section which provides not only a complete description of the protocol used by terminal programs to access the service, but multiple source code examples of working terminals to be able to get a new terminal written for a new system, very quickly.

Terminals for Every Computer.

IRATA.ONLINE can be accessed by multiple terminal programs, and download links to all of the available terminal programs are provided:

PTERM, which is a modern terminal provided for Windows, MacOS, and Linux based systems.

Atari's The Learning Phone cartridge, for Atari 800 computers.

In addition, a new terminal program, PLATOTerm, is being written for multiple systems:

Commodore 64 (in testing)

Apple II (in testing)

Commodore 128 (in testing)

Atari 800 (a new terminal based on this code will be ready for testing soon)

TI 99/4A

Atari ST

Commodore Amiga

IBM PC (MS-DOS)

MSX

Acorn BBC Micro

Acorn Archimedes

ZX Spectrum

NeXT (OPENSTEP 4.2)

It is possible to port to all of these systems, because the terminal itself is being written in C, with all of the system independent code cleanly abstracted so that all that is needed are functions to draw to the screen, read the keyboard, and do communications I/O. All of the code development is being done on GitHub, and is open to anyone to be able to contribute, in the hopes of trying to get the terminals ported to these systems sooner, rather than later.

Signing up and logging on.

Signing up is as simple as pressing the pink “Sign-up” button at the top of the website. You are taken to a simple form where you are asked to choose a sign-on, and a group name. The group name is purely a label, and has no effect on what features of the system you have access to. It is eventually planned that the group name will re-order the menu system in certain places (such as Notes) to place system-specific notes files at the beginning of the list, as well as other features which may tailor the experience for a given system type. You can only belong to one group, so if you have multiple vintage computing systems, you will need to pick a favorite child. :)

You can also request an “Author” sign-on. This is a special sign-on in the “author” group, which gives the user access to the development environment of the system, so that they can create new software for other users of IRATA.ONLINE to enjoy. New authors automatically get lesson space, so that they can learn and experiment with TUTOR, while using the environment and its documentation to quickly get up to speed. Since authors are like any other user in the system, they can also ask for help from the system staff, or from other users, even going so far as to utilize the screen-sharing for instructive or demonstrative purposes.

Once the terminal is launched, and connected to IRATA.ONLINE, you are presented with a login screen, where you enter your sign-on information. Users are not asked for their password, until the very first time they log onto the system, at which time the system will prompt them to enter a password to use for future logons.

After signing on, users are presented with a menu system, showing not only where you are within the system, but providing the opportunity to either jump to other menus, as well as jump to various commonly used lessons of the system. Since PLATO utilizes not only keyboard, but also touch screen control, you can either use the keyboard or touch screen or mouse to select options. The different control methods depend on which terminal and peripherals that you are running.

Another aspect of the menu system (and in fact of many parts of PLATO) is the fact that the system can keep track of all sorts of information, such as the last position in the menu

system; so the next time you log back onto the system, you will be placed back into the same menu, again.

In addition to the menu items on each individual page, there are global menu items that are always present. The most important of these is Go, which you can use to quickly get to any lesson or notes file, where you know the name.

Lots of Special Keys.

PLATO terminals had lots of special keys, with names that usually indicated some sort of navigation function. There were also various keys that are not commonly found on today's keyboards. To compensate, modern PLATO terminals map these keys in various ways. PTERM and PLATOTerm for example, map these keys mnemonically, some examples:

PLATO Key	PC Key	Description
BACK	CTRL-B	Return to a previous screen or section.
NEXT	ENTER	Proceed to the next screen or section.
STOP	CTRL-S	Stop what you're doing. SHIFT-STOP is used to force stopping and is commonly used to exit lessons, and return to the menu, or log off the system.
LAB	CTRL-L	Go to a lab exercise or other special screen.
HELP	CTRL-H	Get Help.
DATA	CTRL-D	Enter some data, or execute a function.
TERM	CTRL-T	Execute a special "term" which you can think of as miniature programs and functions that can work anywhere in the system, such as "talk" to quickly talk to another user, or "calc" to provide a calculator.

