



## ITARMI Preparation Checklist

### Introduction

This document outlines what equipment, spares and essential tools are required for an IT Engineer who will be attending site.

**A good quality, comprehensive toolkit is vital to be able to complete any tasks that require tools, such as mounting a switch or router or working on a server.**

Depending on the complexity of the task, having the correct tool will be invaluable in completing the job successfully and professionally.

**It is considered bad practice to ask for tools when on site. Engineers should be prepared by reading the scope of works and having the necessary tools is part of the requirement. If in doubt about requirements, speak to a member of the ITARMI Operations team who will be happy to assist.**

### Laptop and Accessories

To manage routers and switches, a Windows or Linux laptop is required. Any device connected to a client's network must have the operating system fully patched and an antivirus application installed that is up-to-date with the threat database.

**Make sure the battery is fully charged and the power supply is included in case the battery power runs out.**

Include a Cisco console cable (normally blue in colour) and, if required, a USB to serial adaptor for connectivity from the laptop to the admin port of the device.

**Also include a USB storage flash drive of at least 32GB that can be used to transfer files or as a tool to image a system.**





### Accessories

**Ensure the following items are also taken to site:**

- Cage nuts and bolts for mounting devices in a rack.
- A variety of Cat 6 patch leads.
- Cable ties for cable management.
- If required, a labeller.

**If working with Access Points:**

- Ensure the correct mounting brackets are with the AP to be mounted.
- Check that the media to which the bracket is to be mounted is suitable and compatible.
- Ensure you have the correct drills, screws and anchors for any fittings.
- Check the network port to be used is close to the mounting point, it is operational and patch leads are available. They need to be long enough to reach the AP.

### Safety and Checks

For any work at height or if lifting heavy items, ensure the following conditions are met:

**Working at height:**

- Complete an assessment of the risk of working at heights before completing the tasks. If the mounting point is over 3.5m or 12ft from floor to ceiling, scaffolding, a scissors lift or hoist will be required.
- If using a ladder, ideally a six step, 6ft six or eight step, non-conductive ladder e.g. fiberglass should be used and pre-check the ladder for any defects.
- Carry light materials and tools up the ladder and don't overload the ladder.
- Don't overreach and try maintaining three points of contact.
- Don't stand on the top rung.

**Working with heavy items:**

- Two engineers will be required for equipment weighing over 50lbs or 25kg.
- Equipment over 150 lbs or 75kg. will require a lift or hoist.





## ITARMI Engineers Toolkit and Knowledge Base

Item	Details
Screwdriver Set	Flat Head, Slotted / Philips, Torx, In fine and standard size blades
Pliers	Long nose, Snub nose / Electricians
Cutters	Side-cutter, Wire snips
Adjustable Wrench	4" to 8"
Allen key set	Hex set (metric), Torx set
Socket set	Metric
Small hammer	Ball-peen
Utility Knife	Stanley utility knife with retractable blade. Include spare blades
Hand Saw	To be used for wood, plastic and metal. Include spare blades
Tape Measure	3m with inches and cm markings
Torch	Head torch or generic hand torch. Include spare batteries
Cable Ties	Selection of various cable ties
Cage Nuts	Used for mounting equipment in racks
Insulation Tape	Used for fixing and insulating wires
Face Mask	For health and safety when working in dusty environments or when cutting
Safety Goggles	For health and safety when working in dusty environments or when cutting
Hard Hat	May be a requirement when attending site
Putty Knife	Ideal for scraping
Paint Brush	Ideal for brushing dirt and dust off
Multimeter	To check for voltage and continuity
Cable Tracer	Used to trace a cable by injecting a tone onto a network cable
Cable Tester	To check the efficiency of the cable, determine length, generate a pass / fail
Krone Tool	IDC punch down tool used on RJ45 sockets and patch panels
Laptop	Indispensable when working with and router / switch or device that needs configuration or setting up.
CISCO Cable	A cable to connect to the serial / USB port of the laptop to the admin port on a Cisco device. Also used on other equipment.
USB to serial adaptor	If the Cisco cable has a serial connection and the laptop does not, this is required as an adaptor to interface.
Putty Software	SSH Client software to allow access to devices such as routers, firewalls and switches.
Drilling Machine	A basic drilling machine, ideally battery powered, with a good selection of concrete and metal drill bits
Tool Bag or Case	Keep all tools clean and tidy within a bag or case. Replace any damaged or lost items.





