

**इरिसेट**  
**नेटवर्क प्रयोगशाला**  
**प्रयोग नं: एन डब्लू एल - 10**

**IRIS**  
**NETWORK LABORATORY**  
**EXPERIMENT No: NWL - 10**

नाम

Name : -----

अनुक्रमांक

Roll No : -----

पाठ्यक्रम

Course : -----

दिनांक

Date : -----

प्राप्त अंक

Marks Awarded : -----

अनुदेशक का हस्ताक्षर

Instructor Initial : -----

Name of Experiment: **Study of Integrated Network Analyzer (INA)**

**Object:**

Study of Integrated Network Analyzer

**Introduction:**

This **INA** (Integrated Network Analyzer) is a product of FLUKE networks (Model: Optiview Series III). This analyser is designed for trouble shooting and monitoring of Wired & Wireless Local Area Networks and it is quite useful for analysis and documentation.

The **INA** tests all the seven (7) OSI layers, right from the physical (cable) to Application layer and everything in between. **Optiview Series III** supports 10/100/1000 Mbps Ethernet through RJ45 jack ports along with 1000 base x port (Optical Interface).

**INA** Functions include.

1. Make & Save Reports
2. Packet capture
3. Mapping
4. Database.

Face panel of **INA** has the following ports

1. Network management port
2. Communication port of 10/100/1000 Mbps support
3. One 1000 Base x port (GBIC port)
4. 3 USB ports
5. One Charging Jack (15V)
6. One VGA out port (15 Pin)
7. Display setup is customized with graphic & touch screen controller
8. PC card slot for inserting Wireless adaptor

LED indications available on the face panel of **INA** signifies

1. Link - indicates link present
2. Transmit - indicates transmitting packets
3. Collision - indicates collision detected
4. Error - indicates error detected
5. Utilization - indicates group of 10 LEDs , the traffic utilization in 10% increment

### **Procedure:**

When the analyzer is turned on, a boot sequence occurs, the Utilization LEDs flash, and a self-test is run. After the analyser boots, the analyser user interface is loaded. Initially this INA is to be connected to a network.

## **1.0 Optiview Network Analyzer (Wired)**

### **1.1 Setup**

To configure the network, click on **setup** tab & select **TCP/IP** option and further click on **IPv4** and using **IP keypad** enter the requisite network values (IP address etc.) as shown below

The screenshot shows the 'Setup' window of the Optiview Network Analyzer. The 'TCP/IP' tab is selected, and the 'IPv4' sub-tab is active. The 'Automatic Configuration Settings' section has 'Auto Reconfigure on Network Change' checked. The 'IP Subnets' table lists several subnets. The 'DHCP Lease Status' section shows the current lease information.

OptiView-a30001 - 010.195.051.122

Front Page Statistics Discovery Device Detail Cable Test Capture Generate **Setup**

TCP/IP Ethernet VLAN Mgmt. Port Version Users Agent Remote SNMP Protocols Discovery IPv6 Options

