CorsairHMI Overview

10/10/2016

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Overview

Conventional operator interface programs (Human Machine Interfaces) are used to show industrial process information on a computer screen. They permit an operator to control that process. CorsairHMI can act as a conventional operator interface but it is not limited to that role. It is a comprehensive software system for factory integration projects performing tasks that would be difficult or impossible with other interfaces.

Features

Alarming

Sounds

Stuff about sounds

Trending

Data Logs

Plotted Data

TBT

Email

Corsair can be configured to send email messages when alarms are tripped, acknowledged, and reset. If these messages are configured with the proper addresses they can appear as text messages on cell phones. The message can include a browser link back into the Corsair system. When the cell phone user clicks on this link he can see the interface graphics and the entire alarm summary.

Corsair includes a system for scheduling what email addresses are used at different times and days.

Event Logging

The Corsair program can be used to log event records into a database. Each event record marks what type of event occurred, the date and time, and other information. Possible events include tripping, acknowledgement, and reset of alarms and calls, operator changing of values, and other things.

Event data is kept in a database that comes from a database program. The database program must be purchased separately from the Corsair interface program. Free versions of some database programs are available. Database programs that are currently supported by Corsair include:

Microsoft SQL Server

Microsoft SQL Server – Older versions

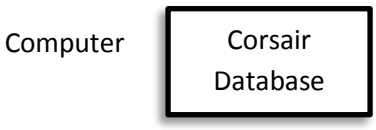
Microsoft SQL Server Express

MySQL

The Corsair program communicates with the database program using the SQL database language. Other SQL-compliant databases may work with Corsair but they have not been tested.

Computer Configurations

Event logging systems can be configured in several different ways. The simplest system involves a single computer running both the Corsair interface and the SQL database program.



The operator of this system can use the Corsair software to generate events for the database and to view the contents of the database. He does not have to leave the program to view the history of events.

Another configuration separates the Corsair program and the database program into separate computers that are connected on a network.

This configuration works exactly like the first configuration. Computer A may be a diskless computer with a solid-state drive that is not large enough to contain the database. Computer B can be an office-type computer in a secure area.

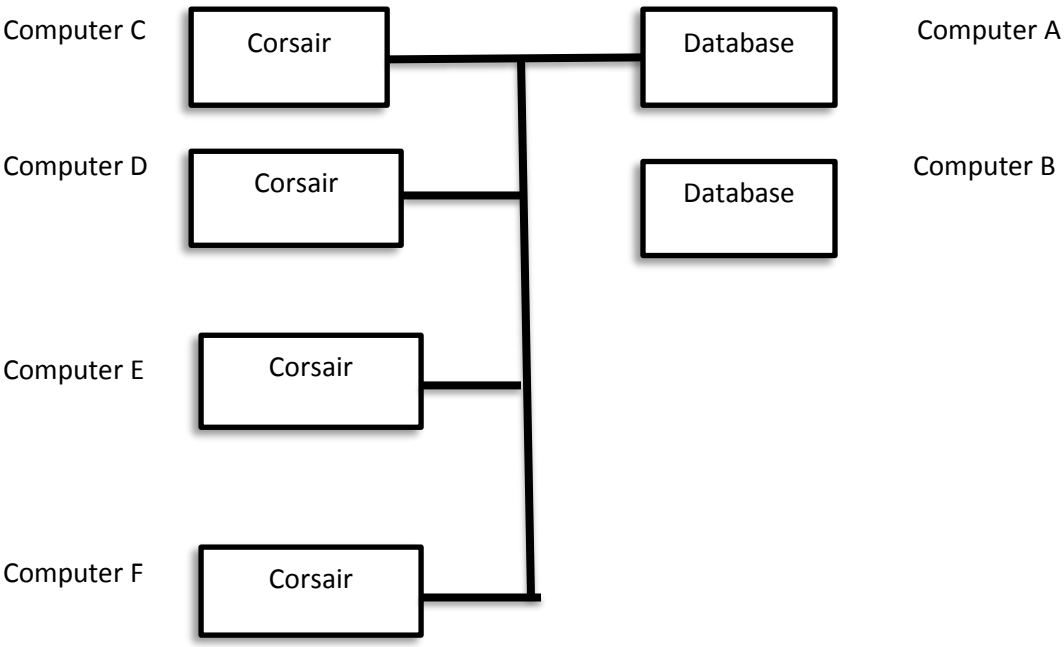
Another configuration has two Corsair nodes with a single database.

Both Corsair nodes can generate and view events using the same database.

A more complex redundant configuration of two computers uses two databases.

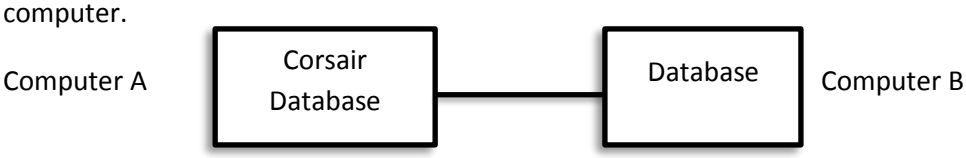
Computer A writes event records to both its own database and to the database on computer B.
Computer B writes event records to both its own database and to the database on computer A.

Larger networked systems can use many Corsair computers.



