



MDC-C5i USER GUIDE

PLUG INTO THE FUTURE OF TECHNOLOGY



ARNOUSE DIGITAL
□ DEVICES CORPORATION □

Revision History

Revision	Notes
V1.0	Revision 1.0 was published in May of 2022.

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How to Read this Document

This manual details installation of the mobile data center, the components inside of the mobile data center, and notable features of the MDC-C5i mobile server solution.

Installations will be supported by ADDC. Unless otherwise specified, all instructions provided in this manual will assume that a user is a trained technician.

Notes, Important Information & Warnings

 You will see this icon throughout the manual intended to point out warnings, important information, and briefly explain any new terminology.

Section 1.0 - Receiving Your MDC-C5i

Section 1.1 - What's in the Box?



MDC-C5i Case

Equipment (Included)

- MDC-C5i Case
- Magnetized Screen Cover
- BioDigitalPC® Server Cards [Check Invoice for Quantity]
- (1) AC Power Cord
- (2) 4G antennas
- (4) 5/2.4GHz antennas
- (2) 5GHz antennas
- (1) GPS antenna

Equipment (Not Included)

- Laptop or Testing Network



- (2) 4G antennas
- (4) 5/2.4GHz antennas
- (2) 5GHz antennas
- (1) GPS antenna



Magnetized Screen Cover

AC Power Cord



Section 2 - MDC-C5i Preparation

Section 2.1 - Preparing For Your MDC-C5i

Temperature Considerations

Your MDC-C5i is designed to operate at room temperature with its self-contained cooling.

Power Considerations

When properly configured and installed the MDC-C5i can draw up to 400 Watts depending on the number, load, and version of the BioDigitalPC®s used.

⚠ To prevent improper cooling of equipment, do not block the fans.

Section 2.2 - Installing Your BioDigitalPC®s

BioDigitalPC®s are hot-pluggable, meaning technicians do not need to remove power to begin adding or removing them.

⚠ Only trained technicians are authorized to work beneath the MDC-C5i System Cover and access any of the components inside the system.

Section 2.2.1 - Opening the MDC-C5i Case:



