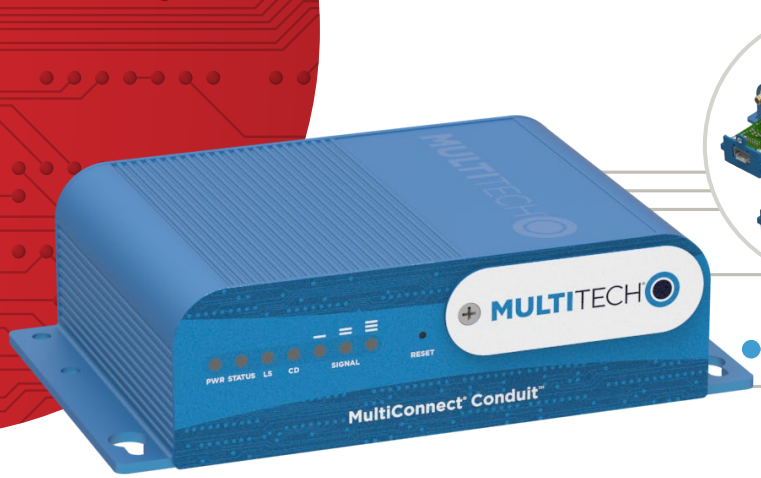
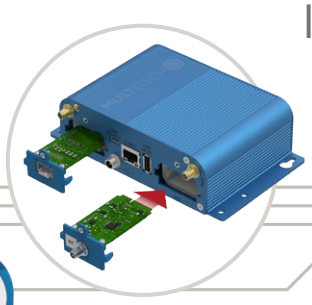
MULTITECH®
CREATE • CONNECT • COMMUNICATE

MultiConnect® Conduit™

Programmable Gateway for the Internet of Things





LoRa® Alliance

MultiConnect® Conduit™ is the industry's most configurable, manageable, and scalable cellular communications gateway for industrial IoT applications. Network engineers can remotely configure and optimize their Conduit performance through DeviceHQ®, the world's first IoT Application Store and Device Management platform.

The Conduit features two accessory card slots that enable users to plug in MultiConnect® mCard™ accessory cards supporting their preferred wired or wireless interface to connect a wide range of assets locally to the gateway. Available options include a LoRaWAN™ mCard capable of supporting thousands of MultiConnect® mDot™ long range RF modules connected to remote sensors or appliances.

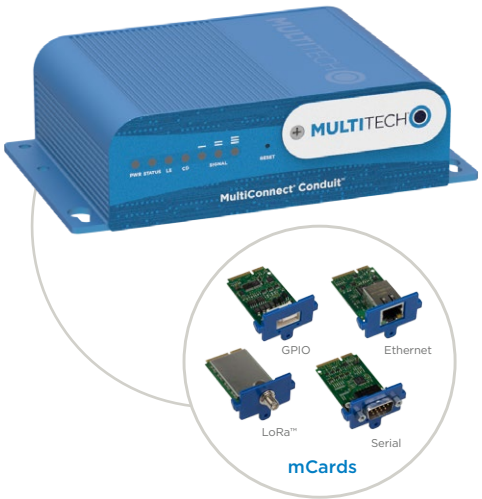
Both IBM's Node-RED, a graphical, drag-and-drop interface and mLinux™ Open Embedded/Yocto opens the complex world of IoT application development to a wider user group to monitor and control their assets.

Quick-to-deploy and easy to customize and manage, the Conduit communications gateway realizes your IoT application.

BENEFITS

- Connect most any asset to your preferred data management platform
- Backhaul options include 4G-LTE, 3G, 2G cellular or Ethernet for cost effective global deployment
- Quick-to-deploy, manage and scale differentiated services using the DeviceHQ IoT Application Store
- Incredible asset management range with LoRa™ – up to 10 miles/15 km line of sight, 1-3 miles/2 km thru buildings*

* Represents ideal network configuration and equipment set up. Results vary depending on payload amount, transmission frequency, spreading factor used, as well as terrain, RF interference and obstruction type (e.g., metal, cement, etc.)



