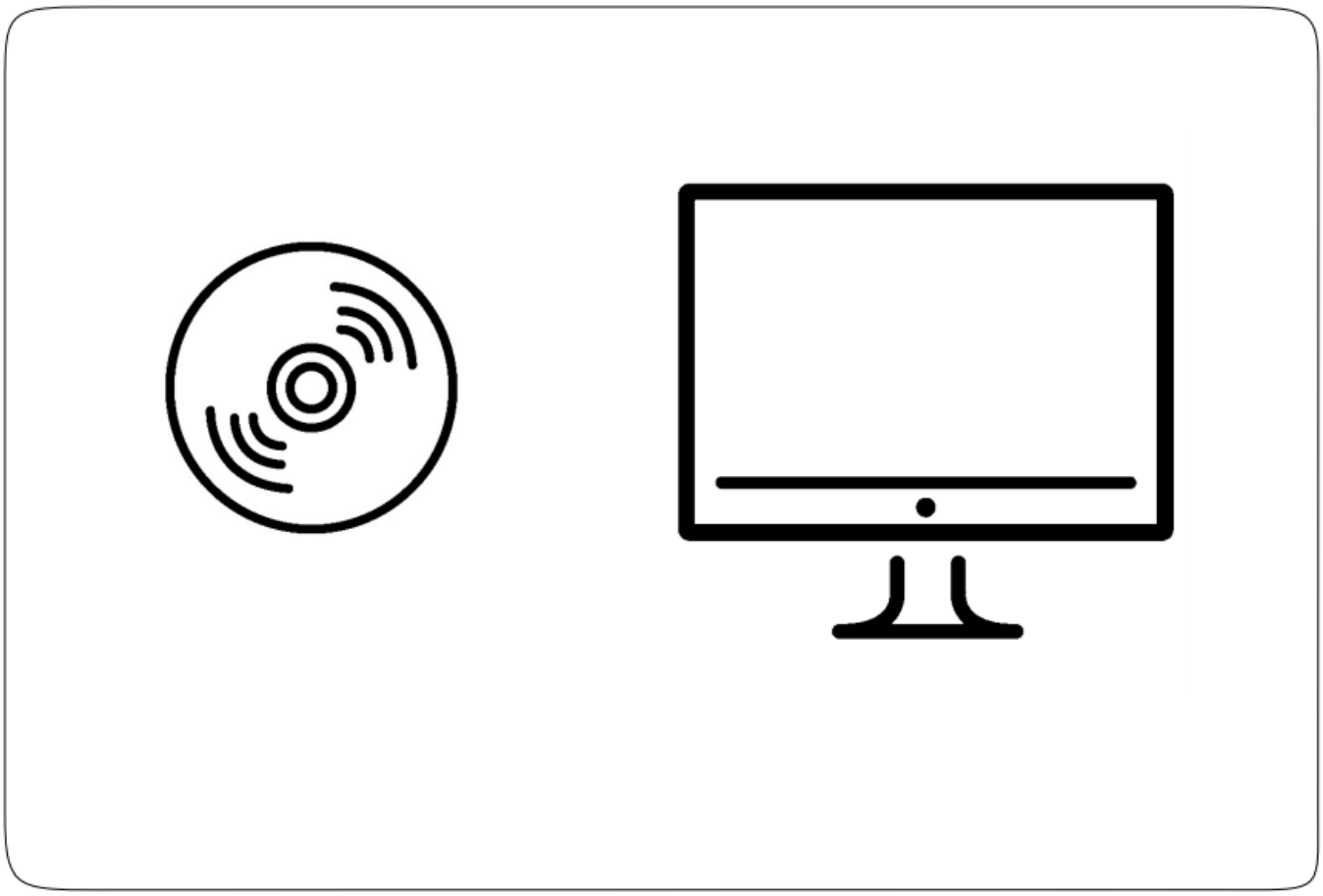
TOA N-8000 SIP Gateway Instruction Manual

OPERATING INSTRUCTIONS
N-8000SG Q2
N-8000 SIP GATEWAY



Thank you for purchasing TOA's N-8000 SIP Gateway. Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment
TOA Canada Corporation