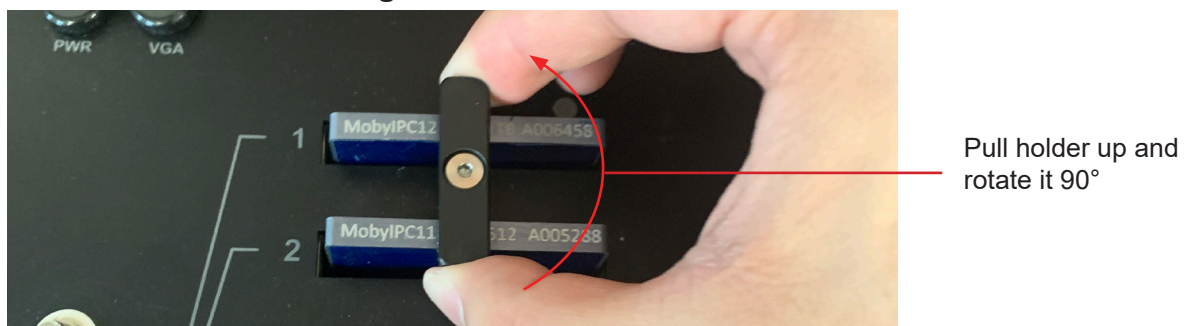
Section 2.2.2 - Connect AC Power Cord



Section 2.2.3 - Installing a BioDigitalPC®



Section 2.2.4 - Secure BioDigitalPC® With the Card Holder



Section 2.3 - Connect Antennas and Power On Your MDC-C5i

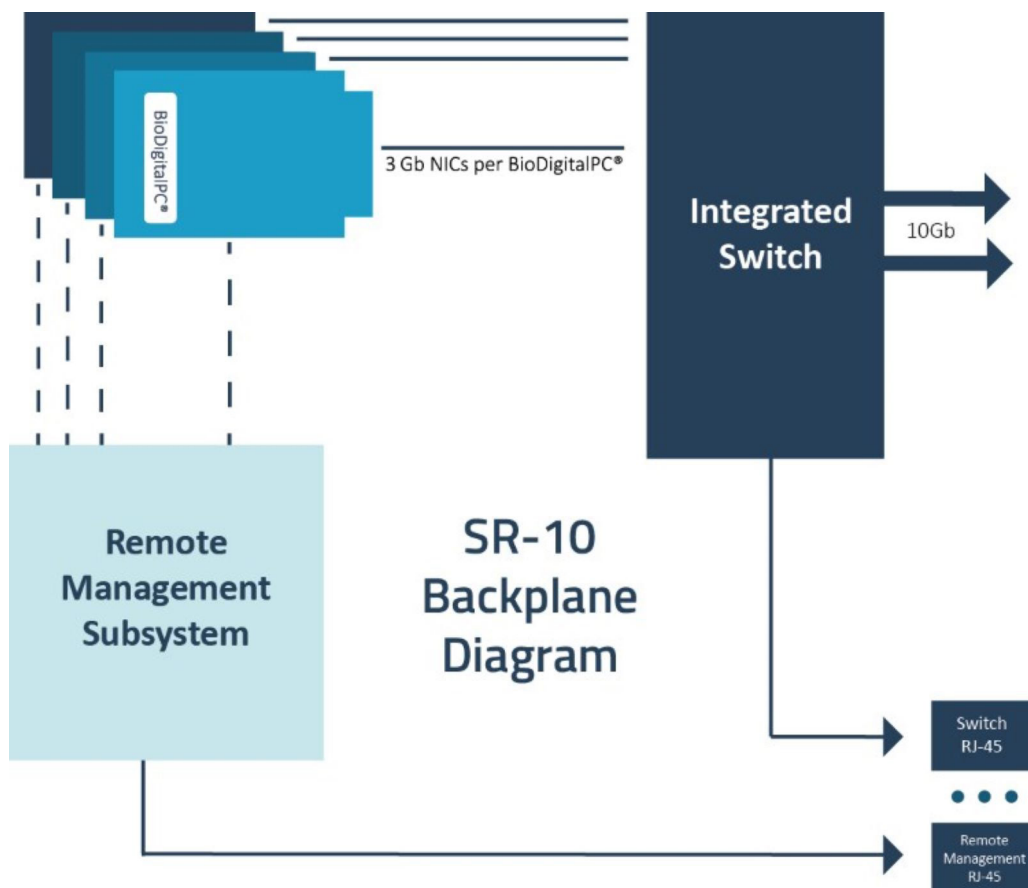


Section 3 - MDC-C5i Overview

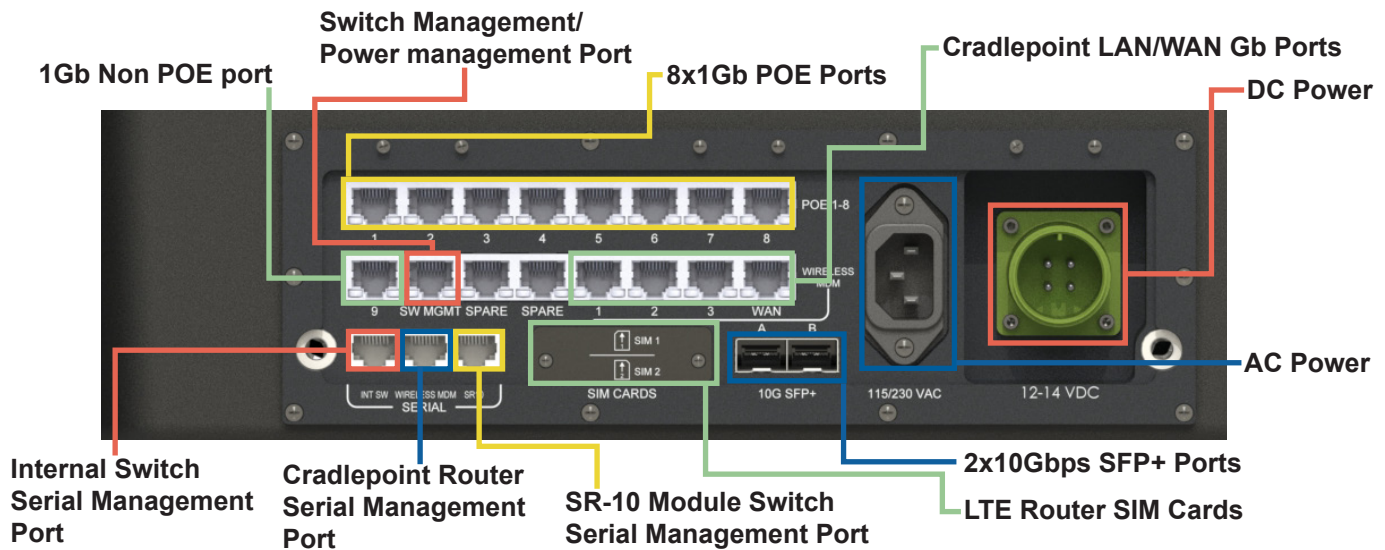


Section 3.1 - SR-10 Module

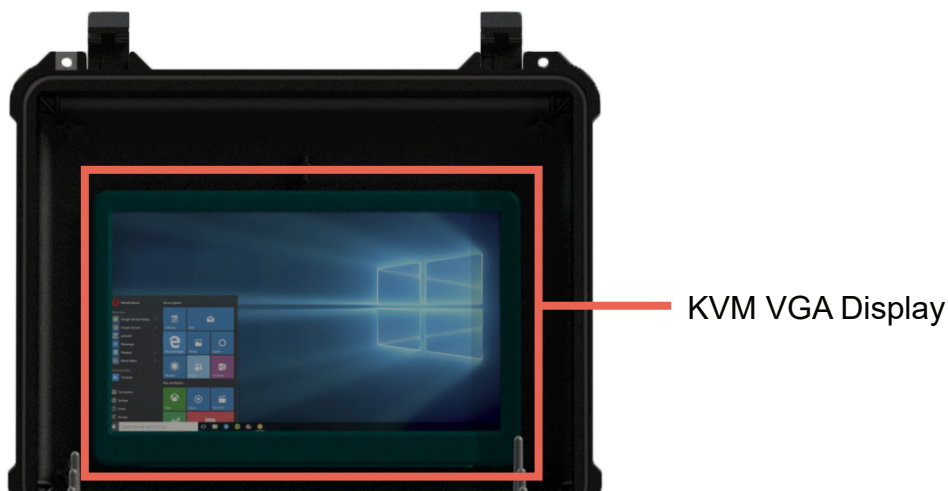
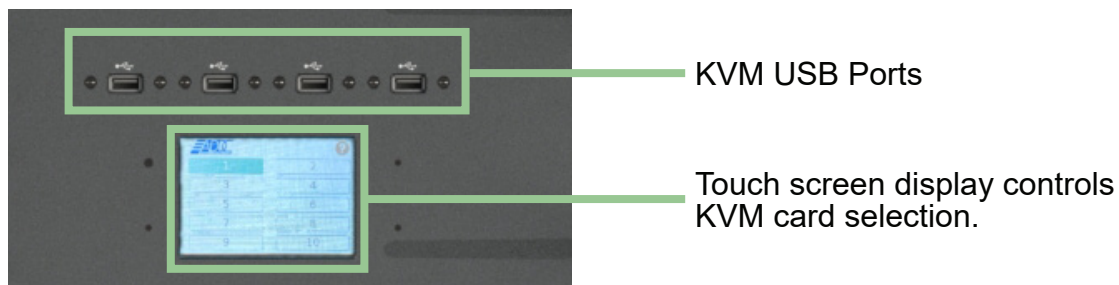
As shown in [Section 3](#), the MDC-C5i consists of a single SR-10 Module. The SR-10 Module contains 10 BioDigitalPC® slots, each having three 1Gbps NICs attached to an integrated switch. Each switch has two SFP+ 10Gbps connectors and one 1Gbps RJ-45 connector broken out to the side panel of the MDC-C5i (See [Section 3.2](#) for additional information). Each SR-10's integrated switch and BioDigitalPC® power control are managed via the MDC-C5i's Web-based management program called: ROMWare (See [Section 4](#) for additional information).



Section 3.2 - Side Panel



Section 3.3 - KVM USB and Video



Section 3.4 - Front Panel



Touch Screen that can control each individual card: I.E. Reboot, shutdown, power on, and KVM.

Cradlepoint Wireless Router status LEDs.

Cradlepoint Wireless Router reset button.