In this system Corsair computers C through F put event records into the Computer A database. They can optionally also put the records in the computer B database. Computer A can be onsite for faster access. Computer B can be located in an offsite data center and accessed over the Internet.

Another application could use a local database whose records are periodically transferred to a remote computer.



In this system the Corsair program only writes events into its own database on Computer A. One time per day Computer B copies records from Computer A. The records are then deleted from Computer A. This system may have less total network communications traffic than a system where A hooks into B for each event. If the records on Computer A are erased each day it will not require as much disk space. It may be possible to use a diskless computer with a solid-state drive.

The Corsair program can be used to view records from either the local (Computer A) or remote (Computer B) databases. The transfer of records from A to B must be done by programming the database program. The Corsair program cannot automatically do this transfer.

Database Configuration

The database program typically comes with an administration program – sometimes called a Management Console – that is used to create databases and assign users and passwords. Typically this program is used to initially create the database. The database must then get a table with rows and columns. The number of columns and their names and types are defined by the Corsair program. These requirements can be printed out in the reference section of the Corsair manual. Column types will vary slightly based upon the type of database program that is used. Column information may be manually entered into the database by the database administrator. Frequently it is easier to let the Corsair program do the work. It contains an SQL Expert program that has the ability to create, delete, view, and modify databases, tables, and columns. It can create a multiple-column table in the exact column format that the Corsair program requires for event logging.

GMT Time Format

Many event logging systems use a time of day corresponding to the local time zone at the facility. In some circumstances it may be desirable to have the event database store events using GMT (UTC) time. This time standard does not recognize daylight savings time. The Corsair program has an option to use GMT for its event logging. Database records are written with GMT time. When the Corsair program displays a record it translates from GMT to the proper local time at the Corsair computer. It properly allows for Daylight Savings Time when it does this. The operator only sees time using his local time zone.

Computer Clock Synchronization

Each Corsair computer can be configured to synchronize it's time-of-day clock with the clock on the SQL database computer. This can be done manually from the operator clicking on a button on the screen or automatically at regular intervals. The SQL computer sends the clock value to the Corsair computer in GMT format. The Corsair computer is set to the proper time for its local time zone.

Alarm and Call Events

Each alarm and call that is a part of the Corsair application database can generate as many as six different events. For a standard alarm the events are:

AlarmTrip

AlarmAck (Alarm Acknowledge)

AlarmReset

AlarmTripCmd (Alarm Trip Command)

AlarmAckCmd (Alarm Acknowledge Command)

AlarmResetCmd (Alarm Reset Command)

The first three events are usually generated by a Corsair computer that is reading the 4-bit alarm status out of a PLC. When it sees a new trip on an alarm it generates the Alarm Trip event. When it sees that the alarm has been acknowledged it generates the Alarm Acknowledge event. When the alarm is reset it generates the Alarm Reset event. There may be several Corsair computers on a network that are all looking at the same PLC alarms. Only one should be configured to generate Alarm Trip, Ack, and Reset events so that multiple records do not appear in the database for the same alarm. These events report on changes in alarm status as read from the PLC. They do not report if a computer has caused the change in status.

The CMD 'Command' versions of the event types are generated when a Corsair computer is used to change the status of an alarm. If the operator acknowledges an alarm his computer generates an AlarmAckCmd event at the same time that it commands the PLC to acknowledge the alarm. The AlarmAck event will be generated as soon as the PLC shows the new acknowledged status.

Typically only one Corsair computer of a multiple-computer system is configured to generate AlarmTrip, Ack, and Reset events. All computers are configured to generate AlarmTripCmd, AlarmAckCmd, and AlarmResetCmd events. These six event types are used with alarms of the 'Standard' category. Alarms of other categories can generate different event type labels for these events. They might not generate all 6 types of events. For example, and alarm of the 'Notice' category only has one type of event. When the computer sees that the alarm is tripped in the PLC it sends a 'Notice' event instead of an 'AlarmTrip' event. It will not send any of the other 5 events.

A 'Custom' category is available that allows the developer to enter any event type label that he desires for each of the six types of alarm and call events. If he leaves a label blank the event is not generated.

Test Events

A ‘Test’ event type is used to verify the connection between the Corsair software and the database software. Test event may be generated by the operators clicking on a button on the event monitoring window. They may also be generated from a Corsair script command. This can be done at a regular time interval to verify that the connection is still working.

Corrections

Battery Monitoring

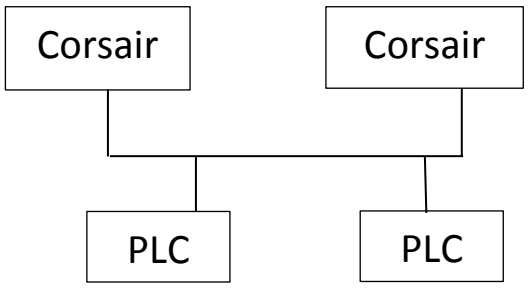
Architectures

Hardware architectures are methods of wiring together industrial control equipment in more complex systems. Software architectures are methods of communicating data between machines and operators. Corsair allows a lot of flexibility in implementing different architectures.

MBHR

The MBHR ‘Modbus Host-Remote’ system is a standard feature with multiple-computer versions of the Corsair program. It is used when a large number of computers need to access PLC data at the same time.