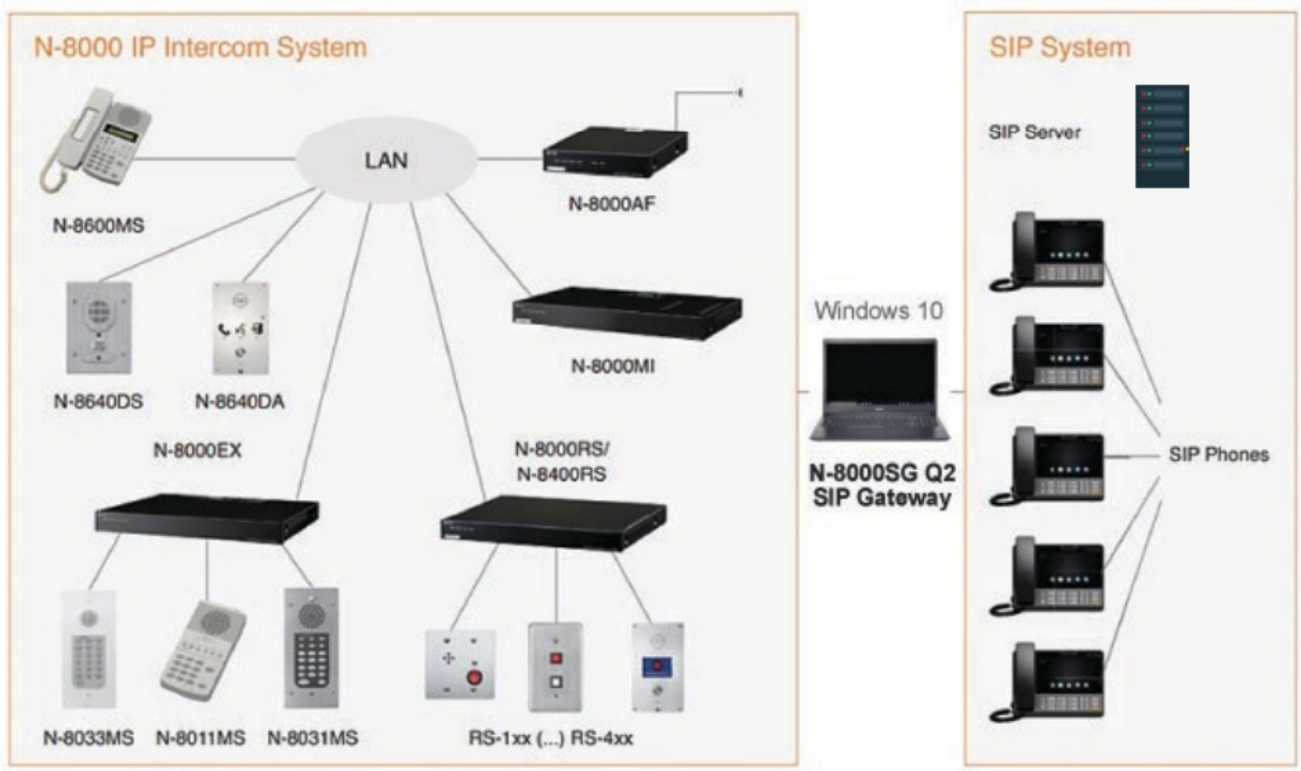
Contents

Chapter 1: General Description

1. GENERAL DESCRIPTION

   This manual describe the interconnection between TOA's N-8000 series and SIP devices through the updated SIP gateway N-8000SG Q2. It also describes the structure, functions, and main configuration settings of the new SIP gateway.

2. SYSTEM IMAGE



3. BASIC FUNCTIONS

   The table below describes the new features and functions when using the updated SIP Gateway software with Windows 10 operating system.

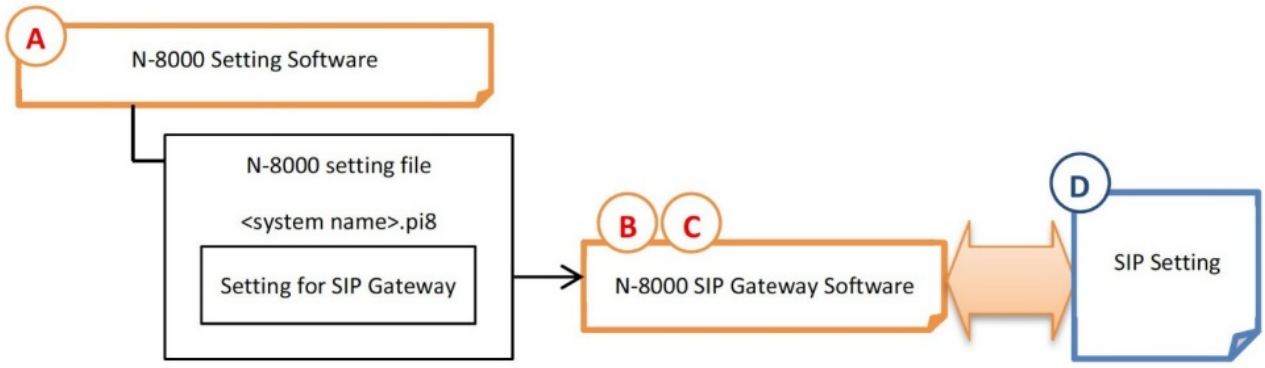
Function of N-8000 SIP Gateway	Description
Interconnection between SIP and N-8000 functions: a, b, c, d, and e.	This software converts a call from N-8000 to SIP system and vice versa. One software supports 5 speech paths at the same time.
Paging from SIP to N-8000. Functions: f	This software brings a “zone paging” and an “All-call paging” to the system. One server can handle 5 paging channels at the same time.
Contact control from SIP telephone Functions: g	Dialing by a SIP telephone can control contact output of N-8640/50DS.

Note:

a-b indicates functions’ name which are explained in Chapter 2.

4. SETTING STRUCTURE

   There are two software settings to create a system, and another setting is needed for the other system which is SIP system.



Note

A-D indicates settings which are explained in Chapter 3.

Chapter 2: Functions

1. CONDITIONS OF SIP GATEWAY

   N-8000 Q2 SIP Gateway is tested with a SIP server of Cisco Systems, Asterisk, Free Switch, and Sipelia of Genetec Security Center.

2. SIP GATEWAY STRUCTURE

   A SIP Gateway consists of 5 virtual master stations with one virtual N-8000EX, 5 virtual SIP clients, and audio processing functions.

   There are 5 channels of speech paths between SIP telephone and N-8000. SIP Gateway has an audio processing function.

Virtual N-8000EX	Virtual N-8000MS 1	Protocol Converter between SIP and N-8000 +Audio converter H800	Virtual SIP Client 1	SIP System
	Virtual N-8000MS 2		Virtual SIP Client 2	
	Virtual N-8000MS 3		Virtual SIP Client 3	
	Virtual N-8000MS 4		Virtual SIP Client 4	
	Virtual N-8000MS 5		Virtual SIP Client 5	

3. SIP GATEWAY FUNCTIONS

a. There is a function of converting from SIP protocol to N-8000 and vice versa.

b. There are 5 speech paths between SIP telephone system and N-8000.

c. SIP Gateway converts from SIP audio to N-8000 audio, and vice versa.