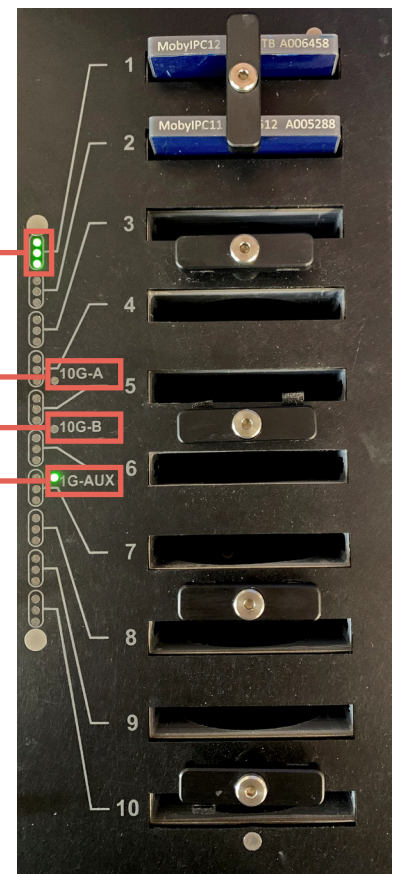
MDC-C5i Power Button

An individual slot's 1Gbps NIC LEDs. One LED for each 1Gbps NIC

10G-A: SR-10's 10Gbps SFP+ Port Status LED

10G-B: SR-10's 10Gbps SFP+ Port Status LED

1G-AUX: SR-10's auxiliary one Gigabit Port Status LED



Section 4 - ROMware Software

Section 4.1 - Login



ADD
ARNOUSE DIGITAL DEVICES CORP

SR-10

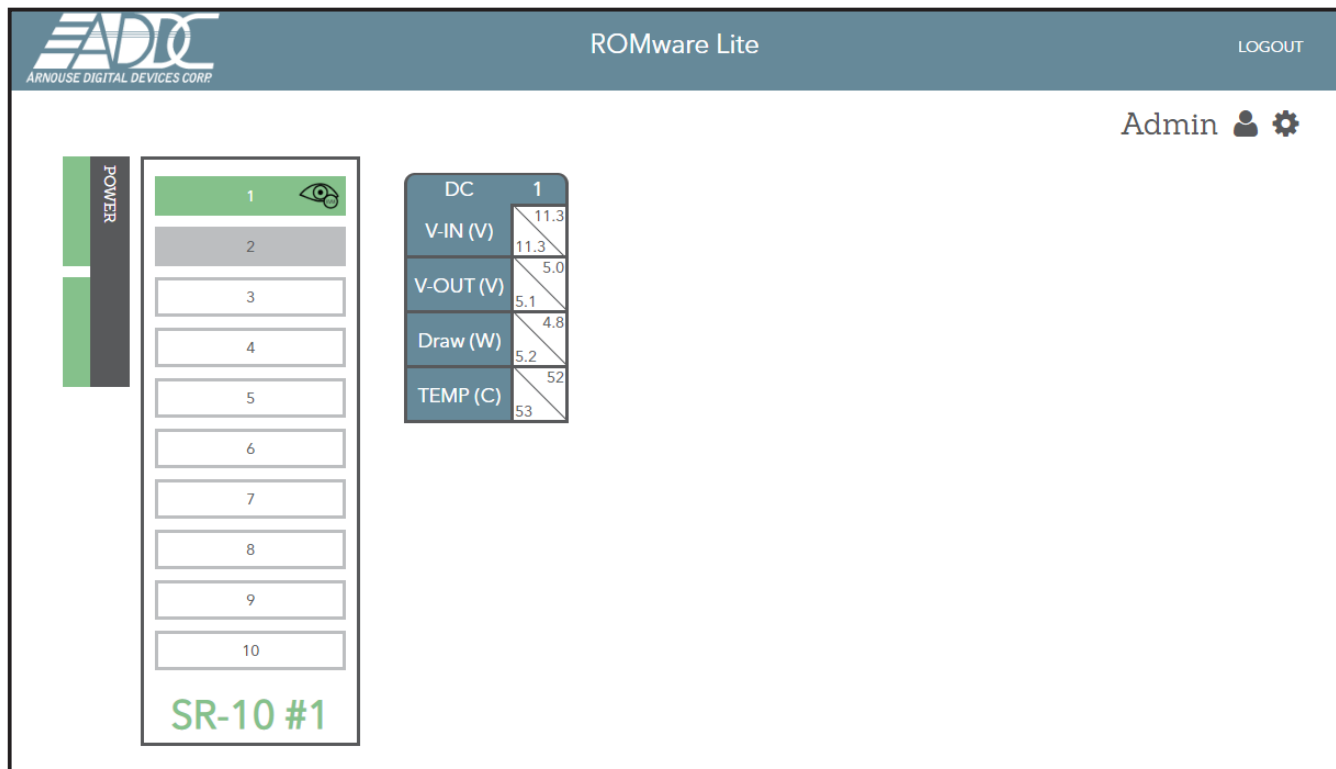
Username

Password

LOGIN

The web interface for ROMWare asks for credentials to log in and begin management and/or monitoring of your MDC-C5i. Users are supplied with administrative credentials that have been factory set. Only one admin can be logged in at once, through the IP 10.0.1.254.

Section 4.2 - Main Screen Overview



ADD
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ROMware Lite

LOGOUT

Admin

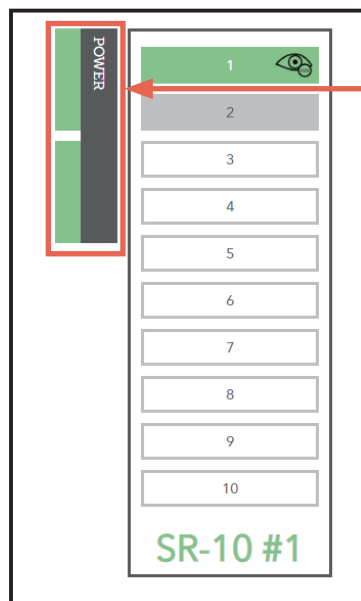
POWER

1 2 3 4 5 6 7 8 9 10

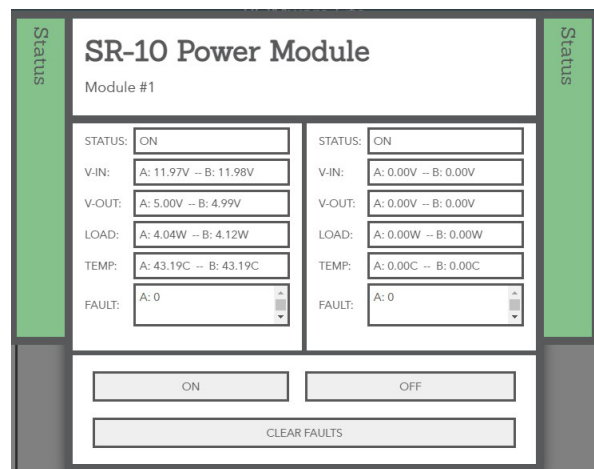
SR-10 #1

DC	1
V-IN (V)	11.3
V-OUT (V)	5.0
Draw (W)	4.8
TEMP (C)	52

Section 4.3 - DC Power Control & Monitoring



To verify the SR-10's Module Power Supply is operating optimally, you can press the button labeled "Power" for more information



This screen shows various power related information and allows users to turn "On" and "Off" each SR-10 Power Module. "Clear Faults" will clear faults for this SR-10's power supply.

DC	1
V-IN (V)	11.9 12.0
V-OUT (V)	4.8 5.0
Draw (W)	27 28
TEMP (C)	43 43

Clicking on a box will show more information regarding the current status of the DC Power Supplies.

Section 4.4 - BioDigitalPC® Power Control & Monitoring

Displaying the card management features of the MDC-C5i is done by clicking the **Slot Number**.