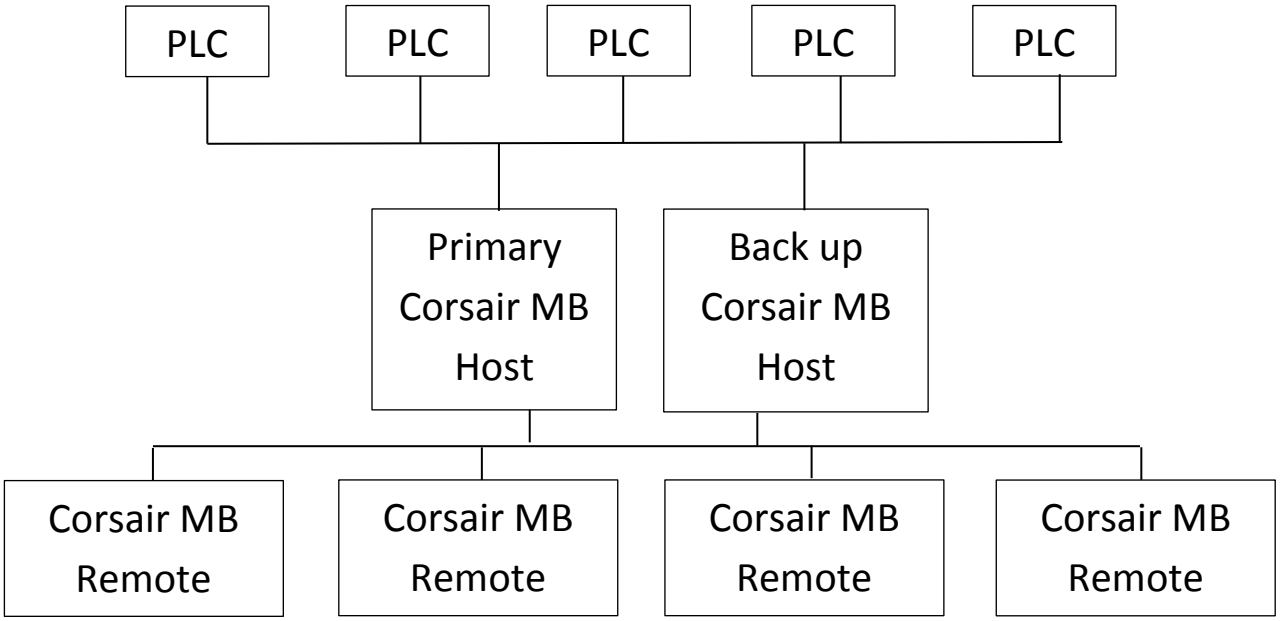
In small systems each Corsair computer can directly access PLCs over an Ethernet network.



Problems occur as additional Corsair computers are added to the network. Each PLC supports a fixed maximum number of simultaneous network connections. 5 computers would require 5 connections on each PLC. Peer-to-peer communications between PLCs will use additional connections. When the number of Corsair computers exceeds the available connection count the system will not function properly. Large numbers of computers will also tie up PLC processor time servicing communications requests.

Many companies have separate networks for PLC control and for office ('MIS') use. The

networks should not be cross-connected for security reasons and to avoid performance (and political) problems. Running two network cables to each computer is not practical. The answer is the MBHR system.



Two Corsair computers are hooked to both networks. They communicate with the PLCs using any of the available Corsair communications drivers. They can both act as fully functional operator interface nodes with the ability to read and write PLC data. They can support the specialized Corsair monitoring functions for the PLC time of day clock, the battery status, and register values. These computers are configured to act as MB Hosts.

Each of the office computers runs a copy of the Corsair software that has been configured to act as an MB Remote. They interact with the Corsair Hosts instead of with the PLCs. Each Host can handle up to 100 Remote connections simultaneously.

The MB Remote computers can read data from the PLCs through the host computers. They can view historical logs of data. They can turn-back the time on graphic screens. They cannot change PLC data and they do not have the specialized Corsair monitoring functions.

All of the computers in the system – both Host and Remote – use the same Corsair application file.

Each Remote computer is assigned two host computers. The Remote will attempt to its primary host first. If that attempt fails it will attempt to connect to its backup host.

Corsair Log data files can be kept on each of the Host computers. They need to run continuously. Remote computers can access historical log information from the hosts without logging on their own hard drives.

Plantwide Interface

Plantwide Interface is a CorsairHMI development technique that is used in manufacturing or correctional facilities where there are multiple control systems operated from several places. Each place has a Corsair computer. Every area can see the interface data from every other area but it can only operate the things that it is responsible for. The A Building operator can see all the graphics from B building but he cannot control it. He can only control the A building. The B building operator can see the A building but he cannot control it. The office can see both the A and B buildings but cannot control either.

The Corsair difference is that it can use the same model file on every Corsair computer in the plantwide interface system. This file contains information as to what can be seen and operated on each computer. Each computer contains a small computer properties file that tells it what identity it is supposed to assume. In emergencies when a computer is down provision can be made to easily change the operating capabilities of another computer so that production can continue.

Plantwide interface can actually be less expensive than conventional interface architectures where separate interface databases are used for each computer. When a system is added to the model file it is copied to each of the computers so that they have the new capabilities. This development work only has to be done once instead of multiple times for each separate database. MBHR remotes use the same model database file as the operating computers do.