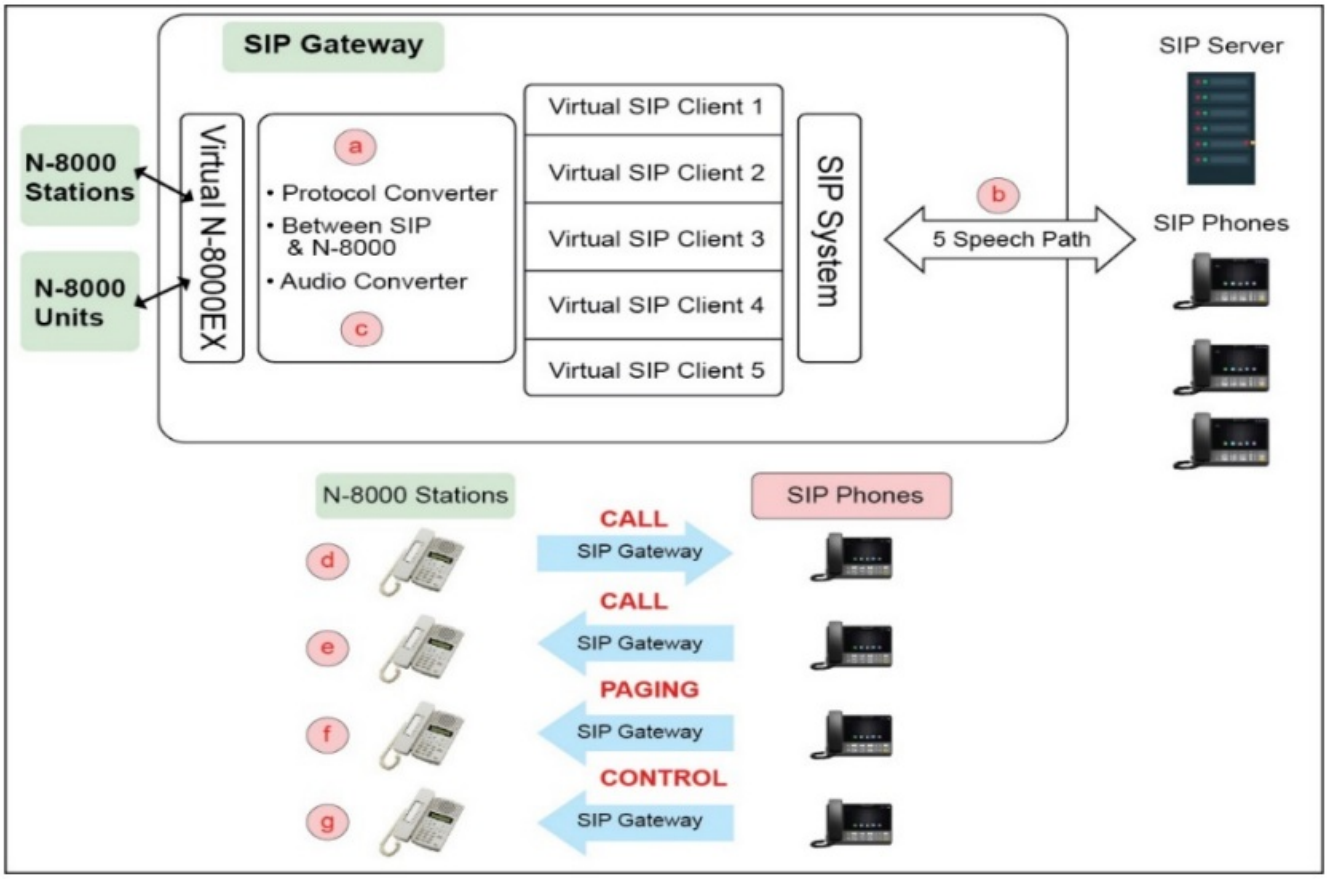
d. N-8000 station is connected to SIP telephone via N-8000 virtual station in a SIP Gateway.

e. SIP telephone is connected to N-8000 station via virtual SIP Client station in a SIP Gateway.

f. SIP telephone makes a station paging to N-8000 system with additional dials.

g. SIP telephone makes contact output control of N-8640/50DS as known “Door Remote Control” function.

Function example



3.1 Details of functions

The following functions exclude a and b.