### Information

#### IP Address

Public				
	Start	End	Subnet Mask	CIDR
Reserved	0.0.0.0	0.255.255.255	255.0.0.0	/8
Class A	1.0.0.0	126.0.0.0	255.0.0.0	/8
Reserved	127.0.0.0	127.255.255.255	255.0.0.0	/8
Class B	128.0.0.0	191.255.0.0	255.255.0.0	/16
Class C	192.0.0.0	223.225.225.0	255.255.255.0	/24
Class D	224.0.0.0	239.255.255.255		
Class E	240.0.0.0	255.255.255.255		

#### OSI Layers

Num	Layer	Data Unit	Protocols	Notes
7	Application	Data	HTTP, FTP, IRC, SSH, DNS	
6	Presentation	Data (format)	SSL, FTP, IMAP, SSH	
5	Session	Data	Various API Sockets	RPC, NFS, AppleZone (ZIP), NetBIOS, PPTP
4	Transport	Segments	TCP, UDP, EVN, SCTP, DCCP	TCP & UDP (UDP has no reliability)
3	Network	Packets	IP, IPSec, ICMP, IGMP	Routers (Layer 3 switches have routing capabilities) (IP)
2	Data Link	Frames	Ethernet, SLLIP, PPP, FDDI	Switches - Ethernet (MAC Address)
1	Physical	Bits	Coax, Fibre, Wireless	Ethernet / PPP / DSL [Fibre / Copper / Wireless]





## ITARMI Engineers Toolkit and Knowledge Base

### Common Ports

- HTTP – Port 80
- HTTPS – 443
- FTP – 21
- FTPS / SSH – 22
- POP3 – 110
- POP3 SSL – 995
- IMAP – 143
- IMAP SSL – 993
- SMTP – 25 (Alternate: 26)
- SMTP SSL – 587
- MySQL – 3306
- cPanel – 2082
- cPanel SSL – 2083
- WHM (Webhost Manager) – 2086
- WHM (Webhost Manager) SSL – 2087
- Webmail – 2095
- Webmail SSL – 2096
- WebDAV/WebDisk – 2077
- WebDAV/WebDisk SSL – 2078

### Basic Cisco Commands

CLI	Mode			Notes
	User>	Priv #	Global Conf	
Line console 0			✓	
Logging synchronous			✓	Prevents every logging output from immediately interrupting your console session
hostname			✓	WORD - System network name
exit				Exit from Mode to lower mode
copy running-config startup-config		✓		This is a RELACE (copy run start)
copy startup-config running-config		✓		This is a MERGE (copy start run)
configure replace nvram:startup-config		✓		This is overwrite
erase startup-config		✓		
write memory		✓		Write to NV memory - Shortcut of commands (copy and wr mem in one)





CLI	Mode			Notes
	User>	Priv #	Global Conf	
reload		✓		
config-register 0x2142				Router to ignore the startup configuration on the next reload
enable password			✓	WORD - Password (no enable password)
show version	✓			
show clock	✓			
show memory	✓			
show startup-config		✓		
show running-config		✓		
show run		✓		"show run all" will show default commands as well
show ip interface brief		✓		
show interface {interface}		✓		E.G. "show interface FastEthernet 0/1"
interface {Name} E.g. Ethernet 0/1/0			✓	Takes to "interface" mode - prompt = Router(config-if)#
ip address {IP Subnet}			✓	E.g ip address 192.268.10.1 255.255.255.0
no shutdown			✓	shutdown interface configuration command to disable an interface and the no shutdown command to enable it.
ip default-gateway {ip address}			✓	Note: Exit from "interface" mode - Switch1(config-if)#
end			✓	
write				
no ip address			✓	To remove an IP address
show line		✓		The CTY line-type is the Console Port. The TTY lines are asynchronous lines used for inbound or outbound modem and terminal connections. The VTY lines are the Virtual Terminal lines of the router, used solely to control inbound Telnet connections
banner motd			✓	Message of the day E.g. "This is a private network and unauthorised access is not permitted"
clock set		✓		E.g. clock set 13:32:30 Aug 14 2019
clock timezone GMT 0		✓		E.g. clock timezone GMT 0
show flash		✓		
more		✓		E.g. more flash run will show the run file on flash
terminal length {number}		✓		number of lines displayed in the screen output - 0 = no pause
line console 0			✓	
password cisco			✓	
login			✓	no logon [to remove password]