Automatic Configuration Settings

☒ Auto Reconfigure on Network Change Rerun Auto Config Find Start Octet: 250 - +

IPv4 IPv6

Source: 010.195.051.122 IP

Mask: 255.255.000.000

Router: 010.195.002.002 IP

Primary DNS: 203.153.047.251 IP

Secondary DNS: 203.153.041.028 IP

Apply Find Unused IP and Apply

DHCP Lease Status

DHCP Server: 010.195.002.019

Lease Duration: 5 hours, 33 minutes, 20 seconds

Lease Expiration: २४/८/१० ३:२८ पूर्वाह्न

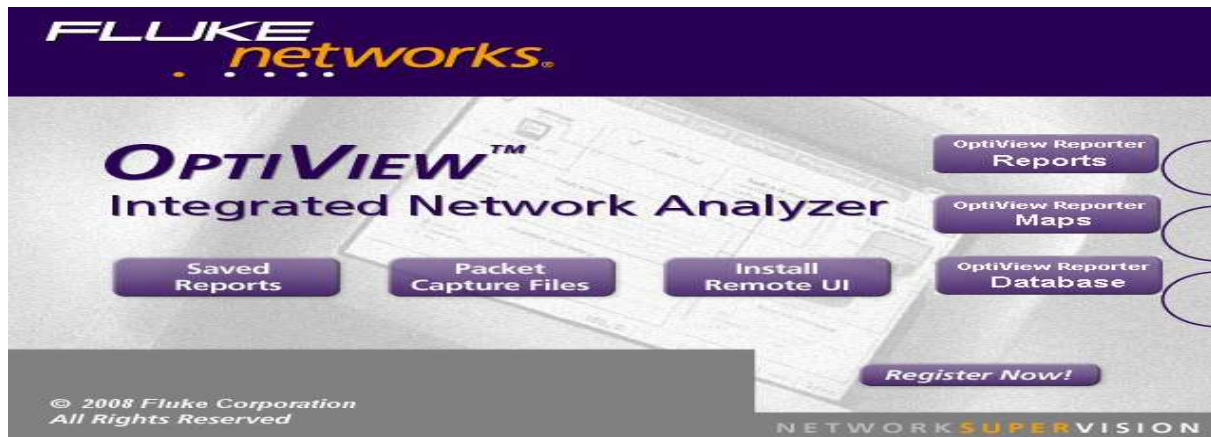
IP Subnets

| IP Subnet       | Mask            | Hosts |
|-----------------|-----------------|-------|
| 010.195.000.000 | 255.255.000.000 | 129   |
| 192.168.247.000 | 255.255.255.000 | 6     |
| 122.252.230.112 | 255.255.255.248 | 3     |
| 192.168.001.000 | 255.255.255.000 | 2     |
| 192.168.100.000 | 255.255.255.000 | 1     |
| 203.153.041.000 | 255.255.255.000 | 1     |
| 203.153.047.000 | 255.255.255.000 | 1     |

Copy to TCP/IP Settings

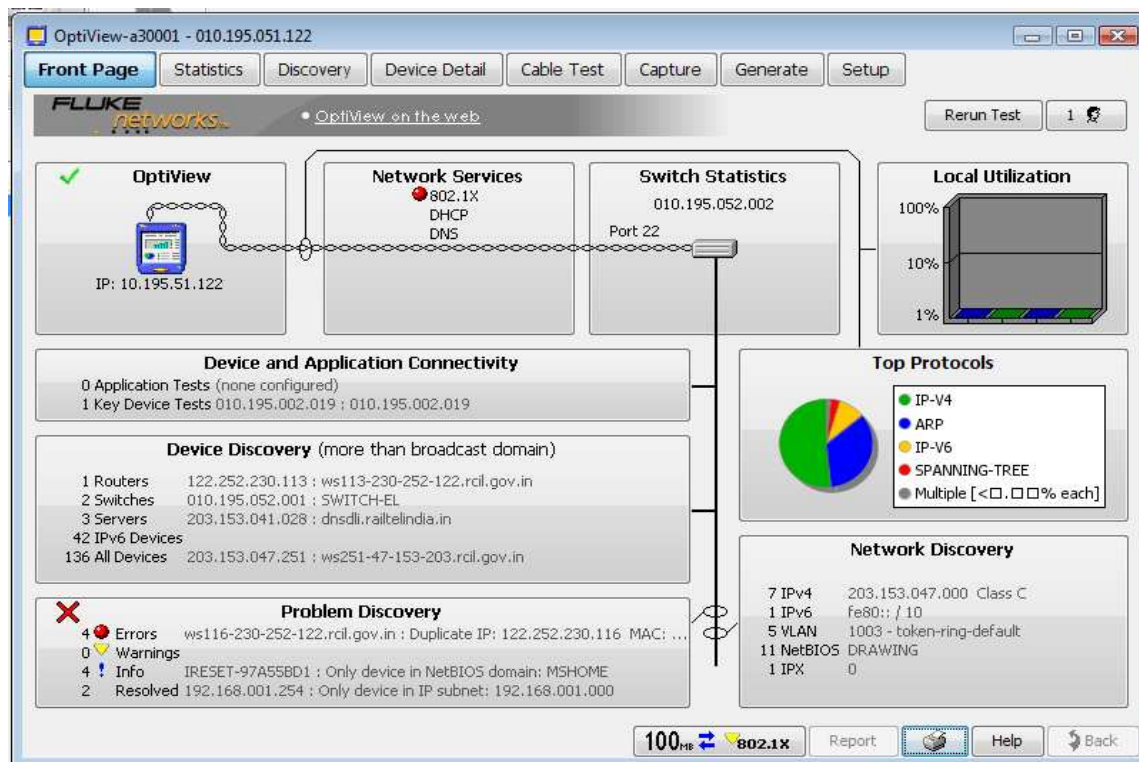
100% 802.1X Report Help Back

This INA can also be accessed remotely using Optiview browser and User Interface Software. To install the remote user interface software onto the PC, connect the analyzer to your network and power it on. Enter the analyzer IP address into your PC's browser URL field. Simultaneously **7 users** can access this Optiview remotely. When you access the INA remotely from PC, the Optiview analyzer personal web server home page opens as shown below. Select the **Install Remote UI** button.