3.1.1. Audio conversion c.

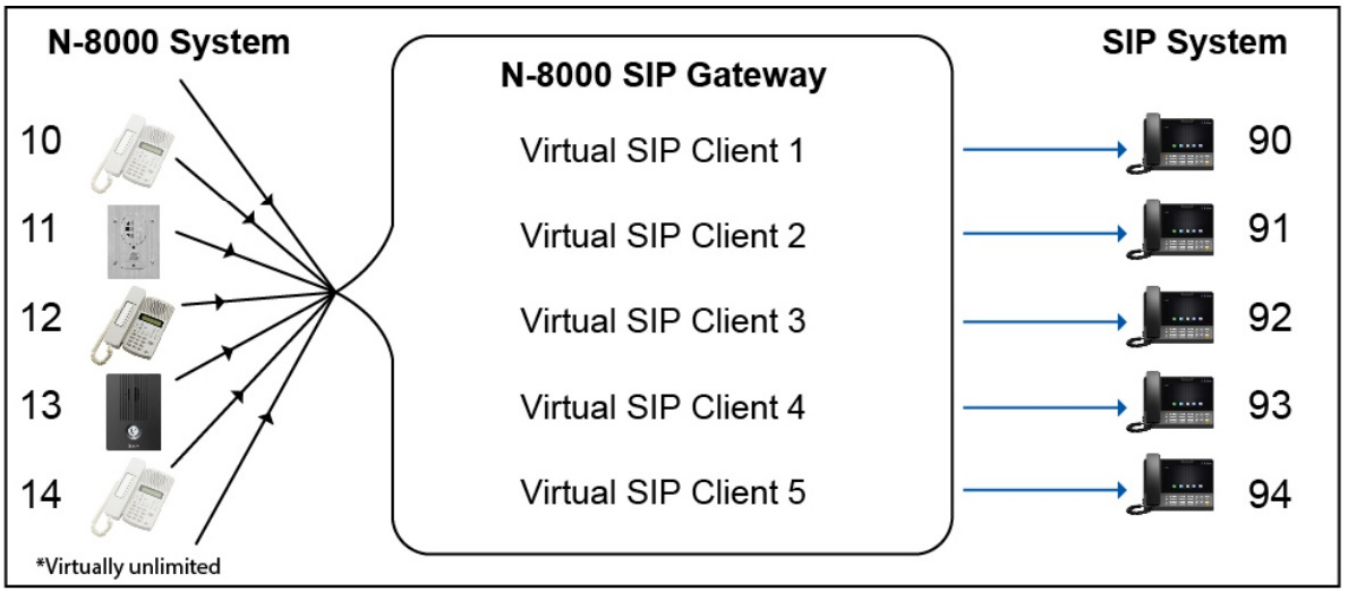
A SIP Gateway converts audio from an N-8000 to SIP telephone and vice versa. Both sides have a different sampling frequency and audio codec.

- N-8000 – 16 kHz, 8 kHz/ G.722
- SIP system – 8 kHz/ G.711 u-law

3.1.2. Call from N-8000 to SIP

The number of digits in the extension dial plan has be the same when configuring the extensions of the N-8000 and
SIP system (2, 3, or 4, etc.). If the number of digits don't match between the N-8000 and SIP system, then the new
SIP gateway won't function properly.
To call from an N-8000 phone to a SIP phone, simply dial the extension number of the SIP phone you would like to reach, and the new SIP gateway will establish the connection with the intended destination.
The SIP phone will receive the call through the new SIP gateway and the display will show the N-8000 station Caller
ID (or extension number) in addition to a Caller ID Prefix (refer to Chapter 3 for more details).

System example



Operation example

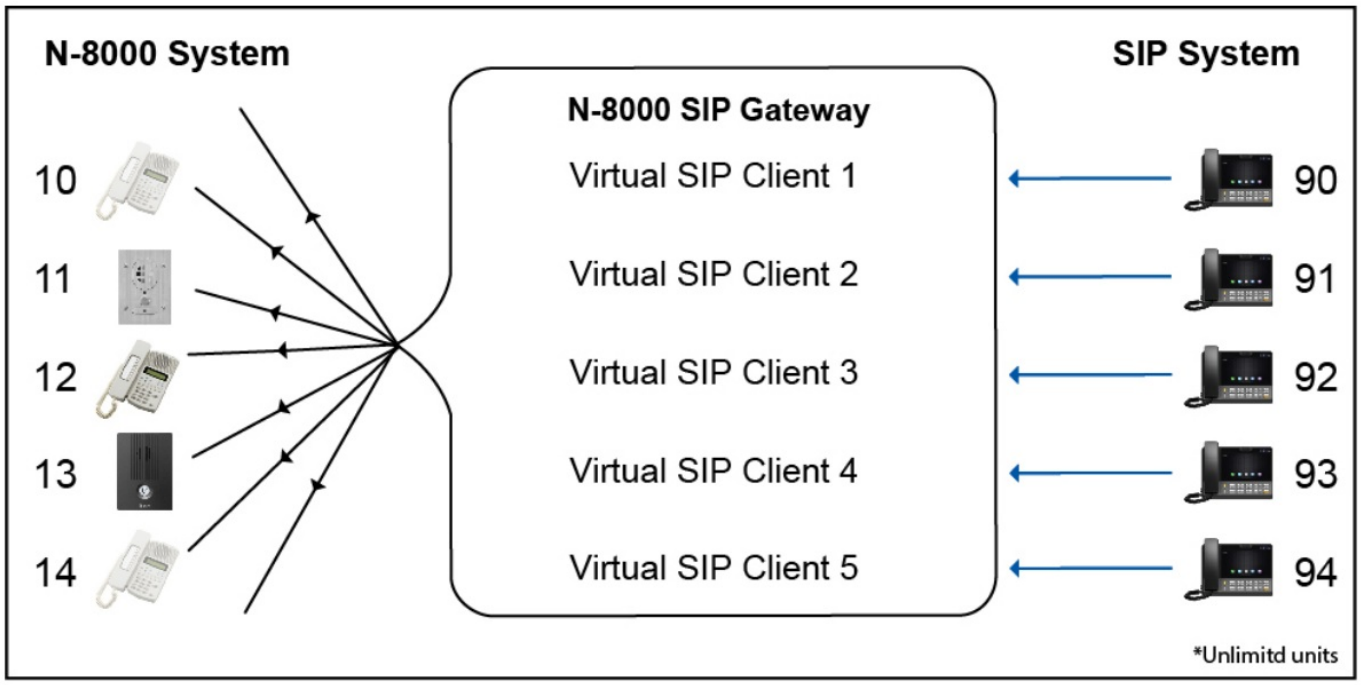
	Action	Result ext.
<To dial from Intercom 10 to SIP 92> 1, 0	Dial SIP extension 92	Automatically transfers to SIP phone 92 9, 2