3 Steps to Deploying your IoT Application

1. **Select Wide Area Network**
   4G-LTE, 3G, 2G, Ethernet
2. **Select Local Connection**
   Serial, Wi-Fi®, Bluetooth®, GPIO, LoRaWAN™
3. **Select Development Platform**
   Node-RED, mLinux™

www.multitech.com/Conduit

HIGHLIGHTS

Application Development Tailored to You

MultiConnect Conduit provides both the IBM Node-RED graphical, drag-and-drop interface and mLinux development environments, offering IT professionals, integrators and developers alike, programming choice and capability to utilize the distributed intelligence capabilities of the Conduit to provide analytics on incoming data and provide more actionable outgoing data.

For the Advanced Developer – Open mLinux Development Environment

With a completely open Linux development environment, our mLinux distribution is based on the Open Embedded/Yocto project; providing hundreds of open source packages and extensive language support.

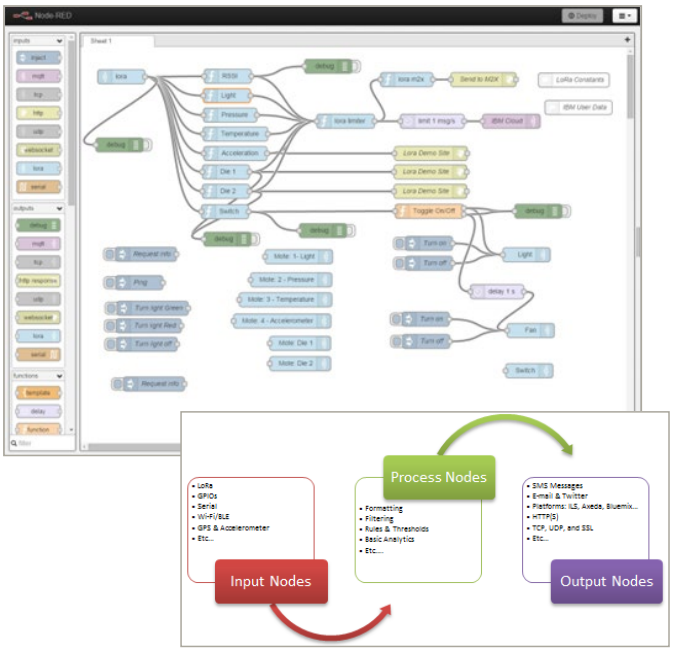
This development path is recommended for those wanting to port existing applications, who have strong language preferences, or who need complete firmware control.

The mLinux Distribution Includes:

- Operating System: Linux 3.12 Kernel, Yocto 1.6
- Language Support: Java, Ruby, Perl, Python, C/C++, PHP, C# and JavaScript
- Packages: SQLite (Database), Ligttpd (Web Server), BusyBox (Core Utilities)

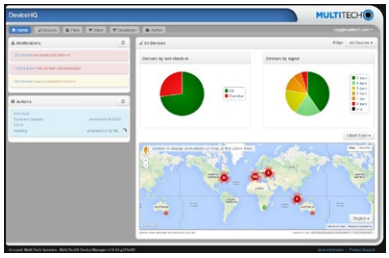
Fast and Intuitive Programming with Node.js and Node-RED Technologies

Applications can be simply created and deployed by the click of a button based upon IBM's Node-RED visual development tool. Incredibly user-friendly, Node-RED is an intuitive graphical programming tool ideal for rapid prototyping, designed for IT professionals to optimize and scale the edge behavior of their IoT network.



Easily Deploy and Manage Assets Via DeviceHQ

MultiTech DeviceHQ is the M2M industry's first IoT online application store to enable customers to easily deploy and scale applications to their connected devices. Drag-and-drop tools easily allow customers to create and manage applications for in-field assets. The DeviceHQ application store gives your business the power to innovate operations management and create value-added services.



