Logix Refrigeration Control System (RCS)

Facility Network Integration Design and Requirements

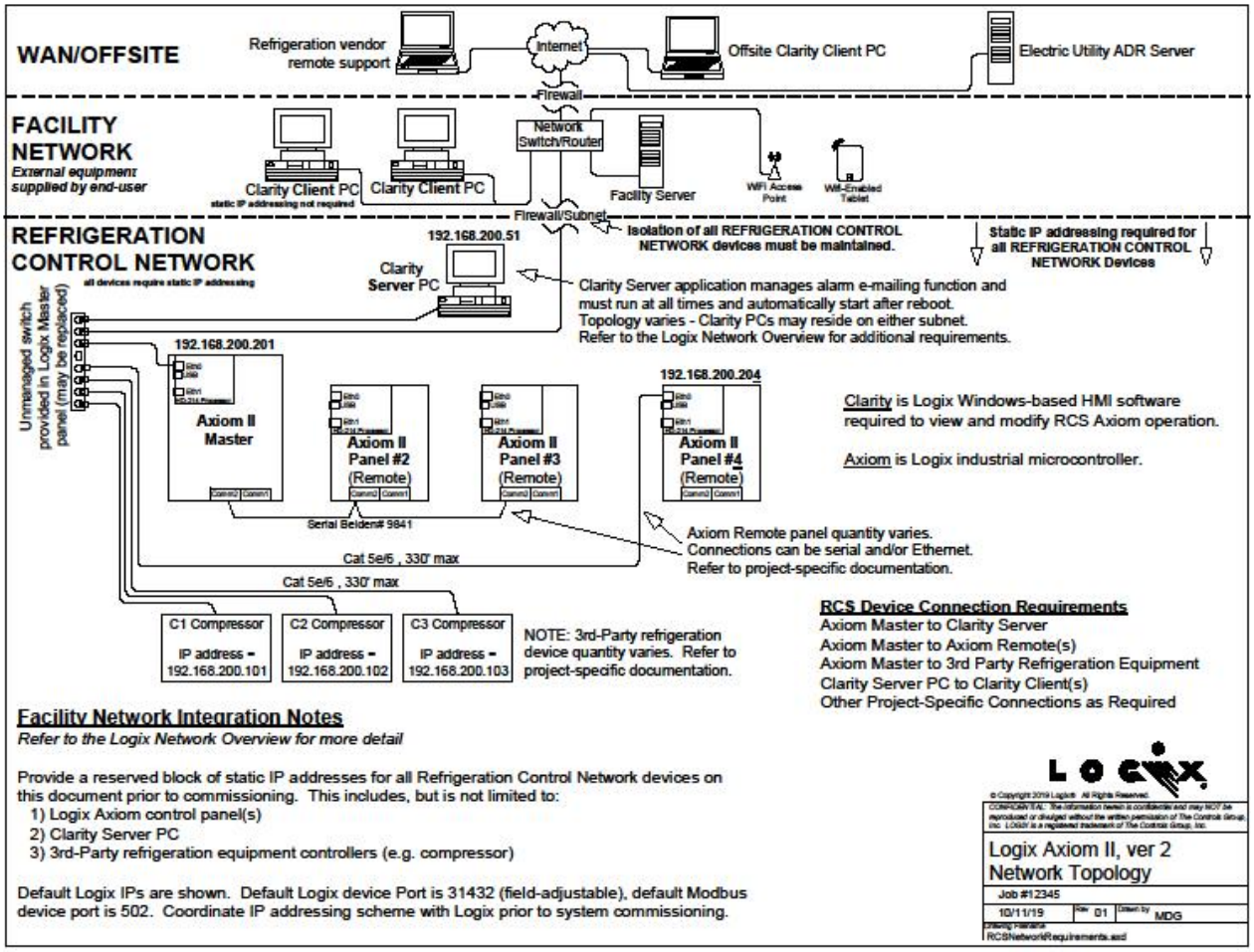
Overview

This document describes a Logix RCS Ethernet-based network and the related requirements to ensure effective RCS operation and enable powerful remote access features when **Integrated** into a facility network. Several supporting documents provide additional detail.

Network Integration Requirement Summary

- Maintain refrigeration equipment network isolation
- Static IPs are required for the Clarity Server PC and all refrigeration equipment
- Server PC Clarity application must run continuously and automatically restart.
- Maintain network connections from all Clarity PC's to the Logix Axiom Master controller and from all Clarity Client PCs to the Clarity Server PC.