You will notice that each of these keys are mapped mnemonically, to try and make them easier to remember. Many of these keys can also be used in combination with the SHIFT key to provide more functionality. Pressing BACK in the menu, will for example, go to the previous menu page, while pressing SHIFT-BACK will go to the previous menu.

Plenty of Places to Go.

IRATA.ONLINE's menu system has many possible destinations, and more are being frequently added. As previously mentioned, pressing a letter or touching a menu item will select and activate that menu item.

Lesson Catalog

The lesson catalog is the CYBIS lesson catalog, showing over 16,000 pieces of course ware that was developed for PLATO (which was marketed later as CYBIS by Control Data, so the terms PLATO and CYBIS can be used interchangeably, but I digress.), with educational topics ranging from high school biology, to, and I kid you not, "Nuclear Reactor Operation." The subject plane is extremely varied, and a user could spend a significant amount of time just randomly chasing lessons on a wide variety of topics.

The interface to the lesson catalog should be familiar to anyone who has used an early on-line encyclopedia or pre world-wide-web search system. You can search by titles, authors, or a specific subject or filename. Typing a query will present you with a list of matching lessons or categories that you can further dig down into, eventually arriving at a lesson abstract describing the lesson and providing bits of information about the lesson such as its authors. If you wish, you can then try the lesson for yourself.

Games

Let's be real. It's very much understood that the draw to IRATA.ONLINE is the potential for multi-user games that can be played on a variety of terminals, together. Many iconic game ideas first saw a prototypical form on PLATO, and many of these games are available on IRATA.ONLINE, for everyone to play.

The Games menu is unique to the other parts of the menu system in that selecting games show a description of each game when its letter is pressed. You can then press the DATA key if you wish to start playing the selected game. Some of the most iconic games of the system are described, below.

Airfight

Airfight is a 3D dog-fighting flight simulator written by Brand Fortner (who was attending University of Illinois at Urbana-Champaign, at the time) which runs in first person perspective. This is especially poignant when you realize that it was developed throughout two years starting in 1974. Multiple people all have the opportunity to split off into one of three squadrons, with the first two squadrons, the triangle and circle squadrons being combative, and the X-15 squadron being non-combative and purely observational. Once you select a squadron and have given a callsign, you must select a plane. Each plane has various maneuverability and armament constraints, all of which are detailed when you select a given plane. Once a plane is selected, and the desired armament and fuel amount specified, you

are taken to the runway to take off. It is most beneficial to use the HELP key to see the various keys for plane functions such as the throttle, stick, and rudder, and there is even a tutorial lesson that will show these features, in depth. Once you are in the air, you can utilize the map to find other planes, and proceed to dog fight. It is important to remember that you have a limited amount of fuel, and once you are low on fuel, to return to your airport and land the plane, to get more fuel. Once re-fueled, you can return to the dog-fighting action. X-15 observational planes start already in the air, and are not allowed to participate in combat, conversely, they are not allowed to be shot. Shooting your own squadron mates, or the X-15 planes will eject you immediately from the game.

Avatar

Avatar can be considered one of the grand-daddies of the entire MMORPG genre. The first version was released by Bruce Maggs in 1979, and continued to evolve over many years. The entire system very much is built around Dungeons and Dragons rules, where you define a character, and given a fixed allocation of points, assign those points to various physiological characteristics such as strength, intelligence, or dexterity. Once you have allocated your various physiological points, your character is stored and you are taken into the game. Initially you start in the city, where you can not only heal, but get weapons, attach yourself to guilds, utilize the bank to store items or cash, and other functions. Once you have utilized the city to outfit yourself (you should at the very least, pick up gloves, armor, shoes, and cap), you can subsequently go down into the dungeon to fight monsters, gather treasure, etc. The dungeon is made up of 15 seperate levels, each with their own maze layout, so plenty of space to explore. The closest immediate analog to Avatar, is the game Wizardry, where its author has mentioned Avatar as a direct influence, and if it helps, you can think of Avatar as a multi-player Wizardry.

Tankwar

Tankwar is the PLATO version of many hex-tile war board games, and many of the rules of those games apply here as well. You get to play against another player, select the appropriate war scenario (which changes the topology of the map and the placement of enemies), and then proceed to set up your various armaments. You can then make various moves in a turn-by-turn fashion across the terrain, employing a wife variety of classic wargame scenarios mostly based on World War II.