Multiple Models

The hard drive on a Corsair interface computer holds a file that the program uses. This 'model' file holds tags, interface screens and sheets, alarm information, and other things that are specific to the customer's installation. It is possible for a single Corsair program to use up to 100 Model files at the same time. The operator switches between them to see different views.

Enterprise Interface

Enterprise interface uses a combination of multiple models and MBHR technology. Suppose that a company has headquarters in St. Louis and plants in Chicago, Cleveland, and Toronto. Each plant uses pantwide interface with monitoring in its local office. Those offices are linked through the internet with the S. Louis headquarters. Each Corsair computer in the headquarters is using 4 model files – one for each of the plants and one for company-wide summary data. The summary model uses a special driver to read data from the other models. It then totalizes the information and flags out of range values. One headquarters computer provides a secure web view over the internet using a VLAN. Any employee with the VLAN credentials can view the interface information at home or on a portable device.

Web

The Corsair program can serve out dynamic web pages to any computer or mobile device with a browser. The operator can monitor the system. It can be configured so that he can make changes from the browser. Browsers must be HTML-5 compatible. There is no 'app' that has to be downloaded. Browsers do not need Flash or Silverlight.

Serial Terminal

Years before the Web computer systems used serial terminals to display text information. This was typically in 24 or 25 rows of 80 columns each. The letters on the screen could be underlined, shown in inverse, and flash. Many terminals were built to a software standard called VT-100 or ANSI. Some computers have software that can emulate ANSI –compatible serial terminals.

Corsair has the capability to display text data on ANSI serial terminals. This is a one-way flow of information. Keystrokes from the terminal's keyboard are ignored.

A possible use for this feature in a jail is to display inmate count information for meals in the kitchen. The Corsair computer is in a secure area but inmates have access to the kitchen. The one-way serial connection provides a way for the inmates to see the data without compromising the security of the control system. The Ethernet control network does not extend into inmate areas.

The CorsairHMI software can be used in a special mode where it does emulation of an ANSI terminal if that is needed for these applications.

Licensing

Every CorsairHMI program comes with a license file. The license file is used by the program to determine what it can and cannot do. It determines the development capabilities, the maximum number of screens, and several other options. The CorsairHMI website has a Terms of Sale document that lists and prices various standard combinations of license features. These combinations are named with letters.

Corsair has two options for temporary licenses. The first is a license that expires at a certain date. It can be used until that time and then it expires. The second option is a limited run time license. It has a maximum amount of time that the interface can run before it shuts off. It can then be restarted for another time period. There is no limit as to the total run time with this license.

A 4-hour limited run time license may be available at no cost from CorsairHMI for evaluation, development, training, and testing purposes. License files are not copy protected. Corsair users are trusted to stay within the limits of their licenses.

Strategic Fit

The CorsairHMI program can be an important part of a system integration firm's business plan when used in ways that utilize its unique capabilities. Other programs can be used to do most of what it does but at a greatly increased cost and complexity.

Corsair has some very specific requirements for how some elements of a PLC program are configured. If there is an existing PLC and an HMI operating a system it is almost certain that some changes will have to be made to the PLC program to accommodate a retrofit to CorsairHMI.

There are no annual fees for a Corsair integrator to maintain its status. Training and phone support are available through CorsairHMI.

Linux

CorsairHMI was originally developed as a Windows program. A Linux version of it is also available. Model files developed using one operating system can be copied to the other and used with few, if any, changes. Most Corsair features will work with either system. Corsair Linux uses GTK graphics.

Linux is not recommended for most installations because it is not compatible with many of the computers that are found in industry. There are situations where it may be a good choice.

The first reason for Linux is to save money in a high-volume application. Linux is generally free.

The second reason for Linux is for stability over several installations with a long-term deployment. A Linux version can be tested now and the same operating system installed 10 years from now. Windows versions tend to be much more volatile.

The third reason for Linux may be a customer requirement. Some data centers may require Linux.

The fourth reason for Linux may be an opinion that the operating system is more stable. Stability is a subjective matter. CorsairHMI gives integrators a choice.

Corsair is also available in a Linux version that can run on inexpensive ARM processors. Configuring these systems requires quite a bit of experience. They are only recommended in higher-volume applications where the configuration cost is divided among a large number of installations.

Education

Traditional electronics classes were frequently focused on understanding and repairing television sets. TV repair was a common occupation, but the curriculum selection went beyond that. Television sets contained examples of most of the types of electronic systems that were used at the time. They contained oscillators, rf and audio amplifiers, high and low voltage power supplies, and so on. Understanding television provided a student with a background that would prepare him to go into a wide variety of electronic work.

Curriculums that teach industrial computing need a software equivalent to the television set. They need to teach something that is practical yet covers a broad spectrum of topics. Modern operator interface software can fill this need. It provides a method for the student to learn about the following topics:

1. Computer graphics
2. Data communications using different protocols over Ethernet and serial links
3. Real-time data logging and viewing of historical information
4. Math functions including scaling, interpolation and statistics
5. Computer programming concepts including arrays, logic, program flow, data type conversion, and so on
6. Data exchange between programs using the clipboard, CSV files, and other methods

Operator interface software fills a similar role to the television set in that it gives the student an introduction to a wide variety of topics in industrial computing. He can then go on in any of them as his needs and interests are further defined.