SR-10 Slot Management

SR-10 Module Position	<input type="text" value="1"/>
BioDigitalPC® Slot Position	<input type="text" value="1"/>
BioDigitalPC® Slot Number	<input type="text" value="1"/>
Current Status	<input type="text" value="NOT PRESENT"/>
Hardware Information	<input type="button" value="VIEW"/>
Notes	<div>auto generated content</div>

ENABLE KVM	Activates KVM on selected BioDigitalPC® Server card
POWER ON	Powers on the BioDigitalPC® Server card.
HARD POWER OFF	Immediately removes power from the BioDigitalPC® Server card.
SOFT POWER OFF	Sends a signal to the BioDigitalPC® Server card to shut down gracefully
HARD REBOOT	Removes power from the BioDigitalPC® Server card, waits 30 seconds and then applies power back to the BioDigitalPC® Server card.
RESET	Removes power from the remote power control. Do not use this unless specifically instructed to.
SOFT REBOOT	Gracefully reboots the BioDigitalPC® Server card.

Section 4.4 - BioDigitalPC® Power Control & Monitoring

SR-10 Slot Management

SR-10 Module Position

BioDigitalPC® Slot Position

BioDigitalPC® Slot Number

Current Status

Hardware Information

VIEW

Notes

auto generated content

ENABLE KVM

POWER ON

SOFT POWER OFF

RESET

HARD POWER OFF

HARD REBOOT

SOFT REBOOT

BioDigitalPC® Slot Number	The unique MDC-C5i slot number
SR-10 Module Position	The position number of the SR-10 Module within the MDC-C5i
BioDigitalPC® Slot Position	The Position of the Slot within the SR-10 Module
Current Status	Displays the current status of the slot: Present, Not Present, On and Off
Hardware Information	Click "View" to show the Slot Hardware Information. See the page 21 for more information.

Section 4.4 - BioDigitalPC® Power Control & Monitoring

SR-10 Slot Management

SR-10 Module Position

BioDigitalPC® Slot Position

BioDigitalPC® Slot Number

Current Status

Hardware Information

VIEW

Notes

auto generated content

ENABLE KVM

POWER ON

SOFT POWER OFF

RESET

HARD POWER OFF

HARD REBOOT

SOFT REBOOT

Slot Hardware Information

Disable Slot:

Off

Is Auto-Power On Enabled:

On

Delay:

MAC Address #1

MAC Address #2

MAC Address #3

Notes


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SAVE

CANCEL


Disable Slot	Disables the slot for this SR-10 module.
Is Auto-Power On Enabled	With this option enabled, after boot up of the MDC-C5i the BioDigitalPC® in this slot will be powered on (if present) automatically after the number of seconds specified in the delay box (below).
Delay	The number of seconds to wait after power up of the MDC-C5i before powering on the BioDigitalPC® (if present) in this slot.
MAC Address [1, 2, 3]	MAC addresses of the 3 1Gbps NICS for this slot.

Section 4.5 - MDC-C5i System Settings

ROMware LiteLOGOUT

Admin  

POWER

1 

2

3

4

5

6

7

8

9

10

SR-10 #1

DC	1
V-IN (V)	11.3
V-OUT (V)	5.0
Draw (W)	4.8
TEMP (C)	52

Click on the cog to access the Systems Settings

System Settings

Change Admin Password

Change External IP Address

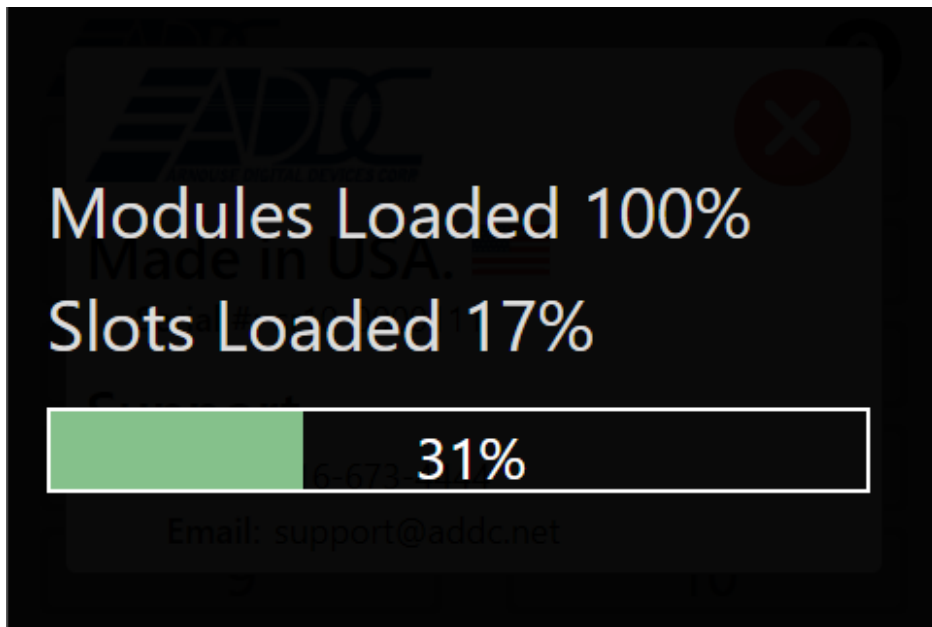
Change Gateway

Enable/Disable Keypad

The System Settings allows the user to change four things: ROMware password, the machines IP address, the machines Gateway and the ability to enable or disable the Keypad

