

# Switch configuration for passive VoIP recording



## Administration manual for system providers

9/8/2021

### Product line neo, version 6.x

The described functions can be used with the following ASC products:

EVOIPneo

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## 1 General information

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## 2 Introduction

The EVOIP<sub>neo</sub> passive software is a passive recording solution to record VoIP calls. To receive the audio data, you only have to connect a computer with an installed EVOIP<sub>neo</sub> passive software to the particular network. This is the easiest way to record calls.

The EVOIP<sub>neo</sub> recording system can be connected via different devices and to various network architectures. Besides general information, this document contains short descriptions of the most common network devices and their different network configurations.

Only switches which support the functions port mirroring, **SPAN** (Switched Port Analyzing) or **RSPAN** (Remote SPAN) are suitable for the connection to the EVOIP<sub>neo</sub> recording system. By activating one of those functions, the data stream of one or several ports can be copied to a particular port. The EVOIP<sub>neo</sub> server has been connected to this port.

In practice, there are more complex network structures which may connect several switches, for instance.

The following sections contain several switches which can be used with the EVOIP<sub>neo</sub> recording system as well as their typical configurations and settings.

### Support of **SPAN** function

Nearly each Cisco Catalyst Switch supports **SPAN**. Catalyst 6500 for example supports **RSPAN** and **SPAN**.



Details on possible restrictions of the SPAN and RSPAN properties can be found in the user manuals of the individual switches.

### Features Catalyst 6500

- RSPAN sessions or SPAN sessions possible
- Monitoring entire VLAN, several ports
- Monitoring only RX of an entire VLAN
- Monitoring RX and TX of only 1 port



These types of switches are perfectly suited for passive conversation recording with EVOIP-<sub>neo</sub> recording systems. Many configuration possibilities are provided to cover a wide range of network architectures.



For more information about the switch configuration refer to the installation manual *Configuration virtualization*.

## 3 Configuration

### 3.1 Number of devices to monitor

Depending on the number of source ports that are supposed to be monitored, different configurations are necessary.

#### 3.1.1 Monitoring source ports

If only one source port is used to receive data, then this is a gateway-side recording of all external calls. In this case, the gateway is connected to your source port. In addition, there is also the possibility to connect only a single IP phone to the source port that should be recorded.

To record all data, the source port must be configured to record both data directions of the source port, i. e. the **RX** as well as the **TX** direction are recorded. Otherwise, only one conversation direction is recorded.

Make sure to configure a gateway as *non-phone IPs* in the EVOIP<sub>neo</sub> configuration.

#### Example:

A VoIP gateway is connected to port 23 with IP address 192.168.1.15. The EVOIP<sub>neo</sub> server has been connected to the ports 10 and 11. The monitoring should be realized with the network card connected to port 10.

- Switch settings
  - Monitoring port 23 RX and TX
  - Destination port 10
- Settings on the EVOIP<sub>neo</sub> recording system
  - Non phone IP: 192.168.1.15
  - Activation of the network card connected to port 10 for data monitoring purposes.

#### 3.1.2 Monitoring several source ports

If VLAN is used as a source, usually there are more than one source port available.

If more than one source port is used to record the audio data of different IP phones, the switch should be configured as follows:

To avoid duplicating packages, configure the source port to only copy the data of one direction to the destination port or RSPAN VLAN. Usually, this is the receive direction (**RX**) of each source port.




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The directions of different sources must not be mixed.

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To recorded calls with both conversation directions, the following devices have to be used as source ports or within the source VLAN:

- Ports with IP phones connected to them which are supposed to be recorded
- Ports with IP phones connected to them which are not supposed to be recorded but which can communicate with devices which are supposed to be recorded (if this is not ensured, only one conversation direction is recorded in connections between an IP phone monitored by a switch and an IP phone not monitored. The audio part of the not-monitored end device is not recorded.)
- Ports with a VoIP Gateway connected to them to receive external calls
- Ports with a Conference Bridge (Cisco: usually the CCM) connected to them

The following ports should not be configured as a source port, not even in the source VLAN which is supposed to be monitored:

- Ports which connect other switches if the other switch has its own SPAN (trunks)

- Ports without connected IP phones (these ports should be excluded from the VLAN which has been configured as source for the monitoring)

### 3.2 One-switch configuration

This example describes the configuration of one switch with different VLANs. VLAN 1 and VLAN 3 exclusively contain IP phones. VLAN 2 is a data network for computers only. The EVOIP<sub>neo</sub> recording system has at least 2 network cards (NICs). The first network card is used to record audio data (the recording NIC) and the second is required to enable access to the EVOIP<sub>neo</sub> recording system via the network, e. g. for administration purposes or for replay applications like POWER<sub>play</sub> Web. This separate network card is required because the switch port configured for call recording does not provide a general network access.

