MASTER CONTROLLER INSTALLATION

The Mojix Master Controller (MCON) is an application server capable of running on a number of platforms to support the Mojix STAR system. The MCON is built on a scalable architecture that allows seamless coordination and aggregation of an entire network of distributed STAR systems across one or multiple facilities. Its applications include a Real Time Location System (RTLS) and portal or dock door operations which provide transition detection and rejection of closely staged RFID tags. The MCON's RTLS function uniquely identifies and locates items in real-time and is able to handle extensive data collection requirements with a high level of accuracy. The MCON publishes tag data directly to enterprise applications via EPC ALE without the need of middleware typically used to collect and filter tag information. The diagram below provides a summary of the MCON's interfaces, functions and applications.

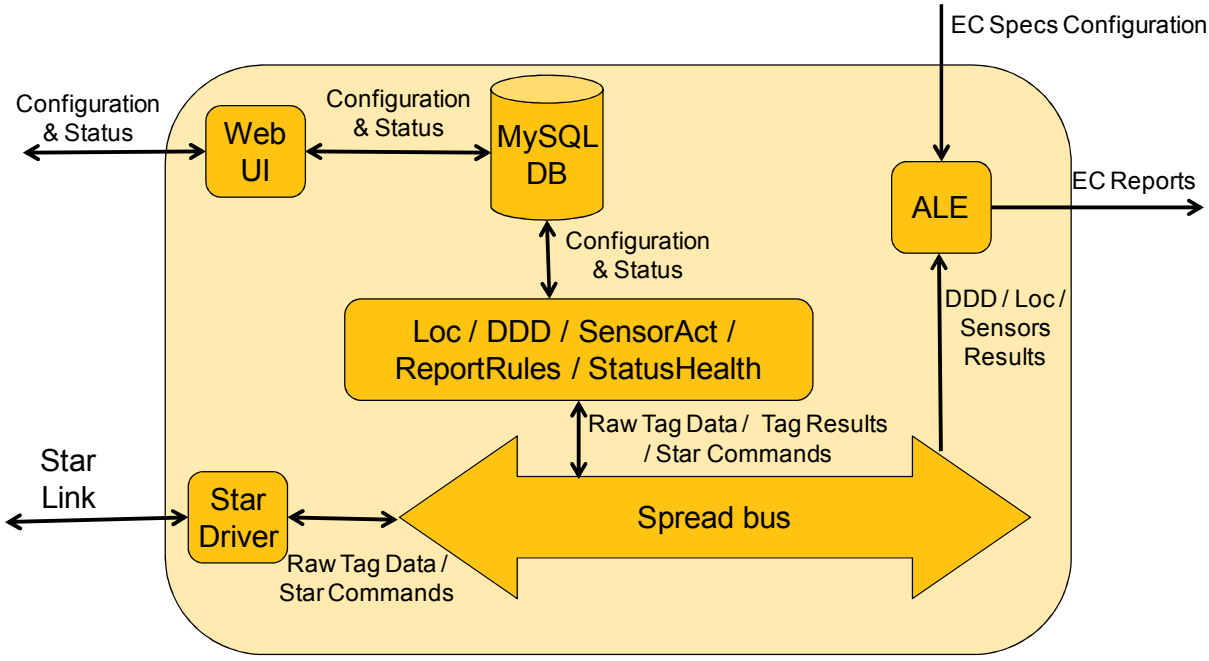

Figure 18: MCON Architecture

The MCON is offered in a high-availability platform with a robust redundancy capability within the hardware components of the MCON, as well as for automatic failover redundancy of an entire MCON to secondary system. Internally, the MCON features hot-swap power supplies and six (6) hot-swap hard drives running in a RAID5 configuration, which allows for a single drive failure without disruption of any MCON functions. Replacement drives need only be inserted in place of the failed drive for the system to fully recover.

The MCON is offered in two form factors detailed in Table 8 and Table 9. The desktop configuration is suitable for small installations, demonstrations and trial implementations. The enterprise configuration is intended for full scale deployments.