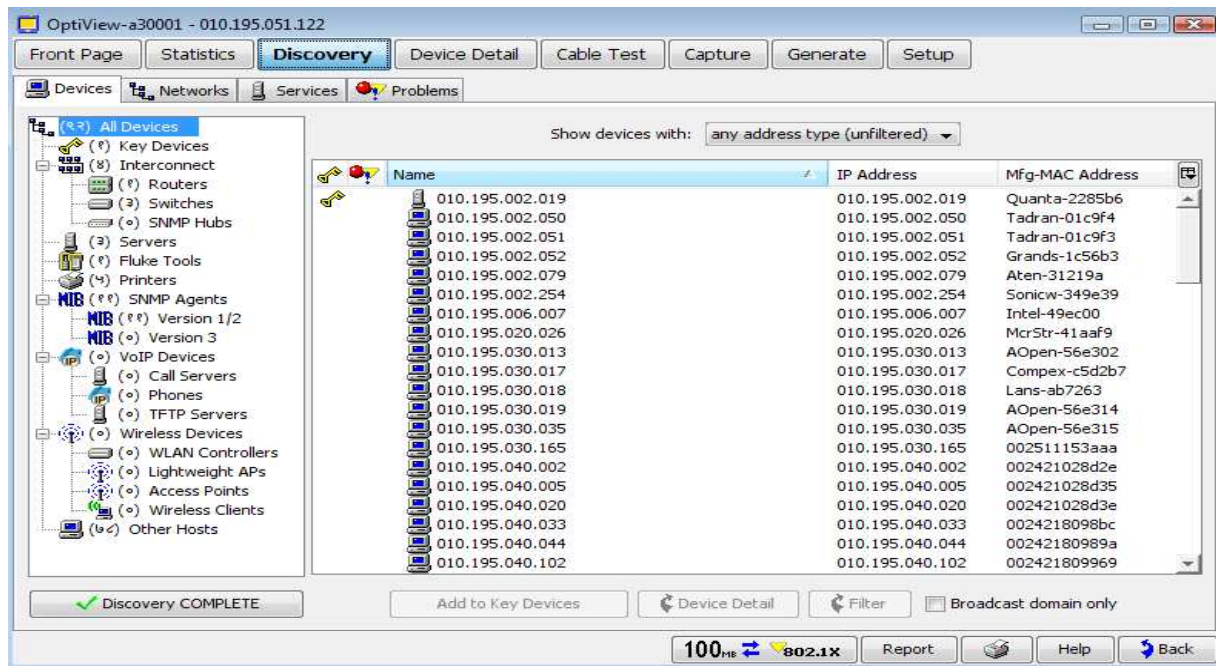
## 1.2 Front Page

As soon as the INA is switched-on, it displays home page. By clicking on **Front Page** button it displays IP address of INA, Network Services, switch statistics, local utilization, Top protocols used, VLAN statistics, Key devices & application connectivity and finally discovers the problems.