3.1.3. Call from SIP to N-8000

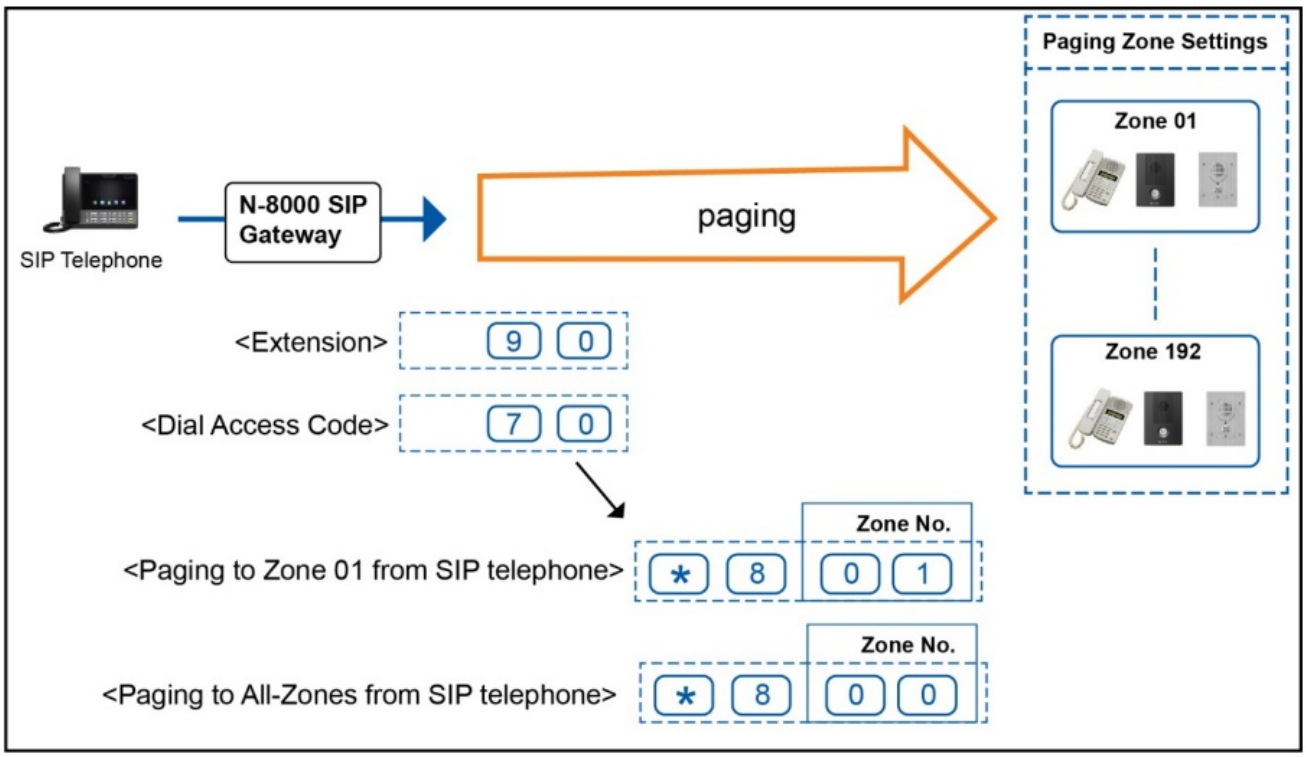
To call from a SIP phone to an N-8000 phone, you will need first to enter an Access Code*. Each SIP phone will have its own dedicated Access Code (can be configured by the user). The SIP gateway can support up to 5 SIP phones which means up to 5 Access Codes.
After dialing the Access Code, you have up to 5 seconds to dial extension number of the N-8000 station would like to reach, and the new SIP gateway will establish the connection with the intended destination.
The N-8000 station will receive the call through the new SIP gateway and the display (if available) will show the

SIP phone Caller ID (or extension number) with the station name as configured in the N-8000 software.
With the introduction of Access Code, a SIP phone is now capable to call any N-8000 station on the network and not limited only to 5.
*An Access Code represent the virtual SIP extension (refer to Chapter 3 for more details).