CORSAIR SOFTWARE IN THE CLASSROOM

Classroom software has some unique requirements that are not readily found in commercial products. Most of this is centered on the need for the student to learn the principles as much as possible and to spend as little time as possible learning the software. Software that is difficult to use wastes classroom resources and does not accomplish educational objectives.

INSTALLATION ISSUES

Corsair software is not copy protected. It does not make any changes to the Windows registry so there is no “install” and “remove” for the program. It is simply copied to a folder, and a shortcut is created to point to it. When the folder and shortcut are deleted the software is completely gone from the computer.

The Corsair program itself is a single executable file. It includes all communications drivers and function blocks. This is a sharp contrast to most programs that require hundreds of files and complete install and remove procedures.

DEVELOPMENT AND RUN-TIME ENVIRONMENTS
Corsair has its database development and run-time built into the same program. The student does not have to move from one program to another. Simple keystrokes are used to transfer instantly between development and run-time. Development error checking goes on continuously in the background during interface operation.

Corsair includes historical data logging and viewing as a part of the program, not as a separate program.

MODBUS PROTOCOL
Corsair contains several drivers that use the industry-standard Modbus protocol. The Corsair communications trace function lets the student view the contents of data packets coming to and from the Corsair computer. This is a tremendous aid to understanding this popular protocol.

TCP/IP EXPERT
Corsair's TCP expert functions enable a student to examine the network that his computer is hooked to. He can ping, resolve names to IP addresses and addresses to names, scan the network, and do other things. All this is done within the Corsair program using the Corsair database.

MBHR PLC SIMULATION
A computer running Corsair can act as a simulated PLC. Several other Corsair computers can read and write data from it. This prevents the instructor from having to have separate PLC hardware and programming software.

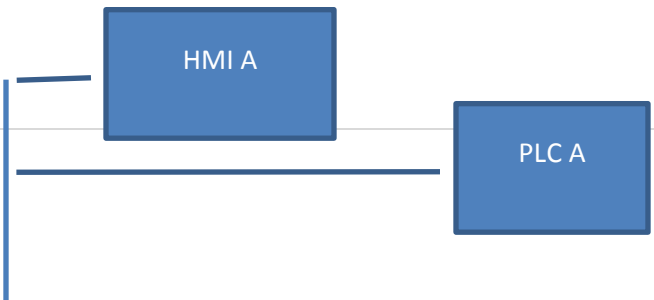
Future Directions

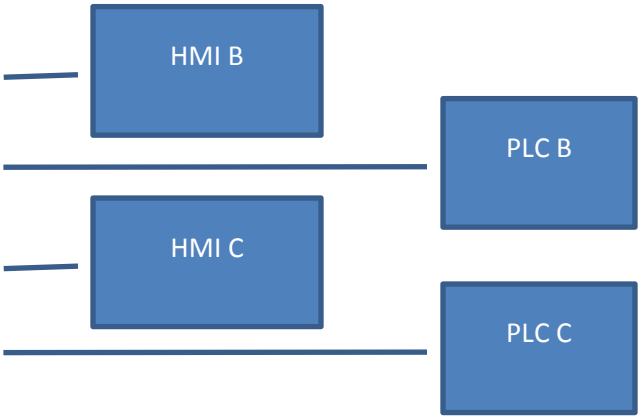
Distributed Hosting

The CorsairHMI program includes a Modbus Host-Remote (MBHR) system that is useful when implementing large systems. It can use standard Modbus TCP protocol to communicate between Corsair computers over an Ethernet network. It can also use a nonstandard extended version of the protocol to achieve much higher performance than what is possible with tag-based communications.

MBHR is a valuable tool for Plantwide Interface systems where every computer can see what is happening everywhere. Each computer can only control what it is allowed to control. Each computer contains an identical copy of the Corsair application database.

