

Module 1 Lesson 5 Basic of Troubleshooting

Objectives

In this lesson we are going through, what I call the “OSI Model Approach”, which helps to determine, and fix issues related to the IP Office, and its components.

Layer 1 - Physical Layer

In this section we are covering the physical components that play part with the IP Office voice solution, from jacks, cables, patch panels, telephones, IP Office Control Units, and modules.

Layers 2 and 3 - Datalink and Network Layers

In these layers we are reviewing how to check trunk signaling, IP Addressing, and Routing.

Layers 4, 5, and 6 - Transport, Session, and Presentation

In these Layers we are overviewing how Firewalls are responsible of handling services to RTP-Streams, codec-types, phone registrations, and IP Trunking.

Layer 7 - Application

In this layer we are going over the client applications, such as Softphones, and One-X Communicator for IP Office.



Layer 1 - Physical

Dead phone, bad display, no sound, static on calls, and stuck on boot, are the five scenarios presented when troubleshooting any physical components in the IP Office system.

Dead Phone

When working with defective phones that has no power, the first things to check are the wiring, patch panels, and physical ports. Both Analog and Digital devices are connected the same way. Both technologies use a single cable directly connected back to the IP Office Control Unit.

It is important to test every single connection responsible of carrying the voice signal, from the IP Office control unit, back to the telephone.

These includes=

1. line cords
2. patch-cords
3. patch-panels, etc.

The IP Phones follow the same procedures, except there is a PoE Data Switch in between the phones and the phone system, adding another point of failure. Remember to check every switch responsible of carrying the signal back to the IP Office, this includes every MDF closet.

Weather you are troubleshooting DCP, Analog, or IP, it is a good practice to swap a good phone with the defective one. This practice tells you if the problem is related to the phone device or the workstation (jacks/cabling/ports, etc.).

Bad Display

This is usually related to firmware update, or bad LCD.

No Sound

No sound can be related to a bad handset, handset cord, or the handset is connected to the wrong telephone port. For those using Headsets, make sure to check the batteries, and dip switches of the Headset's charging station.

Static On Calls

Cabling is the major cause of static for Digital and Analog phones. Test the jacks, and the cabling from phone back to the main frame.



Static On Calls - IP Phones

Static with IP Phones, it is usually caused by an overloaded, misconfigured network, un-managed switches, VLANs, etc.

Stuck on boot

For Digital and IP Phones, this can mean the phone needs its firmware loaded, and it is waiting for the File server to send those files back to the phone. Confirm that you have the File Server connected, serving the necessary files.

Layers 2 and 3 - Data Link and Network Layers

ISDN Trunks such as T1s, fall into the Layer 2. When troubleshooting these type of events, ensure that you have the B-Channels in service through the SSA Application. Missed Frames and Slips are the two main events that you need to be aware of.

On Layer 3 - IP Routing

To test the Routing Tables, you can use either the ping, or the traceroute commands. Always ping to the next hop, to see which device is not responding.

Layers 4 and 5 - Session and Presentation

Firewalls are the main devices to troubleshoot in these layers. If you are experiencing issues with Voicemail, VPN Phone registrations, and SIP Signaling, you have to engage the Firewall Administrator, to check the policies, and ports responsible for allowing these devices to connect.

If the Firewall test fine, then you have to engage the Service Provider, and work with them to bring the devices back online. You can always ask the Firewall administrator to provide you with the event logs. to see which ports are being blocked, and which policies need to be updated with new rules, finally, any ports associated with the IP Office system and its components.



Layer 7 - Application

When troubleshooting Applications such as Softphones, and the One-X Portal or Communicator for IP Office, the first thing you have to do is, check the Windows or Desktop Operating system. See if you can use the same Application credentials, to login to a different workstation. Or try to reinstall the Application with local Administrator rights.

The following are some of the characteristics associated with some of the applications=

SSL Certificates

Is another element that you should be aware of. It is important to review the error logs and see if these are related to security. This is important for those integrating the IP Office with SMGR.

Softphones Issues - Part 2

Confirm the FQDN is configured

FQDN (Fully Qualify Domain Name) which is really the IP Address, or Domain name assigned by the network administrator.

Softphones Issues - Part 3

Signaling Server = This is IP Office System.

The signaling server should be reachable from the Application's workstation. If it is failing to register to its gatekeeper in this case the IP Office, make sure you can ping it, or discover it through the Application if this feature is available.

Other Considerations

For those remote users, make sure to check firewalls, vpn tunnels, and any other server that interface between the endpoint and the IP Office.