Part Number:	MCN-1000-T
Form Factor:	Tower
Processors:	Quad-core Intel® Xeon® 3400 series
Cache:	8MB
Memory:	8GB DDR3 1333MHz
RAID Controller:	SATA RAID Controller
Drives:	Two 3.5" SATA drives
Communications:	Single Port 1GbE NIC
Power Supply:	Single cabled power supply (305W)
Video:	Matrox G200eW w/ 8MB memory
Operating Systems:	CentOS 5.5 and 5.7, Redhat Enterprise 5.5 and 5.7

Table 8: MCON Desktop Server Specification

Part Number:	MCN-1000-R
Form Factor:	1U rack height
Processors:	Dual Six-core Intel® Xeon® 5600 series
Cache:	8MB
Memory:	16GB DDR3 1333MHz
RAID Controller:	SAS RAID Controller
Drives:	8 hot-plug 2.5” SAS (15K RPM) 73GB; One DVD ROM SATA
Communications:	Four Broadcom NetExtreme II Gigabit Ethernet NIC interfaces
Power Supply:	Two hot-plug high-efficient 502W Energy Smart Redundant
Video:	Integrated Matrox G200, 8MB shared video memory
Operating Systems:	CentOS 5.5 and 5.7, Redhat Enterprise 5.5 and 5.7

Table 9: MCON Enterprise Class Server Specification

Alternatively, the MCON is also offered as a virtual machine that satisfies the same configuration as the two hardware platforms. These specifications are detailed in Table 10 and Table 11.

Hard Disk :	20 GB
Processors ♦ :	4
Processors Class :	Intel Xeon 5600 series
Memory :	6 GB + RTLS †
Memory Class :	DDR3 1333MHz
Operating Systems :	VM Ware VSphere Compliant
Guest OS :	CentOS 5.5 and 5.7, Red Hat Enterprise 5.5 and 5.7

Table 10: MCON Virtual Machine Specification – Desktop Class

Hard Disk :	20 GB
Processors ♦ :	8
Processors Class :	Intel Xeon 5600 series
Memory :	8 GB + RTLS †
Memory Class :	DDR3 1333MHz
Operating Systems :	VM Ware VSphere Compliant
Guest OS :	CentOS 5.5 and 5.7, Red Hat Enterprise 5.5 and 5.7

Table 11: MCON Virtual Machine Specification – Enterprise Class

♦ - A **processor** is defined as a single computing component that cannot be split into any smaller computing units. A multi-core CPU may be composed of several smaller computing units.

† - The minimum amount of memory required is calculated by the RTLS resource allocation specification provided below.

MCON hardware must be installed in a temperature and environmentally controlled room.

Redundancy Summary

The Mojix solution includes a robust redundancy capability within the hardware components of the Master Controller (MCON), as well as for automatic failover redundancy of an entire MCON system to another. These redundancy options are only offered on the Enterprise Server Class hardware. Internally, the platform features 8 hot-swap hard drives running in a RAID5 configuration. With this configuration, a single drive can fail without disrupting any MCON functions. Replacement drives need only be inserted in place of the failed drive and the system will automatically configure the new drive.

Figure 19: Front Panel of Dell PowerEdge Server

The system also features hot-swap power supplies. It is recommended that each supply use a separate AC circuit to protect against a possible circuit failure.

Figure 20: Redundant Power Supplies

Once the MCON hardware is mounted and secured and prior to issuing power to the unit, connect a network cable to the eth0 port as identified in Figure 21. The next step is to power on the unit.

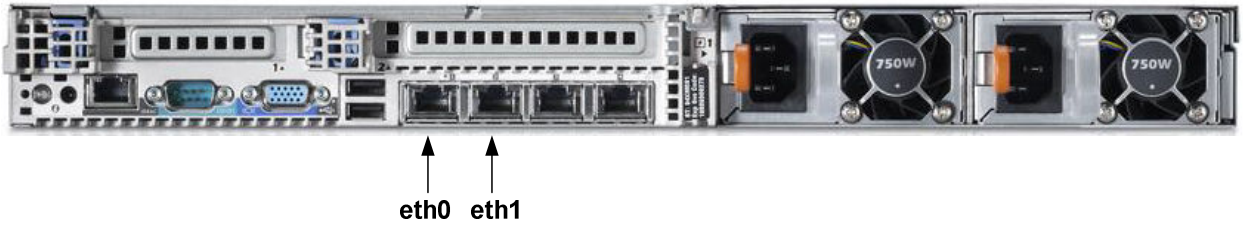

Figure 21: Identification of Network Interfaces

SYSTEM NETWORK SETUP

The MCON has the flexibility to configure and manage the STAR unit through a Web enabled interface called the Web Console.