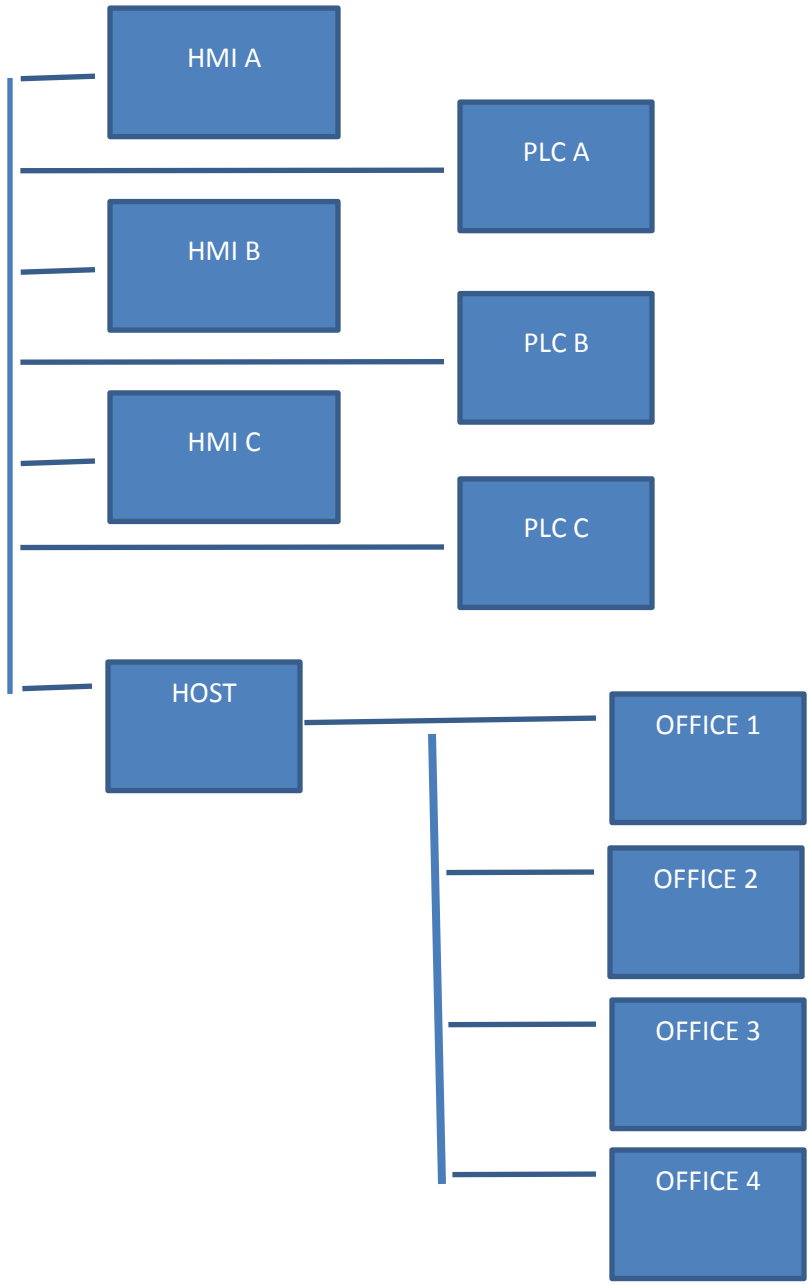
Here is a simple system with no MBHR.





Each HMI talks to each of the 3 PLCs. Each PLC has to support 3 communications connections through the Ethernet network. The Corsair Authority and Operator Log-in systems determine what each computer can control.

The network can be expanded with MBHR single-point hosting.



In this case 4 office computers need to see the interface data. They could be on the same network as the PLCs but it is usually desirable that they are on a separate network. If they all talked directly to the PLCs each PLC would have to support 7 communications connections. As the number of office computers increased the PLCs would be slowed down. Most PLCs have a fixed maximum number of connections that they can support at one time. If this limit is exceeded communications failures will occur.

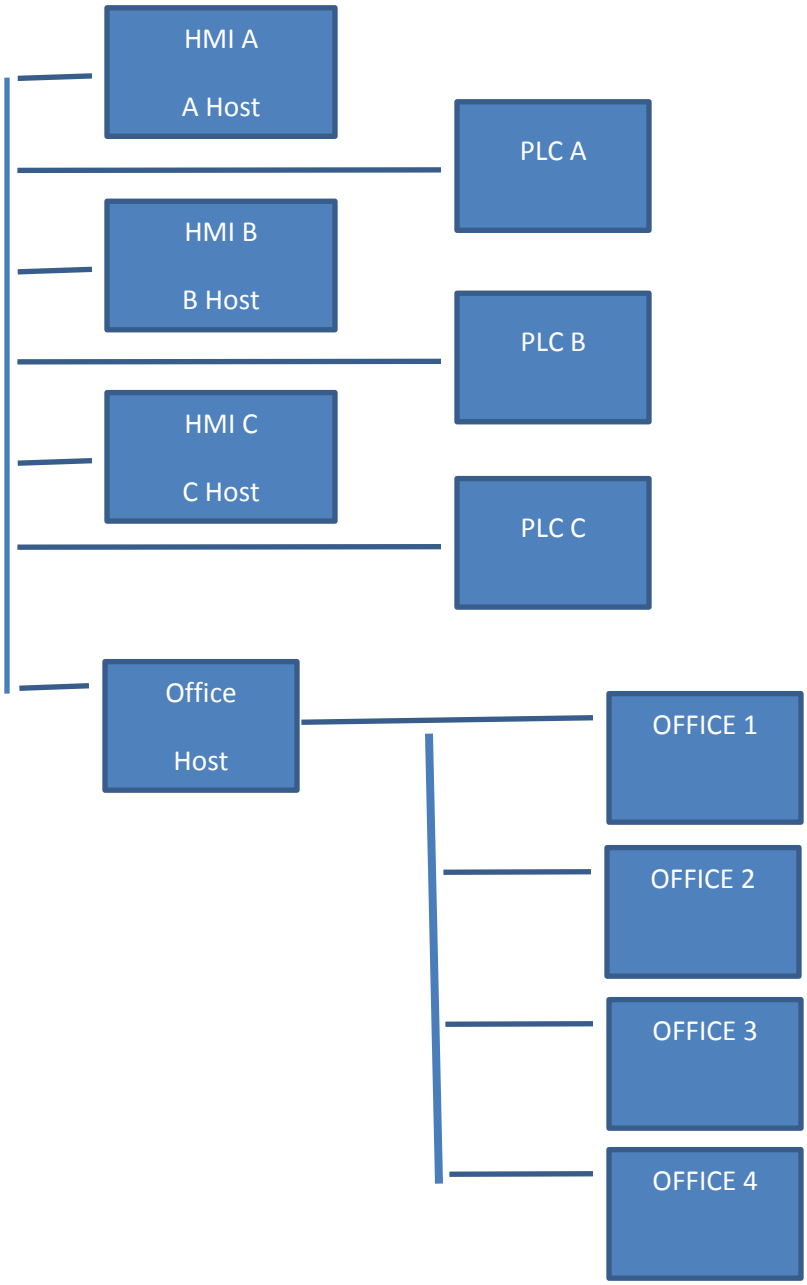
This system uses an extra computer that has been added to act as a single-point MBHR host. It reads data from the PLCs and the office computers read data from it. The PLCs have to service 4 communications connections instead of 7. All 8 Corsair computers in the system use the same application database file. There could be as many as 100 computers in the office with no increase in PLC communications.