Section 4.6 - Front Panel Touchscreen Overview

- System Startup Screen – Allow 3-4 minutes for system to boot up

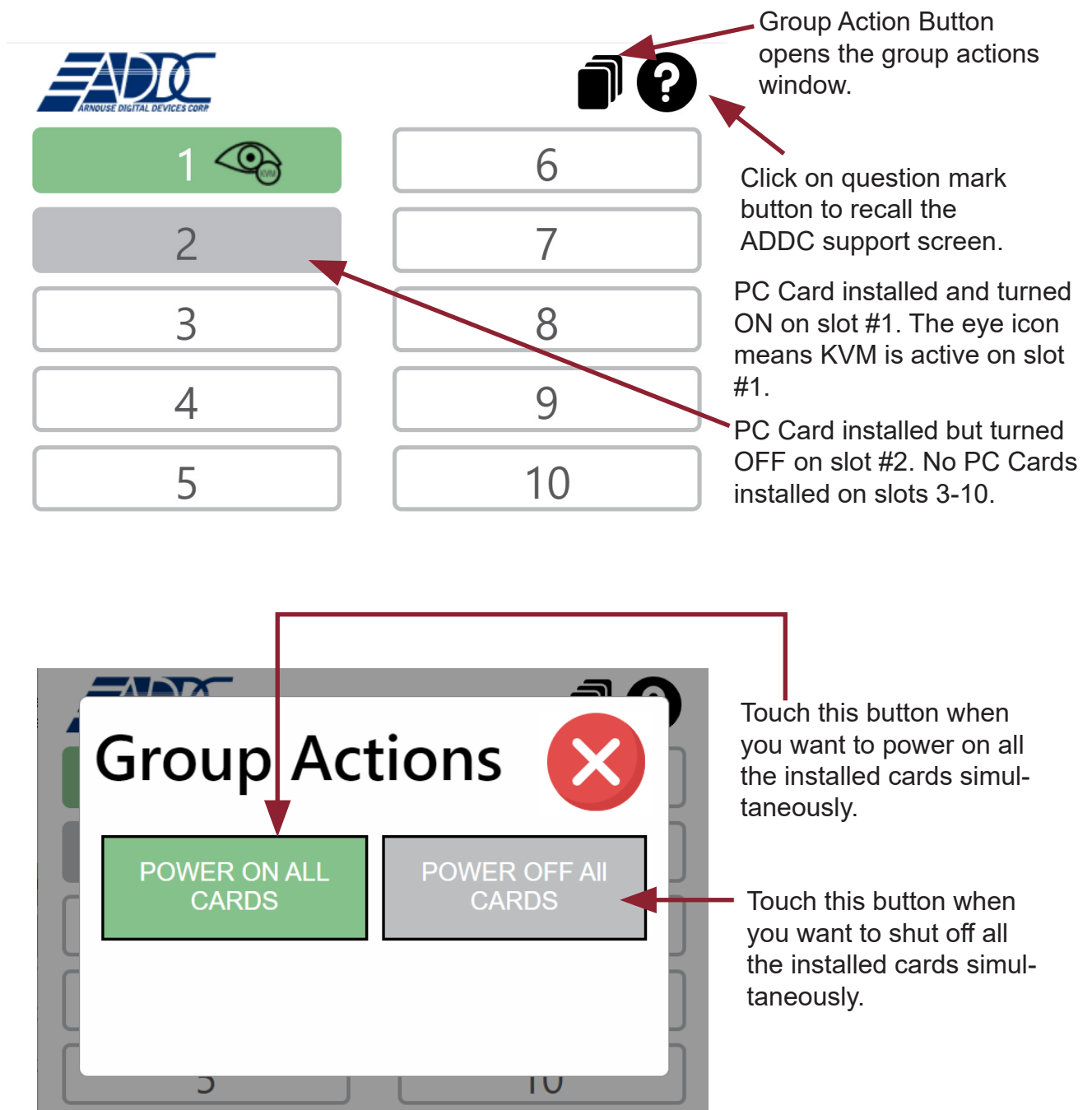


- ADDC Support Screen – This screen is displayed right after the system boots up and will be closed after ten seconds or it can also be closed by clicking on the red button.



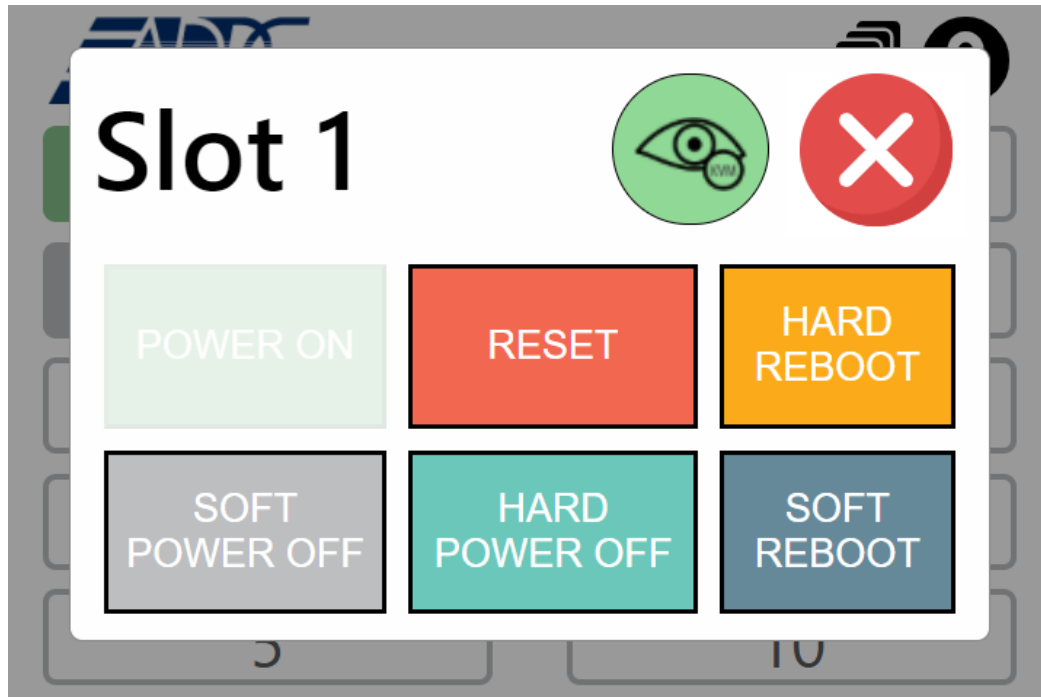
Section 4.6 - Front Panel Touchscreen Overview