Board Games: Chess, Checkers, Go…

The various board games can be played either against the computer, or against other players on the system. The chess implementation is particularly flexible in that you can not only play live with another user on the same or a different terminal, but you can also play an off-line game by inputting moves, if so needed. You can specify the game tree depth for the computer player, to have a wide gamut of difficulty, and in the deepest traversal settings, the computer is exceedingly difficult.

Notes and Personal Notes

Notes has the distinction of being one of the very first implementations of discussion forums on a time-sharing service, first coming on-line in 1973. If the name Notes sounds familiar to you, this is because the product director for Lotus Notes, Ray Ozzie, started his career as a systems programmer on PLATO. While Ozzie did not write the first implementation of NOTES (That honor goes to David R. Wooley,) he did extend it, and implemented the first versions of it off of PLATO, to eventually become Lotus Notes.

System staff are continually adding new notes files based on user interests, and notes files can not only span any subject, but they can also have various access controls, limiting access to an individual or to a group of users (such as those working on a new project in TUTOR, for project notes).

Selecting a notes file will bring you to the notes index, showing all of the notes in a file. This is analogous to a set of topics in a modern forum system, and can be used in exactly the same way. Any particular note can have a number of replies, which, if present, a count is shown next to the title of the note.

Notes themselves, are a single page long, and can contain any characters that are printable on PLATO. It’s very simple, compared to modern forum systems, but very usable.

Each user has a personal notes file, which allows for users to send notes to each other on the system. If a user has at least one new note, a notification is immediately shown in the menu system.

Who would be interested?

IRATA is potentially interesting for a number of different groups of people:

Vintage computer users. Virtually every 8 and 16-bit vintage computer has some way to connect itself to the Internet, but you can't put a Commodore 64 onto Facebook, nor can an Apple II log onto Instagram. IRATA.ONLINE provides a place where every vintage computer user with a Wi-Fi MODEM, or ethernet adapter and terminal software to connect and play together.

Computer Archaeologists. PLATO systems have over three decades of software code, not only in user facing lesson content, but in system level tools, much of which lacks even a description of what is available and its functional descriptions, much less implementation details. These artifacts need to be discovered and documented. Lots of treasures are hidden within.

Coders and Artists. IRATA.ONLINE, being a PLATO system, provides a complete development environment, to create new programs (such as new games) that can be utilized by all users on IRATA.ONLINE. The various editors allow not only coders to get in on the action, but also artists.

Retro Game Players. - IRATA.ONLINE brings iconic and historic games to a wider game playing audience to play.

Part of a Bigger Community.

IRATA.ONLINE stands alongside CYBER1.ORG as a long-term PLATO installation. I consider CYBER1.ORG and IRATA.ONLINE to be two different towns on the same map, with different, mostly non-overlapping communities. While CYBER1.ORG is mostly comprised of PLATO system expatriates, and they cater to an authentic PLATO author experience for all of its users, IRATA.ONLINE intends to bring PLATO to a new group of retro-computing users, who, while they may have heard of PLATO in a historical context, may never have actually seen or used it. Having both IRATA.ONLINE and CYBER1.ORG enriches the overall PLATO community, strengthening it, and since both systems have their own software bases, each with different lessons, there are compelling reasons to visit both systems. And since CYBER1.ORG released the CYBIS distribution and its required emulation to the public, it is possible that other systems can also appear, each with their own unique characteristics.

Facilitating a Community

Providing the software and doing the requisite engineering work to build the system is only one part of the whole equation. It is my own intention to also function as a community facilitator for everyone else on IRATA.ONLINE. Do you have an idea of something you want to

make, with the system? I will help make it happen, and provide what you need to be able to take ownership of your idea, within the community.

There is also a conscious effort to provide workshops, and community gatherings to use the system, and to show how to make new things with the system. For the former, I intend to offer various workshops on how to create games and other types of programs, with the system, utilizing Google Hangouts. For the latter, regular community gatherings will bring people together to play games of Avatar, Airfight, etc… where we all learn together. Both of these types of things are coordinated via the IRATA.ONLINE Facebook page, as well as providing postings on the primary website.

What will come of this? Let's find out.