CONNECTING TO THE MCON

The MCON by default uses DHCP for IP assignment. If a DHCP server is not found within 5 minutes from power up, the MCON uses the following default IP address.

- Default Static IP: 169.254.1.1
- Default Netmask: 255.255.0.0
- Default Gateway: 169.254.1.1

It is recommended to connect the MCON using loopback/crossover cable directly to a windows PC for the initial setup. This will ensure that the MCON defaults to the IP address above after 5 minutes. If the MCON is instead connected to a LAN with DHCP server, it may acquire a different IP address, making it difficult to locate on the network for first time setup.

CHANGING MCON NETWORK SETTINGS

The simplest way to change network settings of the MCON is to navigate a web browser to the MCON's IP address. Use the following credentials to authenticate the connection.

User: edison

Password: m0j1xInc

Once connected, use the Config menu to select Network. The Figure 22 shows the network configuration screen. The user can choose between dhcp or a static IP address. Once changes are made, click on the Save button. Changes occur within 30 seconds.

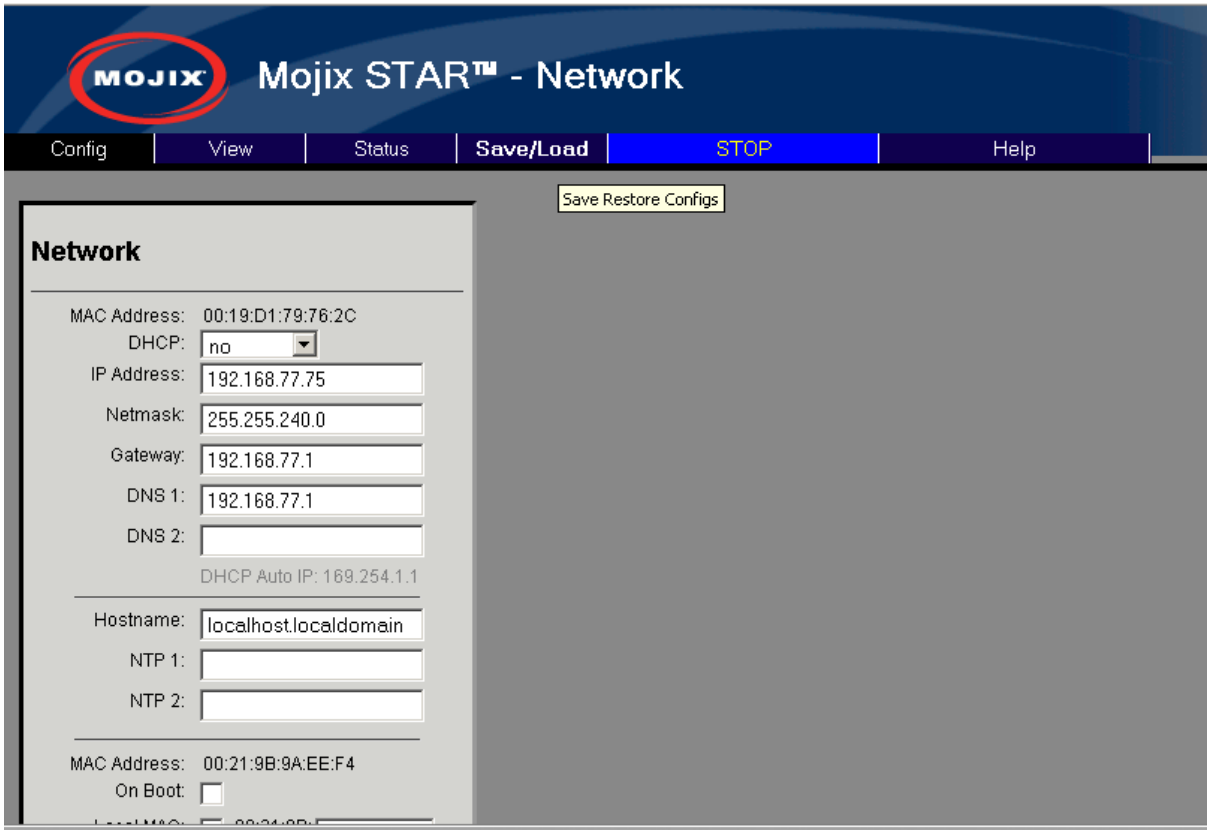

Figure 22: MCON Network Configuration

CHANGING STAR NETWORK SETTINGS

The STAR 3000 uses DHCP for IP addressing by default. If a DHCP server is not detected within 1 minute from power up, then there are 2 temporary IP addresses assigned and remain active for 10 minutes. These addresses are as follows:

- Default Ethernet 1 Address: 169.254.1.10
- Default Ethernet 1 Netmask: 255.255.0.0

- Default Ethernet 2 Address: 169.254.1.11
- Default Ethernet 2 Netmask: 255.255.0.0

Network settings can be edited and changed using a built-in Web interface. To edit the network configuration, follow this procedure:

1. Power on the STAR 3000 with an Ethernet cable connected to Ethernet 1.
2. Enter the default IP address of 169.254.1.10 into a Web browser and the user should be presented with a page similar to Figure 23.

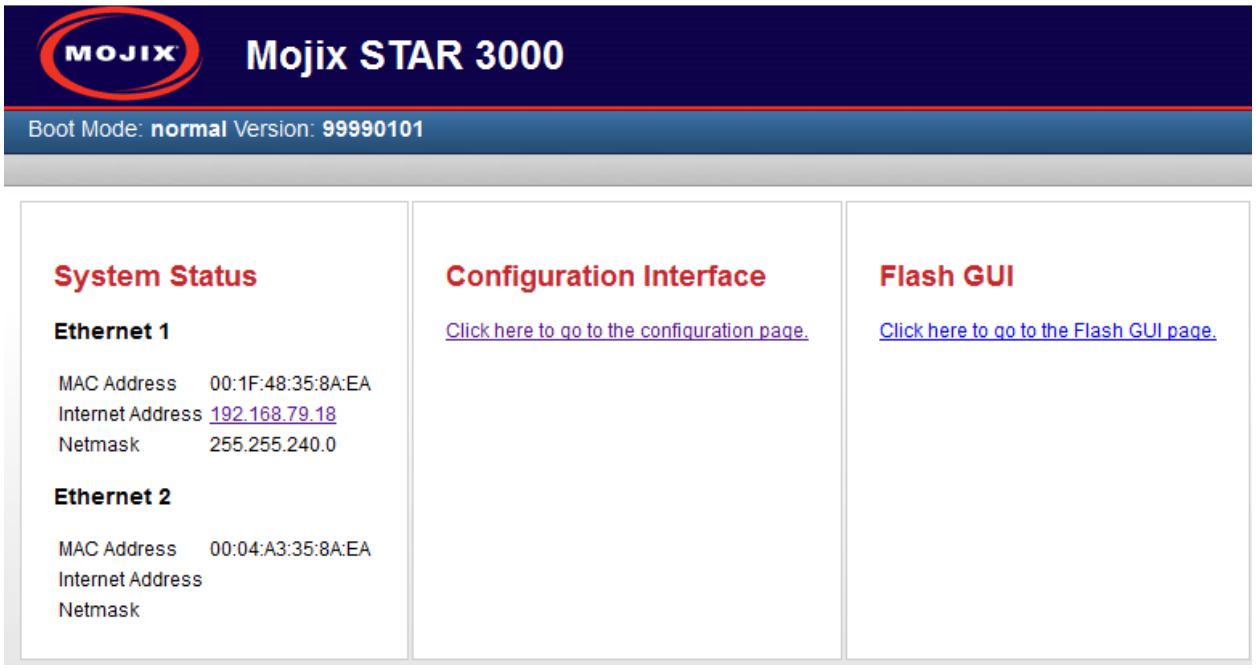

Figure 23: STAR Web UI Network Setup

3. Click on the Configuration Interface link and the user is presented with a web page as depicted in Figure 24.

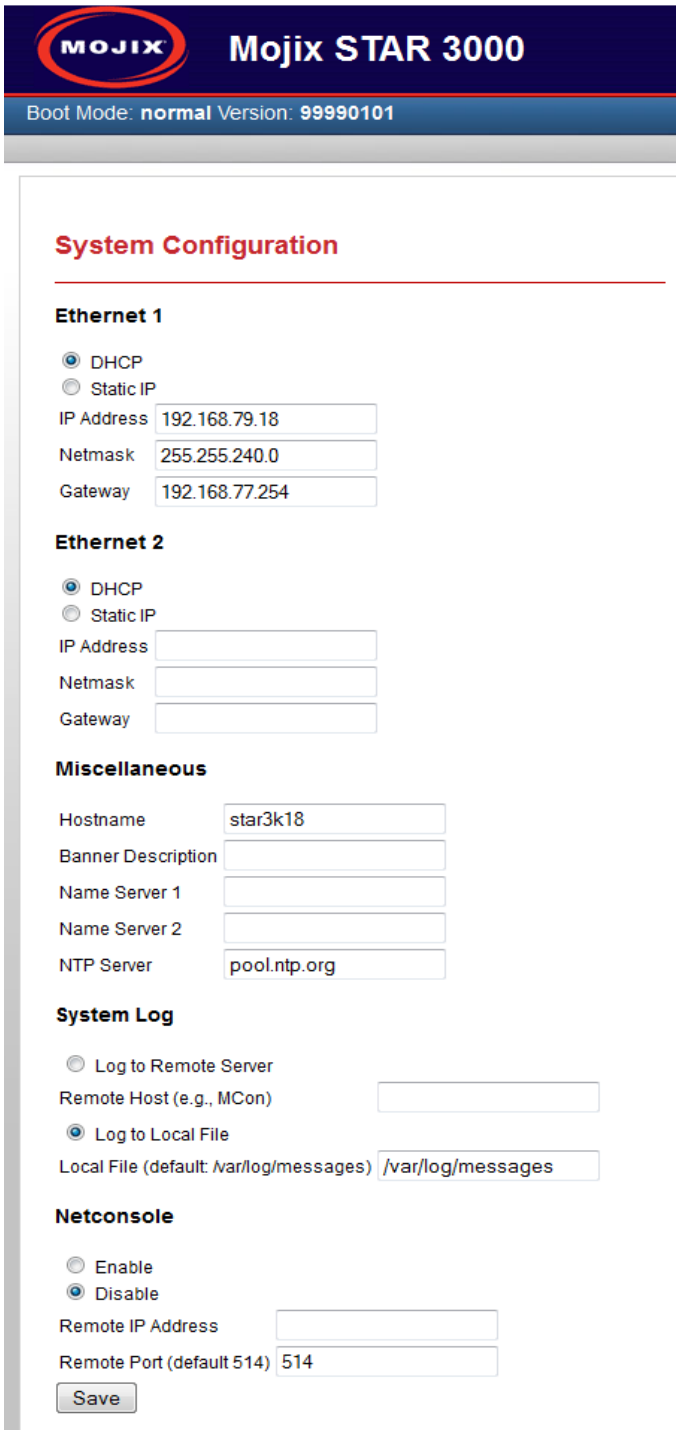

Figure 24: STAR Web UI Network Configuration Page

4. Select the desired IP settings for Ethernet 1 and then click save. This will reboot the STAR which will take approximately 2 minutes.

MCON CONFIGURATION

Please refer to the user interface guide document: USERGUIDE-MCON-WebInterface for detailed instructions.

APPENDIX A: FCC NOTICE, STAR 3000 AND ENODE

CAUTION: To comply with FCC RF exposure compliance requirements, a separation distance of 20 cm must be maintained between the antenna of this device and all persons.

WARNING: This equipment has been tested and found to comply with the limits for Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction's manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

In order to ensure compliance with FCC regulations, shielded and grounded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

APPENDIX B: FCC NOTICE, EMUX

WARNING: This equipment has been tested and found to comply with the limits for Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction's manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense. The user is cautioned that changes and modifications made to the equipment without approval of the manufacturer could void the user's authority to operate this equipment.

Mojix Incorporated

11075 Santa Monica Blvd., Suite 350

Los Angeles, CA 90025

Web:	www.mojix.com
Tel:	(877) 886-6549
E-mail:	service@mojix.com

Need More Help? Our product support team is comprised of individuals highly experienced in RFID deployments across a broad spectrum of application and use cases. If you are an existing customer of Mojix, please login to the secure area and submit a service request if you have additional questions. If you are unable to login, then please send us an email at: service@mojix.com.