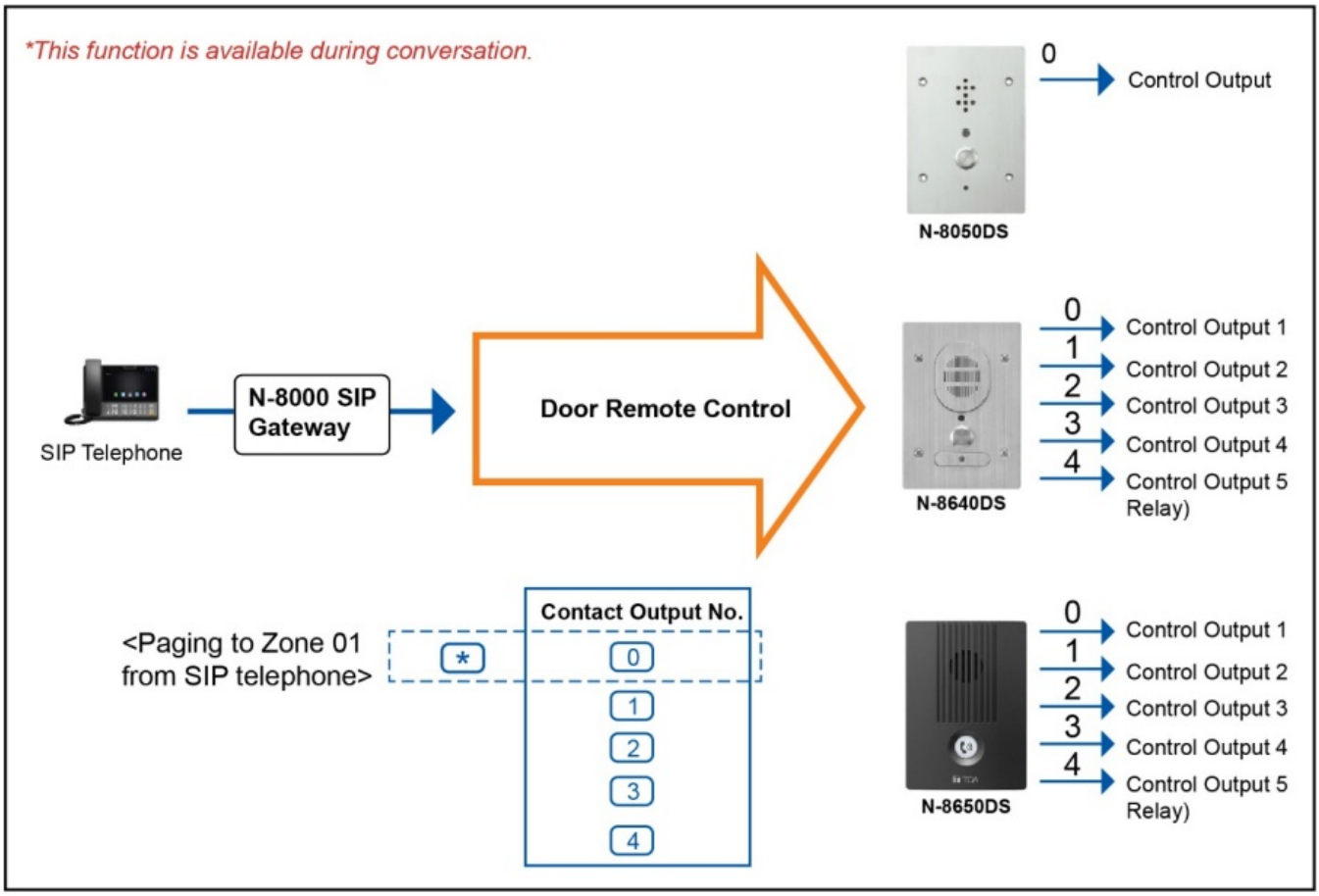
System example



3.1.4. Paging function f.
Paging from a SIP phone to N-8000 system.



3.1.5. Control functions
Door remote control from SIP telephone to Door stations.



Chapter 3: Settings