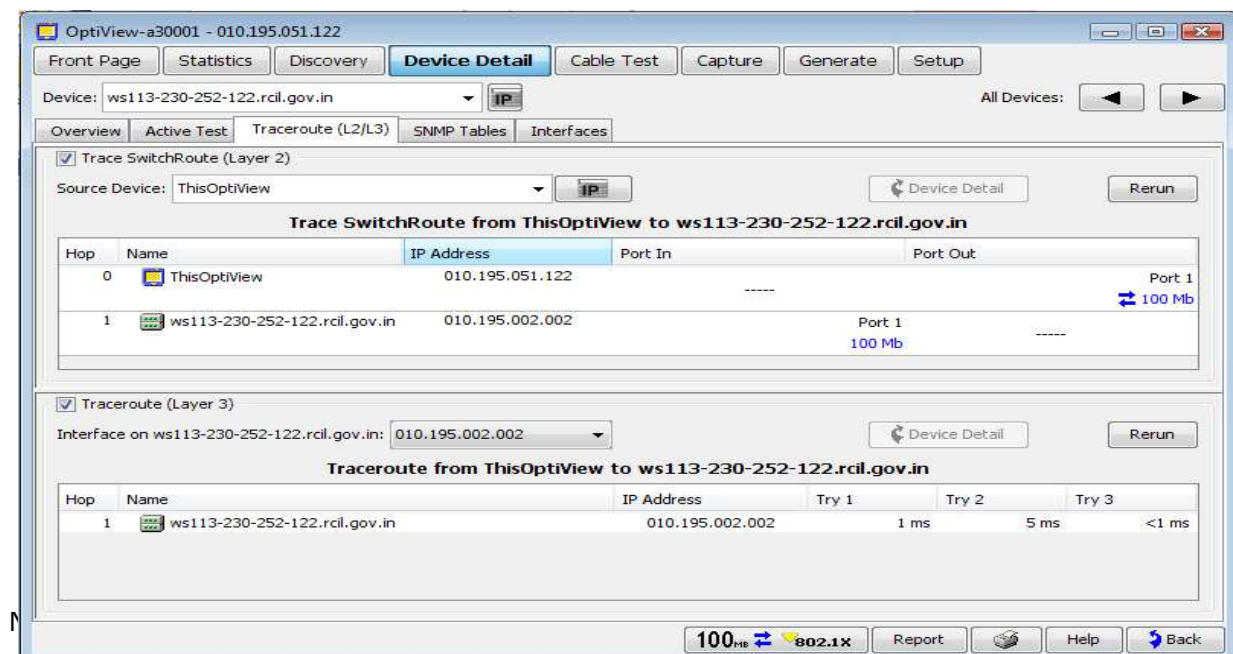
## 1.3 Discovery

For detailed discovery of the devices, click on **Discovery** button, it discovers all the devices, (including key devices) Networks, Services and Problems category wise as shown below



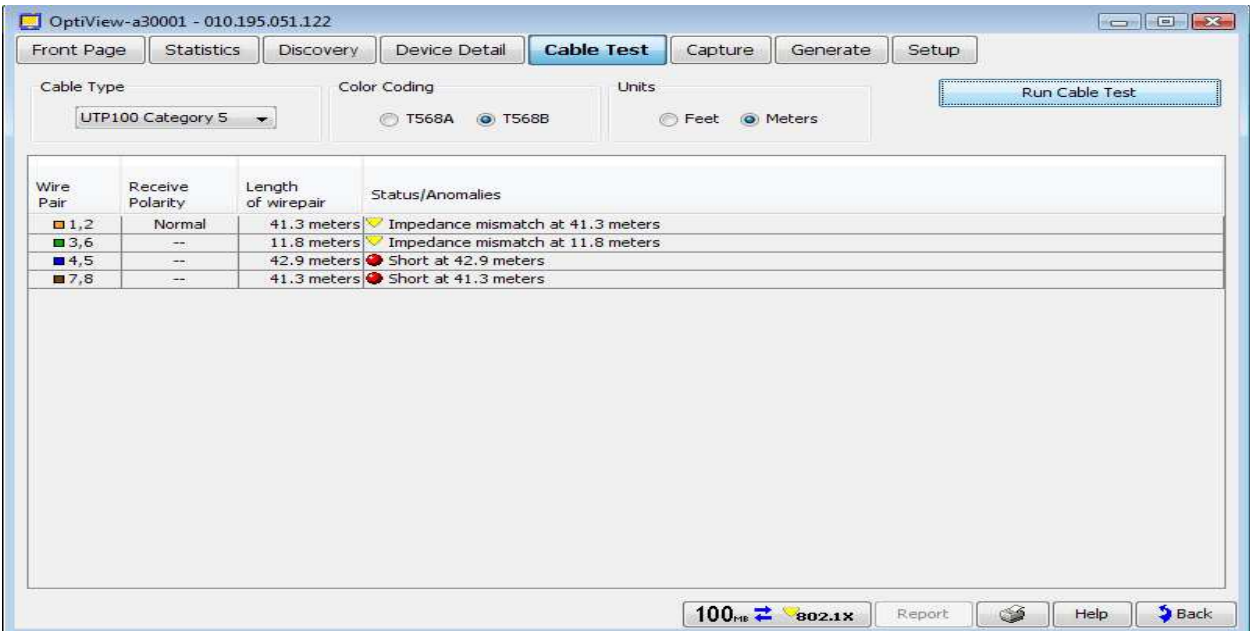
## 1.4 Device Detail

By clicking on **Device Detail** button any device in the network can be selected from the drop down list and this device can be tested & traced from the INA as shown below.