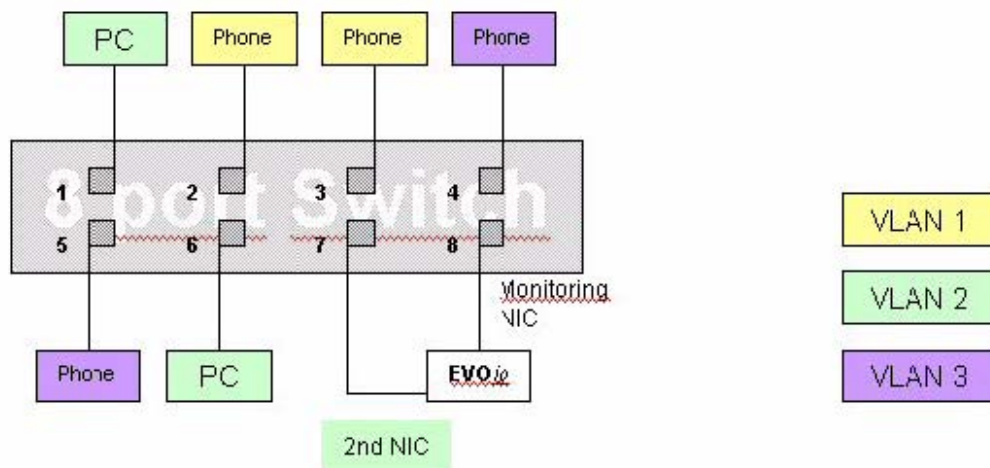


Fig. 1: Connection example

To record specific IP phones from VLAN 1 and VLAN 3, configure the monitoring ports as follows:

#### 3.2.1 Exemplary configuration: Cisco Catalyst

Configuration possibilities:

- VSPAN session:
  - Monitoring of VLAN1 and VLAN 3 only RX
  - Destination port 8
- SPAN session:
  - Port monitoring – source ports : 2, 3, 4, 5 all only RX
  - Destination port 8

### 3.3 Multiple-switch configuration

If more than one switch exists in your company with devices to be monitored connected to them, you can either use the single-switch configuration described above by integrating separate monitoring network cards for each switch or you can configure the switches to cooperate.