In this system each plant computer operates as a normal interface. The host computer operates as a normal interface with MBHR Host operation also running. Each office computer operates as an MBHR Remote.

Single-point hosting like this works very well when there are a large number of office computers on a separate network. The host computer is the only computer that is on both networks. If the host computer fails the office computers cannot see the interface data but the plant computers will still run.

Systems with a large number of computers in the plant can overtax PLCs with communications from them even before office computers are added. It would be possible to have a single Host computer serve out data to every computer in the plant. This would make it so there is only one communications connection to each PLC. The problem here is reliability. If the host computer fails every computer in the plant fails. There may be speed problems with all communications running through a single host.

Many times the ideal is for HMI A to talk to PLC A directly, for B to talk to B directly, and so on. Each area can continue to run when communications fail from other areas. Plantwide Interface requires that HMI A sees the data from PLC B but this path may not be critical for operations. This can be accomplished with MBHR distributed hosting. HMI A would host MBHR communications so that HMI B, HMI C, and the office Host computer can see PLC A. HMI B would host MBHR communications so that HMI A, HMI C, and the office Host computer can see PLC B. Now each PLC only has to support 1 communications connection and operating reliability requirements are met.



This system uses single-point hosting for the office computers and distributed hosting out in the plant.

Streaming Serial

An engineer working at a nuclear power plant may desire to see interface data at home. There is a concern over security when the plant control system is hooked to the Internet. Most security systems are software based. They use two-way Ethernet data communication. This is true even of 'one-way' secure routers.

Streaming serial is different. It uses two Corsair computers hooked together with RS-232 serial communication. The key is that the communication is only connected in one direction. The plant-side computer sends data to the Internet-side computer. There is no physical connection in the other direction. There may be a fiber-optic link inserted between the two computers to guarantee electrical isolation.

Someone may 'hack' into the browser view on the Internet-side computer but there is absolutely no way that they can disrupt the operation of the plant through the streaming serial link. Because this is hardware-based security there is no software that needs to be updated as new security problems are discovered.

Comparison of Corsair Viewing Options

The Corsair program offers several options for how interface and history data can be viewed. This document is to summarize what features are available with these options. There are variations depending on where data is stored so system architecture must be reviewed before features are guaranteed.

A list of available options:

Option: Direct Local view of the Corsair Computer

This situation is when the operator is located at the Corsair computer. He can do anything that the Corsair program is capable of.

Advantages: Security if the computer is locked in a secure area. Corsair password login is also available.

Disadvantages: No remote view. You have to be there.

Option: Remote operation of the Corsair Computer

This situation is when the operator is located at the Corsair computer. He can do anything that the Corsair program is capable of.

Advantages: Security if the computer is locked in a secure area.

Disadvantages: Does not work well at the same time that someone is using the computer directly. The two operators may want to look at different screens and do different things. There is a danger of the remote operator accidently shutting down the Corsair software when he shuts down the remote operation.

Option: Using the Corsair Computer as a Web host

The Corsair computer sends HTML pages to a web browser. This can be over a local area network or over the Internet.

Advantages: Remote views anywhere with no special software or 'app' needed. No interference with the local operator.

Disadvantages: Some limits in capabilities. The browser must be HTML-5 compatible. Browser compatibility with this standard varies.

Option: Using the Corsair Computer to host MBHR Remotes

The Corsair computer feeds data to remote computers that are running the Corsair software. This can be over a local area network or over the Internet.

Advantages: Remote views anywhere the software is installed with almost as much capability as the local computer. No interference with the local operator. MBHR remotes can run on Windows XP machines that do not support a usable Microsoft browser. Speed is generally excellent.

Disadvantages: Usually each remote computer has a copy of the Corsair application database. Whenever it is updated on the Master (Host) the updates must be copied to each of the remotes.

Option: Using the Corsair Computer to drive ANSI Text Terminals

The Corsair computer sends text (not graphic) data to one or more text terminals through a serial line.

Advantages: Extremely secure as the serial line from the terminal to the Corsair computer can be left unhooked. Secure enough for inmate areas at a corrections facility.

Disadvantages: Data is limited to up to 25 lines of 80 characters each. Update speeds are relatively slow.

Option: Sending data to other software

The Corsair computer sends data to another program or programs in the form of .csv text files, SQL database records, binary files, or other forms. This may involve FTP data transfer.

Advantages: No interference with the local operator. Takes advantage of capabilities in the other software that Corsair does not have.

Disadvantages: Requires special integration work with the other software. This may be extensive and experiments may have to be done to see what works before contracting for a project.