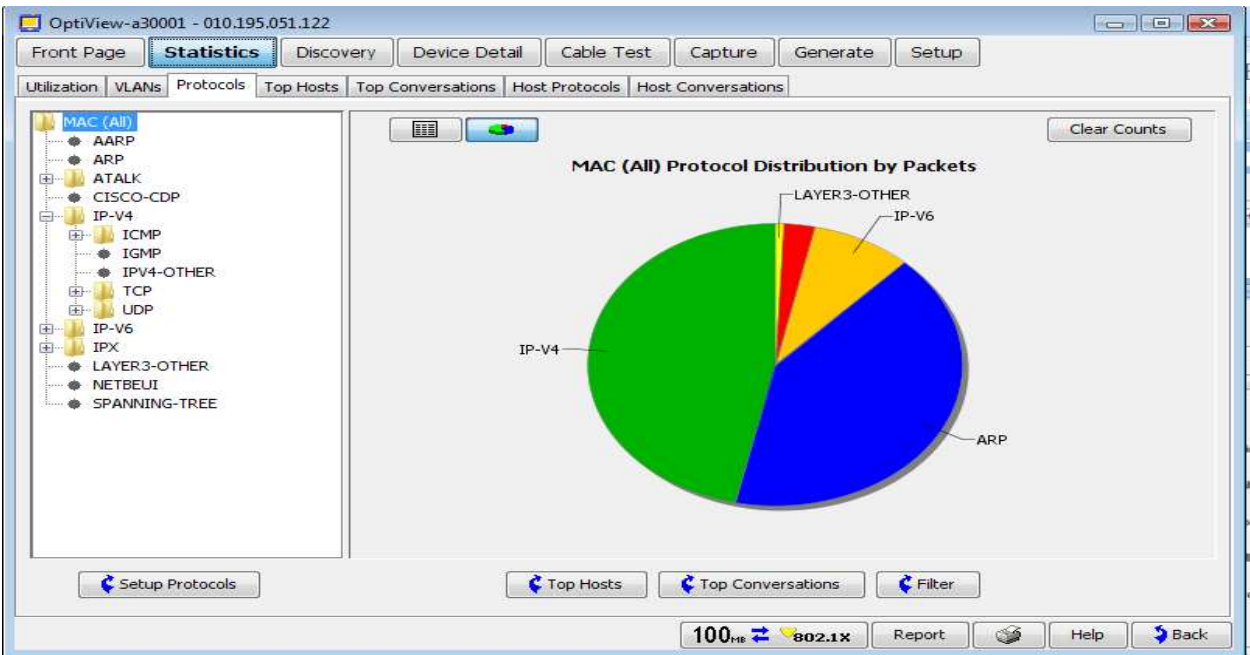
## 1.5 Cable Test

By clicking on **Cable Test** button the UTP / STP & Fiber cable parameters can be tested from INA to the nearest switch as shown below.



## 1.6 Statistics

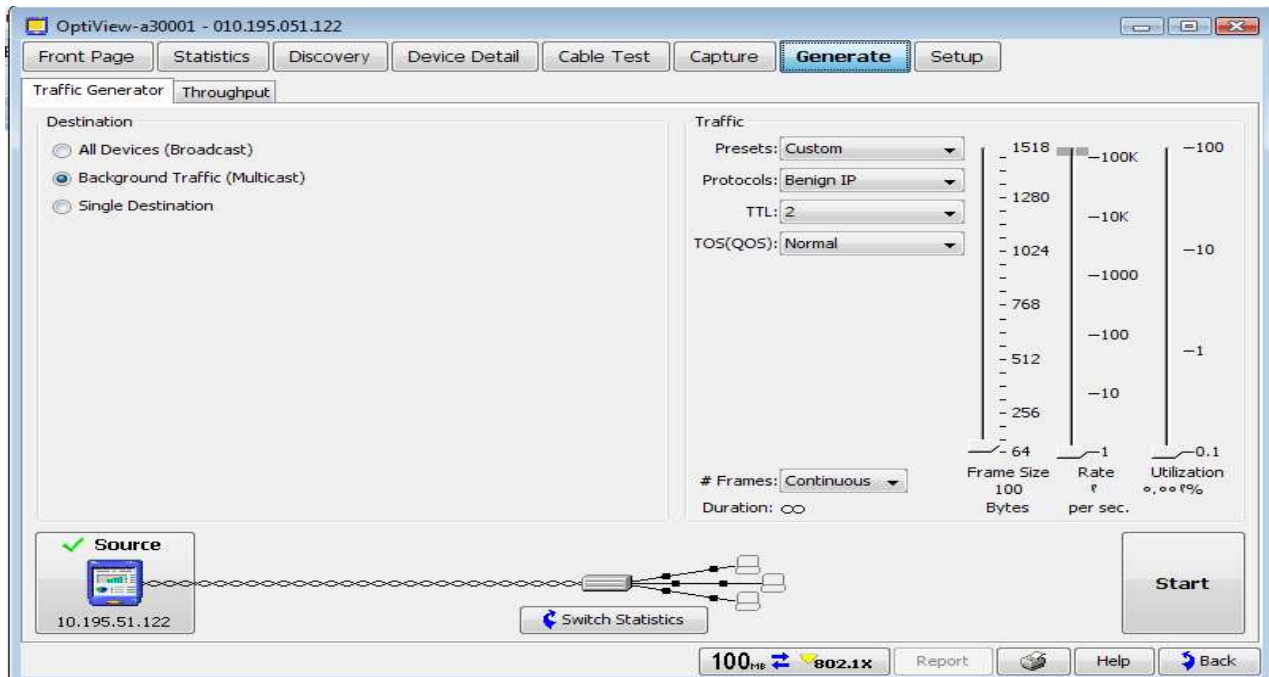
By clicking on **Statistics** button, the detailed statistics can be obtained for the protocol distribution, top talkers, top conversations, unicast, multicast & broadcast traffic etc. New protocols with their exact port numbers can be added.