- PC Card Slots Power Status Screen – This screen is displayed after the ADDC support screen is closed. WHITE indicates there is no PC Card installed, GRAY indicates there is a PC Card installed but is turned OFF, GREEN indicates that there is a PC Card installed and turned ON.



Section 4.6 - Front Panel Touchscreen Overview

Displaying the card management features of the MDC-C5i is done by clicking the **Slot Number**.



Activates KVM on selected BioDigitalPC[®] Server card.

POWER ON

Powers ON the BioDigitalPC[®] Server card.

HARD POWER OFF

Immediately removes power from the BioDigitalPC[®] Server card.

SOFT POWER OFF

Sends a signal to the BioDigitalPC[®] Server card to shut down gracefully

HARD REBOOT

Removes power from the BioDigitalPC[®] Server card, waits 30 seconds and then applies power back to the BioDigitalPC[®] Server card

RESET

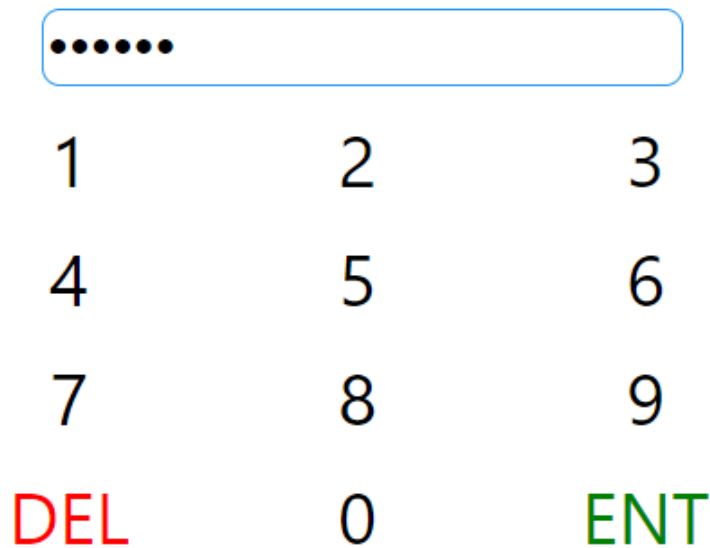
Removes power from the remote power control. Do not use this unless specifically instructed to.

SOFT REBOOT

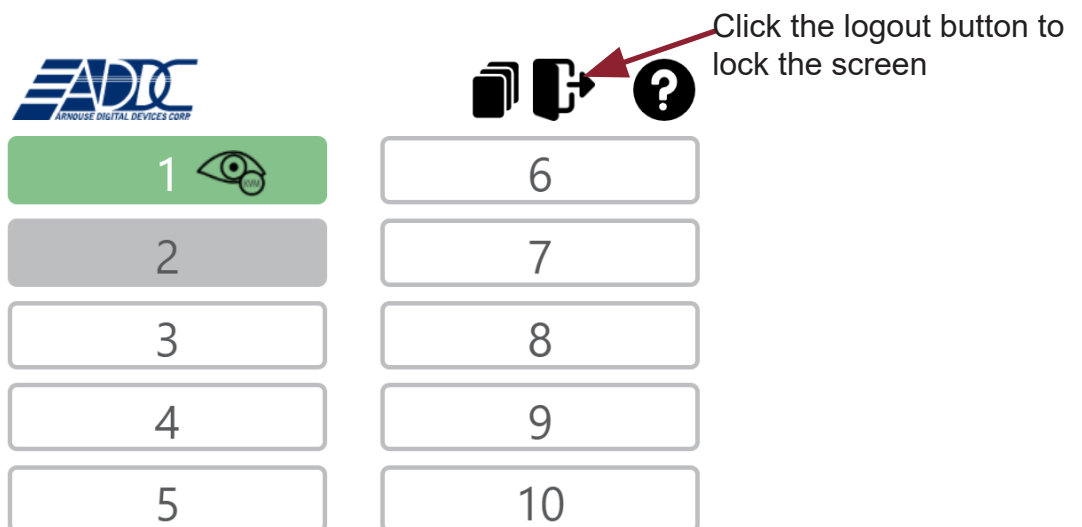
Gracefully reboots the BioDigitalPC[®] Server card.