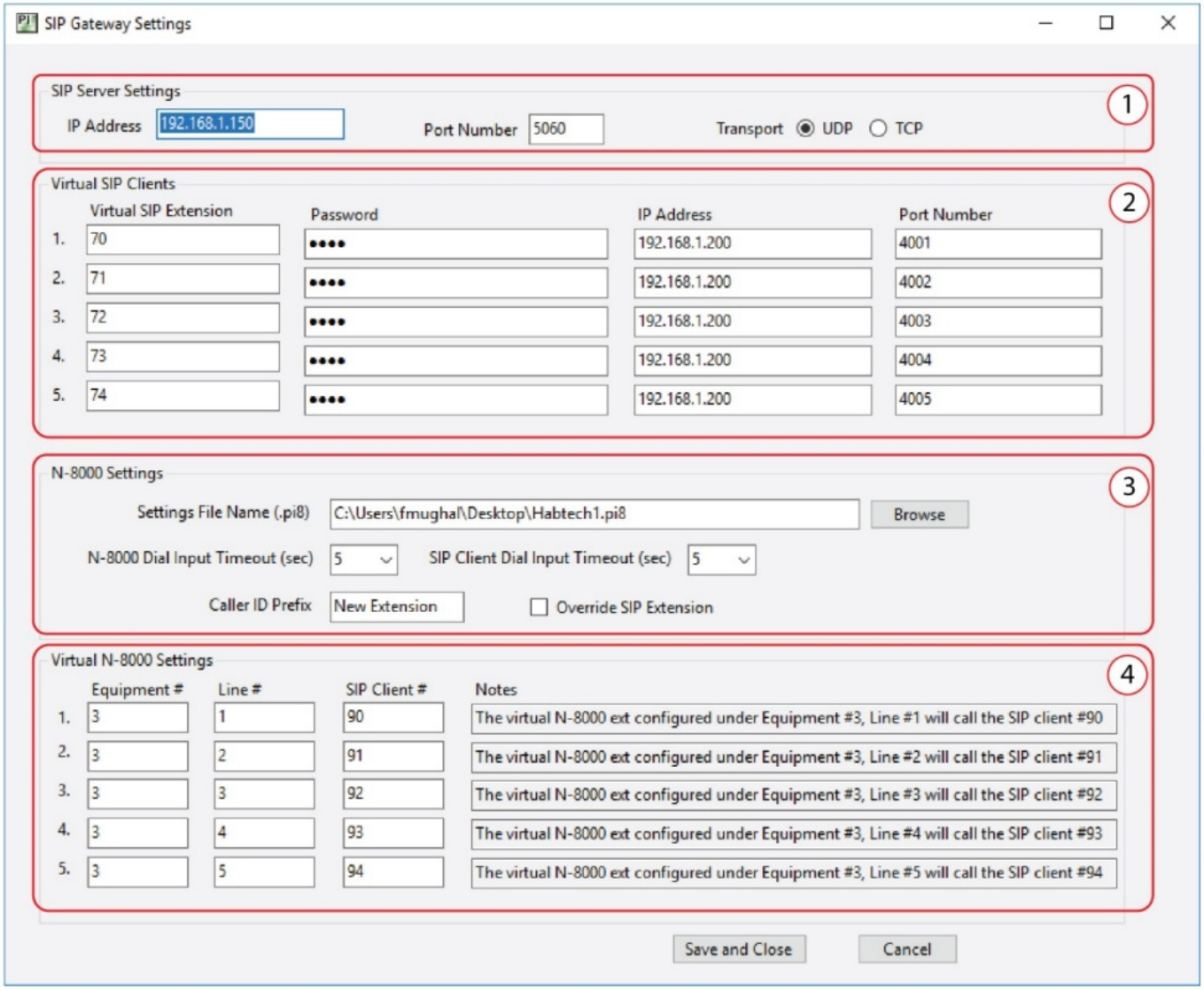
1. SETTINGS

   1.1. SIP Gateway Settings Configuration

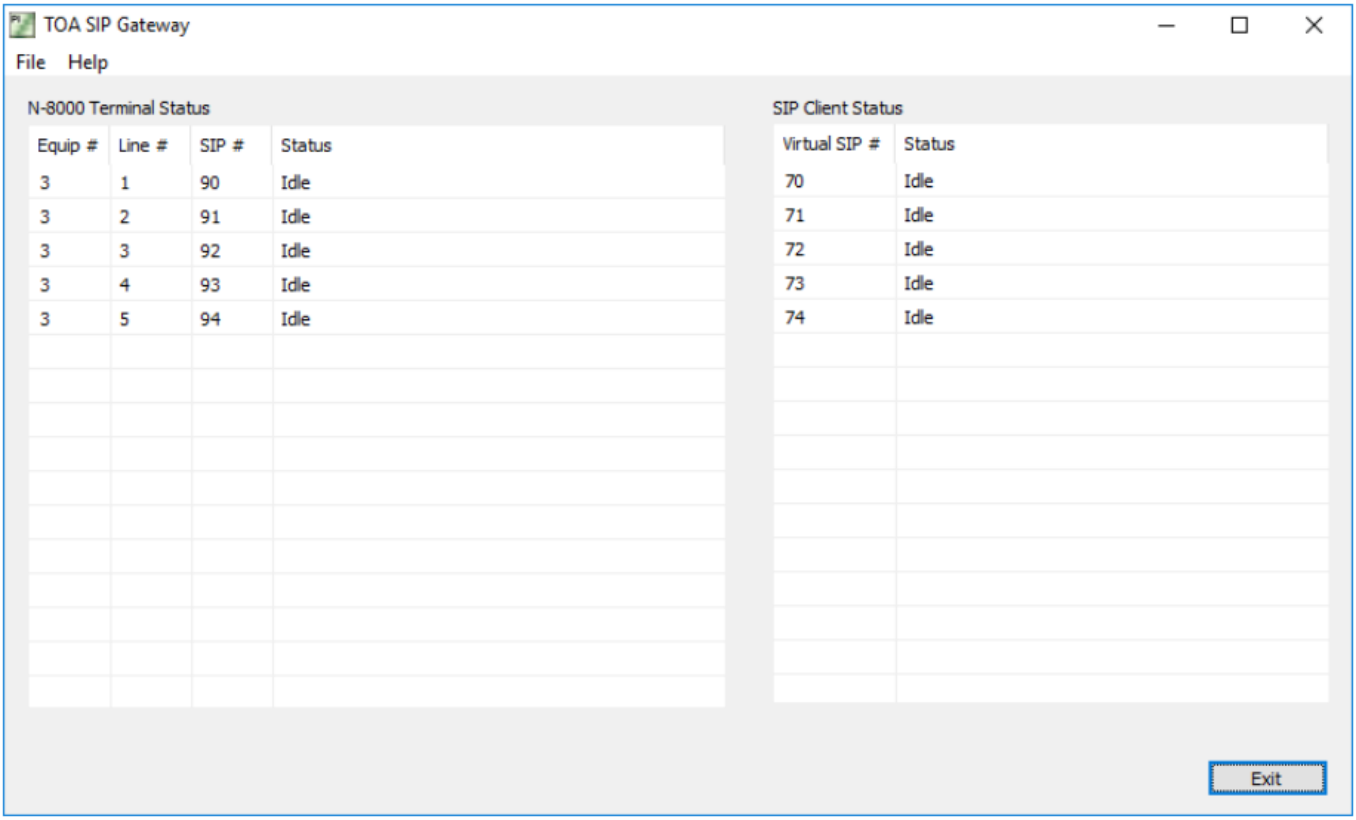
   The SIP Gateway Settings page includes 2 sections: SIP settings (steps 1-2) and N-8000 settings (steps 3-4).