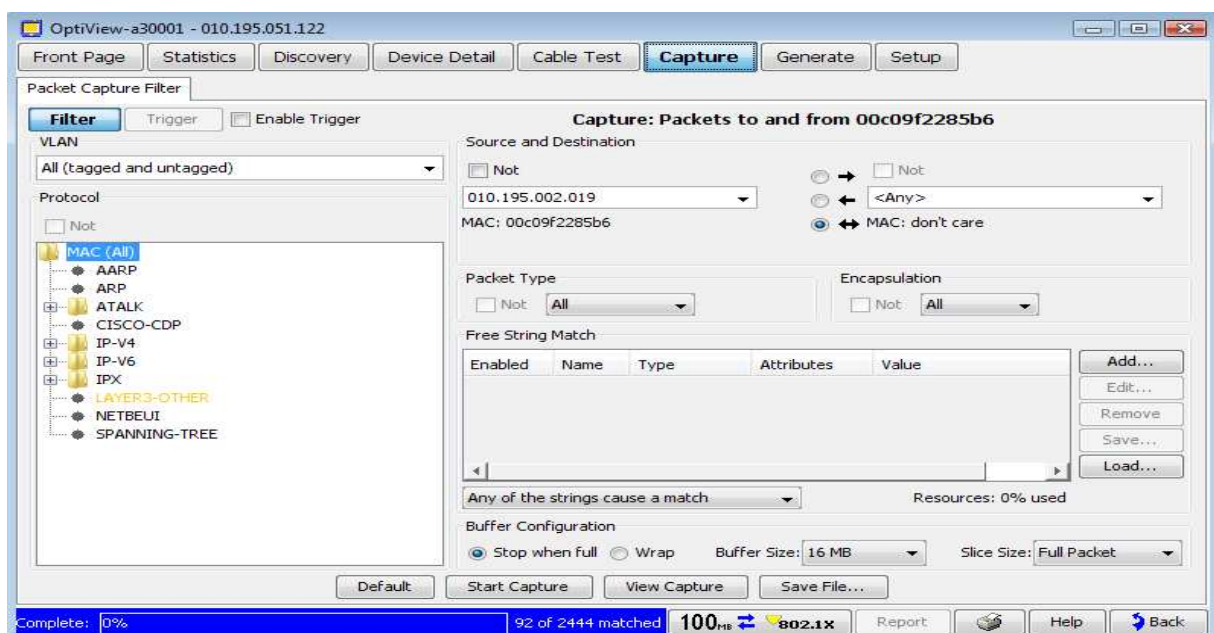
## 1.7 Generate

By clicking on **Generate** button, continuous traffic (frames) can be pumped from the INA into the Network through the switch by selecting the frame rate, frame size & protocol etc. The performance can be monitored by clicking on switch statistics.