Refrigeration Equipment Network Topology



A Logix Refrigeration Control System (RCS) network may be comprised of one or more "Axiom" refrigeration control panels, one or more 3rd-party refrigeration control devices, and one or more HMI PCs running Logix "Clarity" software.

The diagram above shows a typical Axiom II RCS network, delivered from 2012 onwards. Pre-2012 Axiom I systems have some significant network design differences. Refer to the ***Axiom I Network Topology*** diagram to review Axiom I topology and related notes and identify which Axiom platform you have.

Facility Network Integration

The Logix RCS network can either operate **Standalone** or it can be **Integrated** into the facility PC network as shown in the above diagram. An **Integrated** implementation enables valuable connectivity capabilities such as remote HMI access, Alarm E-mail Notification and 3rd-party data integration. The requirements of an **Integrated** solution described below are implemented by others, typically the facility's IT team. Improper **Integration** may affect the safe and effective operation of the RCS.

As the name implies, **Standalone** topology has no external network connection to any RCS device. Logix shall only be responsible for configuring a **Standalone** network during initial RCS commissioning.

An alternate solution is to provide separate Internet Service dedicated for the RCS and keep the facility network physically separate. The requirements described herein still apply but are typically more straightforward to implement and manage.

Network Integration Requirements:

1. Maintain refrigeration equipment isolation at all times. Example: The IP address of a new printer cannot conflict with the IP address of an Axiom panel.
2. Insure enterprise-based security measures do not affect refrigeration equipment functionality
3. Employ a static IP addressing scheme with 50% spares for future expansion. Static IPs are not required for Clarity *Clients*.
4. Designate one PC as the Clarity *Server*. Refer to the PC discussion below for more detail.
5. Provide remote vendor access (e.g. VPN), as required by the one-year warranty support agreement.

Clarity PC Network Communications

Clarity is the Logix PC HMI application allowing interaction with the Logix Axiom control panels. Multiple Clarity PCs can simultaneously access the RCS with a direct TCP connection to the Axiom Master. A single dedicated Clarity *Server* PC is required. The Clarity Server performs several functions including alarm e-mailing, continuous trend log data recording, data synchronization with remote Clarity *Clients*.

Because all Clarity networked PCs communicate securely using a site-specific binary messaging scheme and site-specific Clarity software, it is possible to safely access the Logix Control System from anywhere in the world with an internet connection. A secure VPN connection is the most robust and secure method to access the control system from the Internet.

Clarity Server PC Requirements

Integrated solutions require one PC to be the designated Clarity Server with the following requirements:

1. Continuously run the Clarity application, including automatically boot power failure recovery. Clarity is frequently run as a service to address this requirement. Critical Alarm E-Mailing and Data Logging features are reliant on continuous Clarity Server operation.
2. Establish a Clarity update plan that addresses any EXE and installation restrictions on all Clarity PCs. Each site's current Clarity Setup.EXE can be downloaded from a fixed URL on a Logix webserver. Update procedures can be found here www.logix-controls.com/docs/update/ClarityInstall.htm and here www.logix-controls.com/docs/update/AxiomUpdate.htm.
3. Configure and maintain e-mail capability per the ***Alarm E-Mailing Help*** document.
4. Periodically backup the Logix\[site location]\Data folder.

The above requirement must be applied to one Clarity PC per site, even if there is no Server PC. This may be the case for single-PC sites.

Logix may optionally supply a PC, but facility-sourced PC equipment is advised for **Integrated** implementations. Refer to the ***Logix Clarity PC Installation Procedure*** when installing or replacing the designated Clarity Server PC (or the Clarity PC in **Standalone** implementations).

IP Addressing

Integrated solutions require static IP address assignment by the facility IT manager prior to RCS commissioning. A contiguous block of addresses for the refrigeration control devices with 50% spare is recommended. Each Axiom panel's IP address, netmask and gateway is field-configurable. Refer to the ***Axiom & Agility IP Address Configuration*** document for more detail. Third-party refrigeration devices have their own IP modification methods, often through a keypad and LCD screen.

Security

Because all Clarity networked PCs communicate securely using a site-specific binary messaging scheme and site-specific\version-specific Clarity software, it is possible to safely access the Logix Control System from anywhere in the world with an internet connection. A secure VPN connection is the most robust and secure method to access the control system from the Internet.

Each new installation of Clarity is enabled for use when a Registration Code is provided by a Logix engineer. Subsequent updates over the same PC/drive location do not require registration.

RCS parameter access is protected by a field-adjustable 9 level Password scheme, supporting up to 30 unique users. Auditing records both user logon and parameter modification event detail.