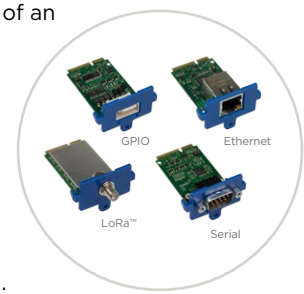
Benefits

- "Low Touch" asset deployment reduces costs, complexity and time
- Reduce truck-rolls using remote performance management and asset updates
- Easily scales to your network needs
- Browse and download a wide variety of custom applications tailored to your business needs

ACCESSORIES

MultiConnect Conduit Accessories – From the Gateway to the Endpoint

MultiConnect Conduit is the center of an integrated IoT platform and comes with the following options:



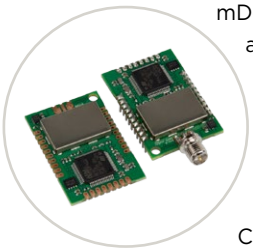
MultiConnect mCard

MultiConnect mCards provide the flexibility needed to manage diverse infrastructures, supporting a wide range of interfaces and communication protocols including:

- Multi-Function Serial, GPIO, LoRa LPWAN
- Ethernet, Xbee and CAN and MOD bus releasing in 2016
- Bluetooth®, Wi-Fi®, GNSS native to the Conduit board releasing in 2016

MultiConnect mDot – Connecting the "Things"

MultiConnect mDots are inexpensive RF radio modules able to connect low data-rate M2M devices to the internet through the Conduit IoT gateway using the LoRa Alliance LoRaWAN specification, a long-range, Low-Power Wireless Access Network (LPWAN) technology.



mDots bring intelligence, reduced cost and complexity to the very edge of the network by running the ARM® mbed™ OS on a low power ARM Cortex®-M4 processor. With support for multiple interfaces, just about any "Thing" can now be cost effectively connected to the Conduit and choice of cloud data provider.

SPECIFICATIONS

Model	MTCDT-Lxxx			MTCDT-H5
Performance	LTE 3GPP Release 9 (100 Mbps peak downlink/50 Mbps peak uplink)			HSPA+
	AT&T/T-Mobile	Europe	Verizon	
	with HSPA+ 21/GPRS fallback	with HSPA+ 42/GPRS fallback	(No fall back)	
Frequency Bands (MHz)	AT&T/T-Mobile	Europe	Verizon	
	4G: 700(B17)/ 850(B5)/ AWS1700(B4)/ 1900(B2) 3G: 850(B5)/ 1900(B2) 2G: 850/1900	4G: 800(B20)/ 1800(B3)/2600(B7) 3G: 850(B5)/ 900(B8)/2100(B1) 2G: 900/1800	700(B13)/AWS1700(B4)	3G: 850/900/1700 (AWS)/1900/2100 2G: 850/900/1800/1900
Processor & Memory	ARM9 processor with 32-Bit ARM & 16-Bit Thumb instruction sets • 400 MHz • 16K Data Cache • 256 MB Flash Memory • 16K Instruction Cache • 128X16M DDR RAM			
Packet Data	Up to 100 Mbps downlink, Up to 50 Mbps uplink			21 Mbps downlink, 5.76 Mbps uplink
Radio Frequency	LoRa – a proprietary Digital Spread Spectrum technique			
Storage	Micro SD			
Input Voltage	9V to 32VDC			
Connectors				
Ethernet	1 RJ-45 Ethernet 10/100 port			
USB	2 USB Ports: USB Host (Type-A), USB Device (Micro-B)			
Serial	1 Debug Serial: USB Micro-B			
Antenna	Female SMA, 2dBi detachable antennas (Qty 2)			
SIM	SIM/USIM			
Physical Description				
Dimensions (L x W x H)	6.35" x 4.23" x 1.69" (161.3 mm x 107.4 mm x 42.8 mm)			
Weight	1.01 lbs (16.2 oz) with two accessory cards installed			
Chassis Type	Metal			
Environmental				
Operating Temperature	-30° to +70° C*			
Storage Temperature	-40° to +85° C			
Relative Humidity	20% to 90%, non-condensing			
Certifications				
EMC Compliance	US: FCC Part 15 Class B. EU: EN 55022 Class B, EN 55024. Canada: ICES-003			
Radio Compliance	FCC Part 22,24,27			
Safety	UL 60950-1 2nd Ed., cUL 60950-1 2nd Ed., IEC 60950-1 2nd Ed			
Network Approvals	PTCRB, GCF certified module, AT&T, T-Mobile Pending: Rogers, Bell, Telus, Verizon & Sprint			
Quality	MIL-STD-810G: High Temp, Low Temp, Random Vibration. SAE J1455: Transit Drop & Handling Drop, Random Vibration, Swept-Sine Vibration. IEC68-2-1: Cold Temp. IEC68-2-2: Dry Heat			