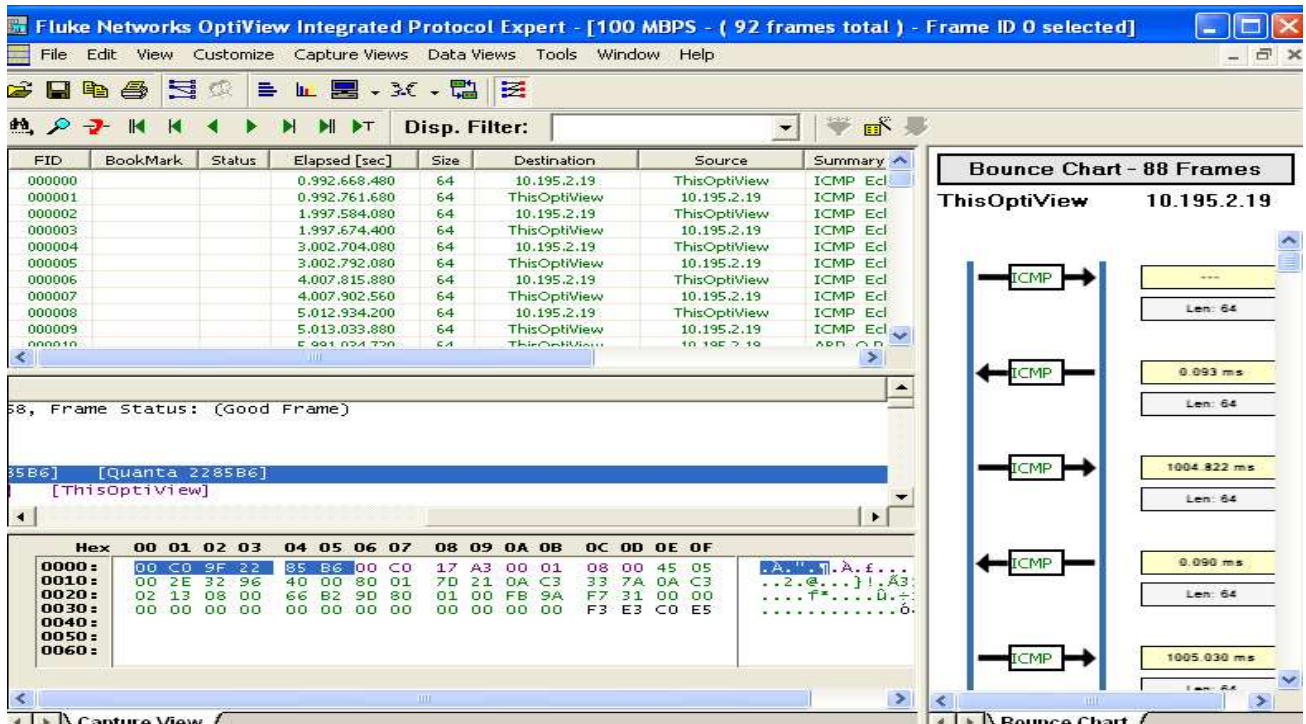


## 1.8 Capture

Packets can be analyzed between source and destinations by clicking on **Capture** button. Capturing commences by clicking on **start capture**, after capturing required data click on **stop capture**