Comparing the options:

Remote Software Requirements

Direct View: No remote software.

Remote Operation: Remote control software must be bought and installed on both the Corsair computer and on the remote computer.

Corsair Web Host: No special remote software. The remote must use an HTML-5 compatible Web browser.

MBHR Remotes: Each remote computer must have Corsair MBHR remote software installed on it along with a copy of the Corsair application file.

ANSI Text Terminals: Terminals can be computers running terminal emulation software. It is recommended that the Corsair program be used in a terminal emulation mode for this function as it has some specialized advantages over programs like Hyperterm.

Sending data to other software: The other software must be purchased and configured.

Remote View Counts

Direct View: Zero.

Remote Operation: There can be many remote locations but only one can be used at a time.

Corsair Web Host: Limits may be set by the Corsair computers operating system. No more than 400 at one time.

MBHR Remotes: A maximum of 100 remote nodes can hook into one host at a time. Many more remotes are possible with MBHR cascading.

ANSI Text Terminals: Several terminals can be multidropped on a serial communication link. They will all see the same thing.

Sending data to other software: Counts are dependent on the other software.

Operator Control Capability

Direct View: Yes.

Remote Operation: Yes.

Corsair Web Host: Some control capability if it is enabled.

MBHR Remotes: Some control capability if it is enabled.

ANSI Text Terminals: No control. View only.

Sending data to other software: Generally no control capability but there are some possibilities.

Corsair Application Development Capability

Direct View: Yes.

Remote Operation: Yes.

Corsair Web Host: Very limited but expanding.

MBHR Remotes: None and none planned.

ANSI Text Terminals: None.

Sending data to other software: None.

Trending Capability

Direct View: Yes. Shows the value at the cursor position.

Remote Operation: Yes.

Corsair Web Host: Limited trend viewing.

MBHR Remotes: Trends start to fill when the remote is started.

ANSI Text Terminals: None.

Sending data to other software: The software may have the ability to create trends.

Security

Direct View: Can be passworded. Lock the door to the control room.

Remote Operation: Determined by the remote software.

Corsair Web Host: Can be passworded but the password currently is not HTTPS. VPN security is recommended if this is not adequate.

MBHR Remotes: No password security unless it is implemented as part of a VPN scheme. Adjustable levels of IP or computer name matching.

ANSI Text Terminals: Perfect security. There is no connection that can do anything.

Sending data to other software: Depends on the other software.

CSV Review Capability

Direct View: Yes. Both graphing and Turn-Back Time (graphic screen history).

Remote Operation: Yes. Like the direct view

Corsair Web Host: Not yet.

MBHR Remotes: Depends on configuration.

ANSI Text Terminals: None.

Sending data to other software: The software may have the ability to review data.

SQL Event Record Review and Report Generation

Direct View: Yes. Large reports may slow down the CPU to an unacceptable amount for other tasks.

Remote Operation: Yes. Like the direct view

Corsair Web Host: Not currently planned.

MBHR Remotes: Depends on configuration. If a remote can get to the data it is a preferred way to generate large reports.

ANSI Text Terminals: None.

Sending data to other software: The software may have the ability to review SQL data.

Diagnostics

This includes communications trace, PLC battery low monitoring, PLC clock set, PLC register monitoring, and most of the Corsair 'experts'.

Direct View: Everything that Corsair offers.

Remote Operation: Everything that Corsair offers.

Corsair Web Host: Very limited but features are being added.

MBHR Remotes: Generally none.

ANSI Text Terminals: None.

Sending data to other software: Generally does not apply.

System Status Windows

This includes windows that show the status of the various Corsair functions. It includes the about window, memory summaries, and so on.

Direct View: Everything that Corsair offers.

Remote Operation: Everything that Corsair offers.

Corsair Web Host: Good support already with features being added. Should eventually be almost complete.

MBHR Remotes: Generally none.

ANSI Text Terminals: None.

Sending data to other software: Generally does not apply.

Printing Capability

Direct View: Extensive. Many printouts have selectable color or black and white and portrait or landscape.

Remote Operation: Depends on the remote control software.

Corsair Web Host: Defined by the web browser. Usually limited to screen dumps.

MBHR Remotes: Many of the same printouts as available from the direct view.

ANSI Text Terminals: No printing.

Sending data to other software: Determined by the other software.

Viewing Listed Drawings

Direct View: Yes. With printing.

Remote Operation: Yes, with printing depending on the remote control software.

Corsair Web Host: Soon.

MBHR Remotes: Yes. With printing.

ANSI Text Terminals: No.

Sending data to other software: No.

Remote Update Speed

Direct View: Fastest.

Remote Operation: Depends on the remote control software.

Corsair Web Host: Moderate speed, largely dependent on the Internet connection.

MBHR Remotes: Fast. With smaller systems screen update speeds can be close to those at the local direct view.

ANSI Text Terminals: Slow.

Sending data to other software: Determined by the other software.

Future Direction

In the near future the Corsair program may be run in a ‘service’ or ‘daemon’ mode.

Streaming Serial will become available.

Architectures must be reviewed if the system involves IP video cameras or intercoms.

It is anticipated that the Web interface will be greatly enhanced with more and more capabilities that are now only available on the local view. As this happens more projects will use Web clients where they need MBHR remotes now. MBHR will never go away as some of its capabilities will never be available on the web.