* UL Listed @ 40° C, limited by AC power supply. UL Recognized @ 70° C when used with the fused DC power cable, part number FPC-532-DC.
Installation in outdoor locations or ambient temperature above 40° C or 70° C has not been evaluated by UL. UL Certification does not apply or extend to use in outdoor applications. Optional power must be UL Listed ITE power supply marked LPS or Class 2 rated 12VDC, 5A. Certification does not apply or extend to voltages outside certified range, and has not been evaluated by UL for operating voltages beyond tested range.

SOFTWARE SPECIFICATIONS

mLinux

Open source embedded Linux distro based on the Yocto Project

Tool chain for creating custom images

LoRa network server & packet forwarder

WAN connection via Ethernet or cellular

Cellular PPP, DHCP client & server

Firewall configuration via iptables

MTAC-GPIO, MTAC-MFSER and MTAC-LORA

Full root console access via SSH and serial debug port

Out of the box support for C, C#, C++, Java, Perl, Python, Javascript, Node.js, Ruby

opkg package manager with limited package feed

Basic router functionality built-in with Linux

RS-232, RS-485

Five configurable LEDs

Software configurable USB device port

Lighttpd web server

AEP

Enhanced closed source embedded Linux platform

LoRa network server & packet forwarder

WAN Connection

Cellular PPP, Dynamic DNS, DHCP Server/Client

WAN connection via Ethernet or cellular

LAN/WAN Security

Secure firewall with NAT and port forwarding

Static routing

Node-RED integration

Built-in Node-RED application development environment,

Node modules for MTAC-GPIO, MTAC-MFSER and MTAC-LORA

RS-232, RS-485

Language Support

C, C++, Python, Javascript, node.js, bash

Router/Modem management

Graphical web interface for configuration and management

Remote Access

Configuration backup & restore

Easy firmware upgrade through graphical web interface

Seamless integration with DeviceHQ, MultiTech's device management platform

System and network statistics

ORDERING INFORMATION

Non-cellular Models

Model	Description	Region
MTCDT-210L-US-EU-GB	mLinux Programmable Gateway w/US/EU/UK Accessory Kit	Global
MTCDT-210A-US-EU-GB	Application Enablement Gateway w/US/EU/UK Accessory Kit	Global

HSPA+ Models

Model	Description	Region
MTCDT-H5-210L-US-EU-GB	HSPA+ mLinux Programmable Gateway w/US/EU/UK Accessory Kit	Global
MTCDT-H5-210A-US-EU-GB	HSPA+ Application Enablement Gateway w/US/EU/UK Accessory Kit	Global