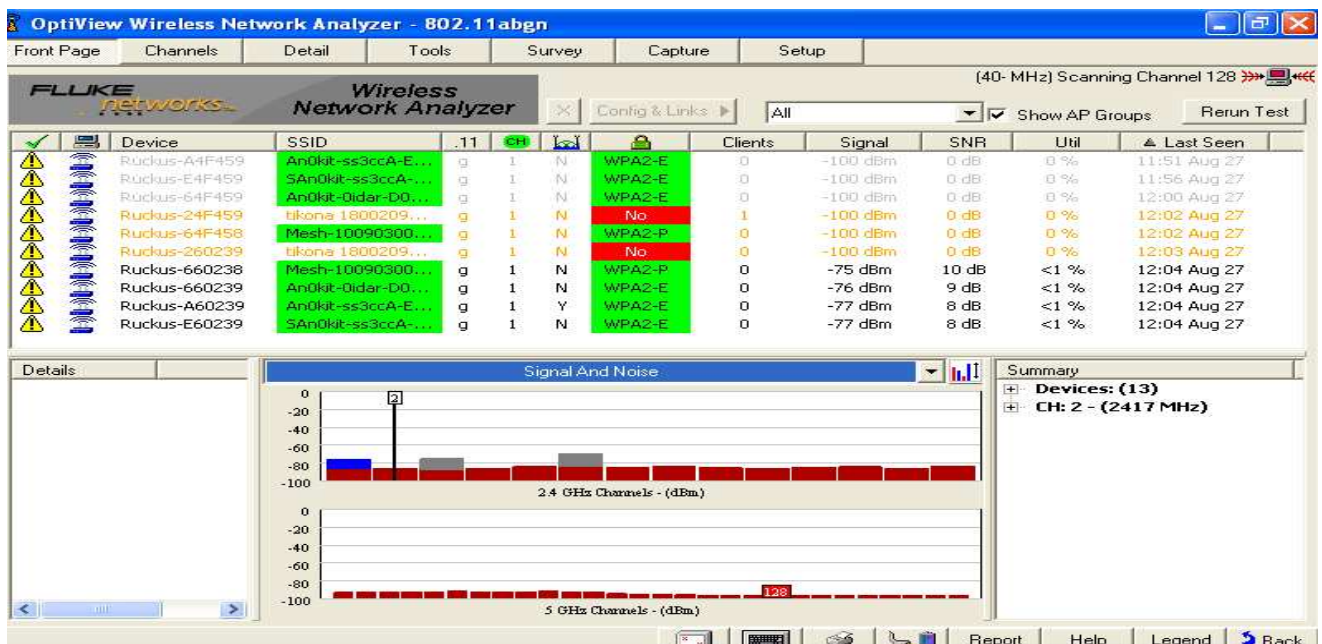


Analyze the captured packets by clicking on **View Capture**. Details of the captured packets can be viewed in the summary & bounce chart. A detailed Report can be generated at each stage of testing; this report can be saved and preserved for documentation.



## 2.0 Optiview Network Analyzer – (Wireless - 802.11abgn)

This INA is equally useful for analysis of wireless networks by inserting the wireless adaptor in the specified slot. As soon as this Wireless network Analyzer is switched on it will scan all the available channels of wireless access points and will show all the details (viz. BSSID, SSID, protocol, channel etc.) in a tabular form. Signal to noise ratio is represented in a graph.



Detailed survey of access points with their BSSID, SSID, signal strengths & S/N ratio can be made. This survey will help in designing and suitably placing the access points for better performance.

The screenshot displays the OptiView Wireless Network Analyzer interface. The top menu bar includes Front Page, Channels, Detail, Tools, Survey, Capture, and Setup. The main window is titled "OptiView Wireless Network Analyzer - 802.11abgn" and shows a survey of access points. The "Survey" tab is active, and the "Channels" tab is selected in the top bar. The interface includes a "Rerun Test" button, a "Location" dropdown, and a "Show AP Groups" checkbox. The main table lists access points with columns for BSSID, SSID, .11, CH, Signal, and SNR. The table shows several access points, including Ruckus-24F459, Ruckus-260239, Ruckus-64F458, Ruckus-64F459, Ruckus-660238, Ruckus-660239, Ruckus-A4F459, Ruckus-A60239, Ruckus-E4F459, and Ruckus-E60239. The Signal and SNR values are displayed for each access point. The interface also includes a "Current Survey" section with a "Location" dropdown and a "Current Settings" section with a "Thresholds" section. The "Thresholds" section includes checkboxes for Signal, SNR, and SSID Filter. The "Current Survey" section also includes a "Reading Date" dropdown and buttons for "Record" and "Delete". The "Current Settings" section includes an "Edit Settings..." button. The bottom of the interface features a toolbar with icons for various functions and a "Report" button.

| BSSID         | SSID                  | .11 | CH | Signal   | SNR   |
|---------------|-----------------------|-----|----|----------|-------|
| Ruckus-24F459 | tikona 18002090044    | g   | 1  | -100 dBm | 0 dB  |
| Ruckus-260239 | tikona 18002090044    | g   | 1  | -80 dBm  | 7 dB  |
| Ruckus-64F458 | Mesh-1009030000...    | g   | 1  | -82 dBm  | 5 dB  |
| Ruckus-64F459 | An0kit-0idar-D0n9L... | g   | 1  | -81 dBm  | 6 dB  |
| Ruckus-660238 | Mesh-1009030000...    | g   | 1  | -77 dBm  | 10 dB |
| Ruckus-660239 | An0kit-0idar-D0n9L... | g   | 1  | -100 dBm | 0 dB  |
| Ruckus-A4F459 | An0kit-ss3ccA-Eth3... | g   | 1  | -100 dBm | 0 dB  |
| Ruckus-A60239 | An0kit-ss3ccA-Eth3... | g   | 1  | -76 dBm  | 11 dB |
| Ruckus-E4F459 | SAn0kit-ss3ccA-Eth... | g   | 1  | -80 dBm  | 7 dB  |
| Ruckus-E60239 | SAn0kit-ss3ccA-Eth... | g   | 1  | -77 dBm  | 10 dB |



**Verification:**

Connect the INA in the network and verify the following

1. Discover the devices category wise
2. Mention the top protocols used and their % utilization.
3. Record the top hosts that are using UDP protocol
4. Perform the cable test and record observations