Section 4.6 - Front Panel Touchscreen Overview

- A lock screen can be activated from the web interface. By default, the lock screen is disabled; however, it can be enabled from ROMWare Lite. When enabled, the lock screen will require you to enter the default pin number 123123 to access the PC Card Slots Power Status Screen. It is recommended that you change the default pin number, it can be changed from ROMWare Lite



- When the lock screen is enabled, there will be a logout button next to the question mark button; the logout button will lock the screen. There is a default session timeout of six minutes, if there is no user activity in six minutes the session will end, and the screen will be locked. The default session timeout can be changed from ROMWare Lite.



Section 5 - Cradlepoint Wireless LTE Router

Section 5.1 - Cradlepoint Router Features and Specs

Cradlepoint endpoints provide industry-leading, Gigabit-Class LTE connectivity as well as Ethernet and Wi-Fi. These purpose-built endpoints are sold with a subscription to NetCloud Service for Mobile which provides streamlined configuration and continuous cloud, modem, and router software feature enhancements..



Front



Back

Specs

Cloud Management	Yes
Wireless Connectivity	Gigabit-Class LTE
5G Status	5G Ready
Form Factor	Ruggedized Metal
Ethernet Ports	5 GbE (LAN/WAN switchable)
USB Ports	1
Serial Ports	1
Dual-Modem Support	Yes
Throughput	Throughput
VPN Tunnel Count	10
Wi-Fi	Dual-band, tri-radio Wi-Fi; 802.11ac Wave 2 (Wi-Fi 5)
GNSS/GPS	Active
Private Cellular Network	Yes

Section 5.2 - Cradlepoint NetCloud Login

The MDC-C5i has an integrated Cradlepoint LTE wireless router. To access the router's web management interface "NetCloud" connect to any of the MDC-C5i's 1GB ports on the side to obtain an IP address from the router's DHCP server, then enter NetCloud's default IP address 192.168.0.1 into any web browser where you will see the login page below.

← → ↻ ⚠ Not secure | 192.168.0.1/login/?error=auth&referer=/admin/ ⌂ ☆ □ 👤 ⋮

NetCloud™
by cradlepoint

LOGIN

Please enter the administrator password to access settings and options.


User Name:

Password:

Login

The username or password you entered was incorrect.

Device Details


 IBR1700-1200M-B

Login Help

Logging into this router for the first time?

The default device administrator password is printed on the product sticker on the underside of the router.

Once logged in, change your administrator password for increased security.



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To log in enter the default username "admin" and the default password "MDCc5i!".

Section 5.3 - Cradlepoint NetCloud Admin Dashboard

From the admin dashboard you can fully manage all the router's settings such as vlans, VPN tunnels, firewall policies, password change and much more. For further details go to cradlepoint's official documentation <https://cradlepoint.com/product/endpoints/ibr1700>

The screenshot displays the NetCloud Admin Dashboard for a specific device, IBR1700. The interface includes a top navigation bar with the NetCloud logo, a search bar, and status indicators for WiFi clients (0) and the device (IBR1700). A left sidebar contains navigation links for Quick Links, Dashboard, Connection Manager, Status, Identities, Networking, Security, and System. The main content area is divided into several sections:

- Router Alerts:** A yellow box containing three alerts: "This router is managed by NetCloud. Local configuration changes may not take effect, depending on your NetCloud administration settings.", "The Internet connection could not be established", and "The default password for the admin user has not been changed. Please change your passwords to secure non-default values."
- Device Information:** A section showing various device metrics: IBR1700-1200M-B, MM214400002695, v7.21.70 (Tue Jul 6 16:56:05 UTC 2021), 0 days, 0 hours, 6 mins, 00:30:44:74:c4:da, 28% CPU, 34 °C (Hi/Low: 34/33 °C), and Wed Dec 31 1969 20:05:32 GMT-0500 (Eastern Standard Time).
- Ethernet WAN:** A section showing network status: wan (10/100/1000 Ethernet Switch), State: Disconnected, Port: eth0, Up Time: Unknown, IPv4: None, IPv6: None, Gateway: None, DNS: None, Stats: 0.00 B IN / 544.00 B OUT.
- Modems:** A section showing two modems: Internal 1200M-B (SIM1 - Unknown) and Internal 1200M-B (SIM2 - NO SIM).
- WWAN:** A section showing "No WWAN Devices Detected".
- LAN (clients: 2):** A section showing network status: Primary LAN: 192.168.0.1 / 255.255.255.0, IPv6 Address: None, Route Mode: NAT, Access: Admin Access, DHCP, VRRP State: Disabled, Guest LAN: 192.168.10.1 / 255.255.255.0, IPv6 Address: None, Route Mode: NAT, Access: DHCP, VRRP State: Disabled.
- WiFi:** A section showing two WiFi radios: IBR1700-4da - Radio 1 (Channel: 6, Channel Contention: 5%, Transmit Power: 100%, Channel Locked: No, Security: WPA2 Personal, Network: Primary LAN) and IBR1700-4da-5g - Radio 3 (Channel: 157, Channel Contention: 0%, Transmit Power: 100%).

The footer of the dashboard includes copyright information (Copyright © Cradlepoint, Inc. 2021 All rights reserved.), Open Source Licenses, Privacy Policy, Product Support, and the website URL (www.cradlepoint.com).