MultiConnect Conduit LTE 2016 Roadmap

LTE Models

Model	Description	Region
MTCDT-LAT1-210L-US	LTE mLinux Programmable Gateway w/US Accessory Kit	NAM
MTCDT-LAT1-210A-US	LTE Application Enablement Gateway w/US Accessory Kit	NAM
MTCDT-LVW2-210L-US	LTE mLinux Programmable Gateway w/US Accessory Kit (Verizon)	NAM
MTCDT-LVW2-210A-US	LTE Application Enablement Gateway w/US Accessory Kit (Verizon)	NAM
MTCDT-LEU1-210L-EU-GB	LTE mLinux Programmable Gateway w/EU/UK Accessory Kit	EMEA
MTCDT-LEU1-210A-EU-GB	LTE Application Enablement Gateway w/EU/UK Accessory Kit	EMEA

RECOMMENDED ACCESSORIES

MultiConnect mCard

Model	Description	Region
MTAC-GPIO	GPIO Accessory Card, GPIO Cable Sold Separately	Global
MTAC-MFSER-DTE	Multi-Function Serial Accessory Card - DTE Interface	Global
MTAC-MFSER-DCE	Multi-Function Serial Accessory Card - DCE Interface	Global
MTAC-LORA-868	868 MHz LoRa Accessory Card, Antenna Sold Separately	EMEA
MTAC-LORA-915	915 MHz LoRa Accessory Card, Antenna Sold Separately	NAM

MultiConnect mDot

Model	Description	Region
MTDOT-868-X1-SMA	868 MHz XBee LoRa SMA	Euro
MTDOT-868-X1P-SMA	868 MHz XBee LoRa SMA w/Programming Header	Euro
MTDOT-868-X1-UFL	868 MHz XBee LoRa UFL	Euro
MTDOT-868-M1-UFL	868 MHz SMT LoRa UFL	Euro
MTDOT-868-M1-TRC	868 MHz SMT LoRa RF Pad	Euro
MTDOT-915-X1-SMA	915 MHz XBee LoRa SMA	NAM
MTDOT-915-X1P-SMA	915 MHz XBee LoRa SMA w/Programming Header	NAM
MTDOT-915-X1-UFL	915 MHz XBee LoRa UFL	NAM
MTDOT-915-M1-UFL	915 MHz SMT LoRa UFL	NAM
MTDOT-915-M1-TRC	915 MHz SMT LoRa RF Pad	NAM

Developer Kit and Accessories

Model	Description	Region
MTUDK2-ST-MDOT	Developer Kit, includes SMA antenna and USB cable, mDots sold separately	Global
AN868-915A-1HRA	868-915 MHz RP-SMA Antenna, 8" (3.0dBi)	Global
CARSMA-UFL	Reverse SMA-to-UFL Coax RF Cable, 6"	Global
CA-MTAC-GPIO	GPIO Cable for MTAC-GPIO (2.5 ft)	Global
CA9-9-D	DE9M-DE9F Serial Cable (6 ft)	Global
CA-USB-A-MICRO-B-3	USB Cable Type A to Type B Micro (3ft)	Global

Go to www.multitech.com for detailed product model numbers.
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SERVICES & WARRANTY

MultiTech's comprehensive Support Services programs offer a full array of options to suit your specific needs. These services are aimed at protecting your investment, extending the life of your solution or product, and reducing total cost of ownership. Our seasoned technical experts, with an average tenure of more than 10 years, can walk you through smooth installations, troubleshoot issues and help you with configurations.

INSTALLATION SUPPORT

MultiTech's Installation Support Service delivers priority service with the ability to work one-on-one with an experienced MultiTech technical support engineer, to guide you through the installation process for our products.

TECHNICAL SUPPORT SERVICES

At MultiTech, we're committed to providing you personalized attention and quality service while providing you a quick response to your product support needs. We have several options of support for you to choose from.

For additional information on Support Services as well as other service offerings, please contact your MultiTech representative or visit www.multitech.com/support.go

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