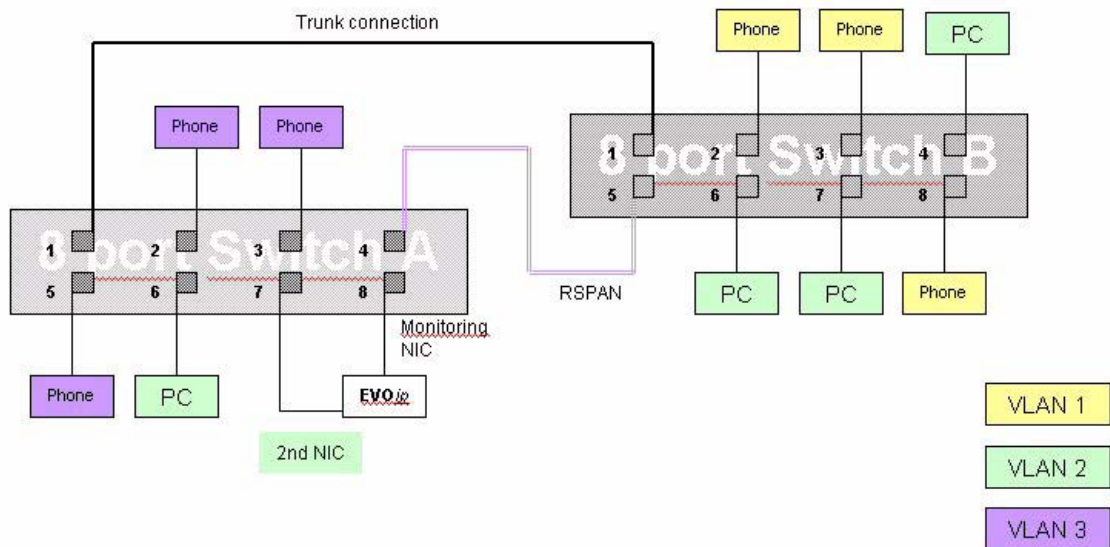


Fig. 2: Multiple-switch connection configuration

### 3.3.1 Cisco Catalyst

#### RSPAN

Switch A has been connected to the EVOIP<sub>neo</sub> recording system. IP phones the calls of which are supposed to be recorded with the EVOIP<sub>neo</sub> recording system have been connected to both switches A and B. To be able to record the calls of all IP phones, the relevant data has to be transmitted from switch B to switch A. This is achieved with an RSPAN (Remote SPAN) session. A RSPAN session can either be configured to monitor single ports or whole VLANs.

It is not possible to select an entire VLAN as source for an RSPAN session as there would be duplicated packages due to the trunk line. Instead, each single port has to be selected separately as source.

To transfer all data traffic of the call VLANs 1 and 3 via the monitoring NIC of the EVOIP<sub>neo</sub> recording system, configure the switches as follows:

#### Switch A

##### RSPAN session

- Port monitoring – RSPAN source ports: 2, 3, 4, 5 all only RX, added to the RSPAN VLAN 300
- Defining the destination port for RSPAN VLAN 300, port 8 in the example above

#### Switch B

##### RSPAN session

- Configuration of a new VLAN for RSPAN – e. g. VLAN 300
- Port monitoring – RSPAN source port for the selected VLAN: 2, 3, 8 **all only RX** of switch B
- Defining RSPAN destination port, port 5 in the example above



### 3.4 Network card

#### 3.4.1 Using several network cards



If a network card has been configured as a sniffer device in the system without a network cable connected to it the EVOIP<sub>neo</sub> passive module remains inactive after the EVOIP<sub>neo</sub> passive configuration change.

All network cards which are supposed to be used to record the audio data must be operated in a subnet which does not exist yet. Otherwise problems may occur when trying to access the EVOIP<sub>neo</sub> server for administration purposes or to replay a call.

##### Example for a configuration:

The company uses the following network addresses:

192.168.1.0 to 192.168.1.255 and

192.168.50.0 to 192.168.50.255

The EVOIP<sub>neo</sub> server with 3 network cards is supposed to monitor the data traffic on both subnets. In order to receive all required data, the monitoring network cards can be set to any IP address without using a default gateway.

##### NIC1 (monitoring network card):

IP address: 1.1.1.1 or any other except the already existing subnets 192.168.1.x and 192.168.50.x

Subnet: 255.255.255.0

Default gateway: none

##### NIC2 (monitoring network card):

IP address: 1.1.1.2 or any other except the already existing subnets 192.168.1.x and 192.168.50.x

Subnet: 255.255.255.0

Default gateway: none

##### NIC3 (communication card):

IP address: 192.168.1.73 or any other IP address in the existing network

Subnet: 255.255.255.0, depending on the network addresses used in this subnet

Default gateway: 192.168.1.254, the gateway which allows reaching the other subnet

Make sure that no other network card uses the same default gateway; otherwise no specified NIC has been defined for sending the data.

### 3.5 Device Filter/Filter Presets

These values usually do not have to be changed. In some cases it may be necessary to add some values to avoid errors or incorrect recordings.

#### Using NORTEL IP phones

TO avoid that internal messages are interpreted as calls, the filter string for your network cards must be changed as follows:

(ip and udp and !(port 16550)) or

(vlan and ip and udp and !(port 16550))

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## Glossary

### NIC

Network Interface Card

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### RSPAN

Remote Switched Port Analyzing

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### RX

Receiver, RX is the term for a receiver, i. e. for receiving a radio package in radio communication or of computer data (downloading); Rx stands for receiver whereas the x is a variable for the letters behind the R

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### SPAN

Switched Port Analyzing

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### TX

Transmitter, TX is the term for a sender, i. e. for sending a radio package in radio communication or of computer data; Tx stands for transmitter whereas x is a variable for the letters behind the T

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### VSPAN

VLAN Virtual Local Area Network; SPAN Switched Port Analyzing

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