Step 1. SIP Server Settings:
a) Insert the IP address of the SIP Server.
b) Select the port Number (5060 by default).
c) Select the transport protocol (UDP by default).
Step 2. Virtual SIP Clients Settings:
a) Define the 5 Access Codes as virtual SIP extension. Register the same in the SIP server.
b) Select a password for each virtual SIP extension.
c) Insert the IP address of the PC where the SIP Gateway is installed.
d) Select an RTP Port Number for each virtual SIP extension (4001-4005 by default).
Step 3. N-8000 Settings:
a) Upload the last updated N-8000 Settings file (.pi8)
b) Set N-8000 Dial Input Timeout (up to 5 sec). This is the time required for the SIP Gateway to establish the connection between the N-8000 station and the SIP phone.
c) Set SIP Client Dial Input Timeout (up to 5 sec). This is the max time a user have to dial an N-8000 extension number after dialing up the Access Code (5 sec is recommended).
d) Set the Caller ID Prefix so once a SIP receives a call from an N-8000 station, the display will show the Caller ID Prefix + the N-8000 extension number in the name section. For example, if the Caller ID Prefix is set to “Ext.”, then once N-8000 extension 10 called SIP Phone extension 90, the SIP phone display will show “Ext. 10” in the name section.
e) FOR ASTERISK SERVERS ONLY, you can enable the “Override SIP Extension” to temporarily change the virtual SIP extension from its predefined value to the N-8000 station extension number when calling from N-8000 to SIP. For example, if N-8000 station extension 10 is calling SIP extension 90, then the SIP phone display will show 10 in the caller extension section instead of 70.

Step 4. Virtual N-8000 Settings:
a) Fill the equipment number and line number that match the virtual settings in the N-8000 software (refer to section 1.3 for more details).
b) Fill in the SIP Client numbers that match the virtual settings in the N-8000 software (refer to section 1.2 for more details).

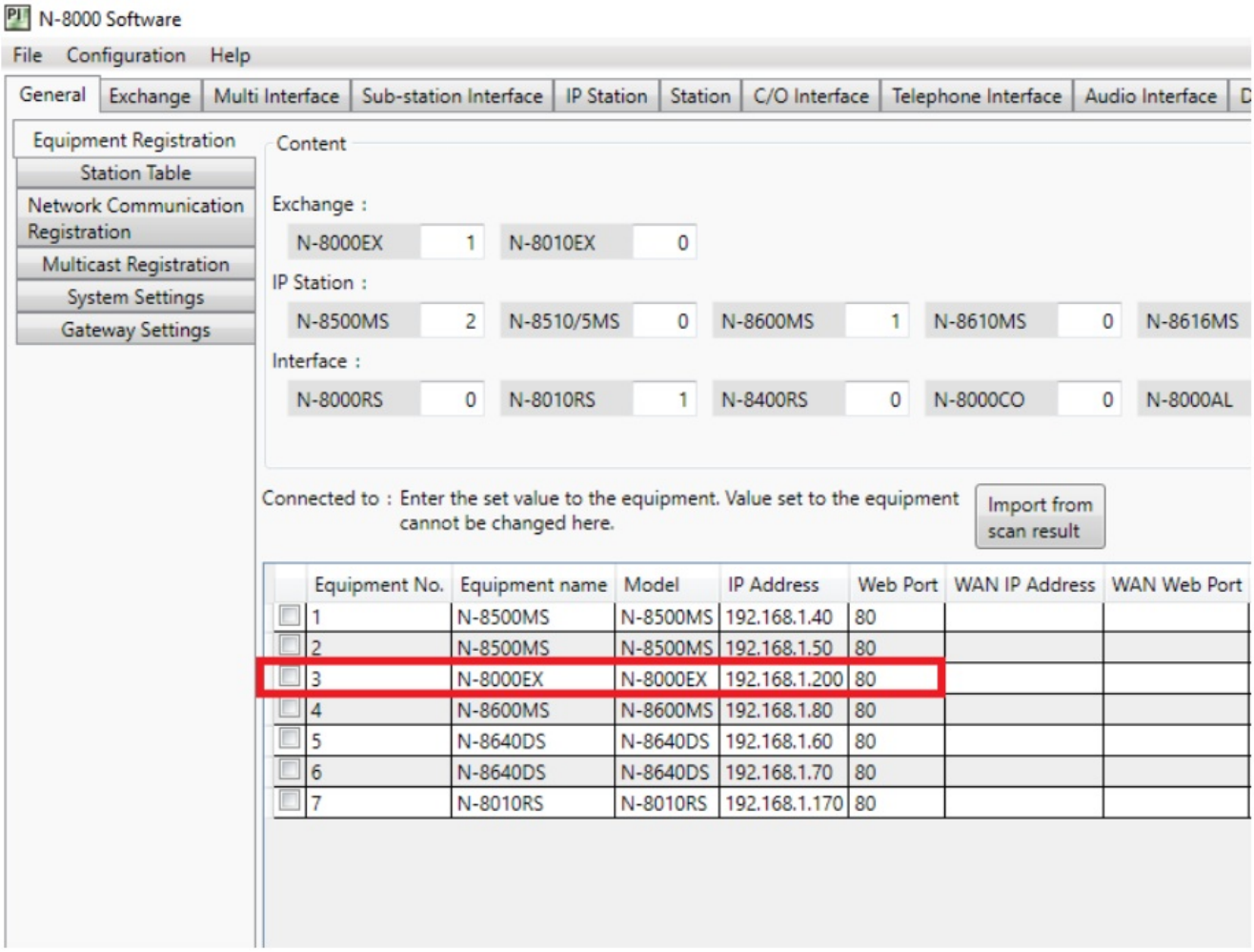


1.2. SIP Gateway Home Page
The SIP Gateway Home page includes 2 sections: N-8000 Terminal Status and SIP Client Status.
The N-8000 Terminal Status shows the status of the connection between the SIP Gateway and the N-8000 system.
The SIP Client Status shows the status of the connection between the SIP Gateway and the SIP server.

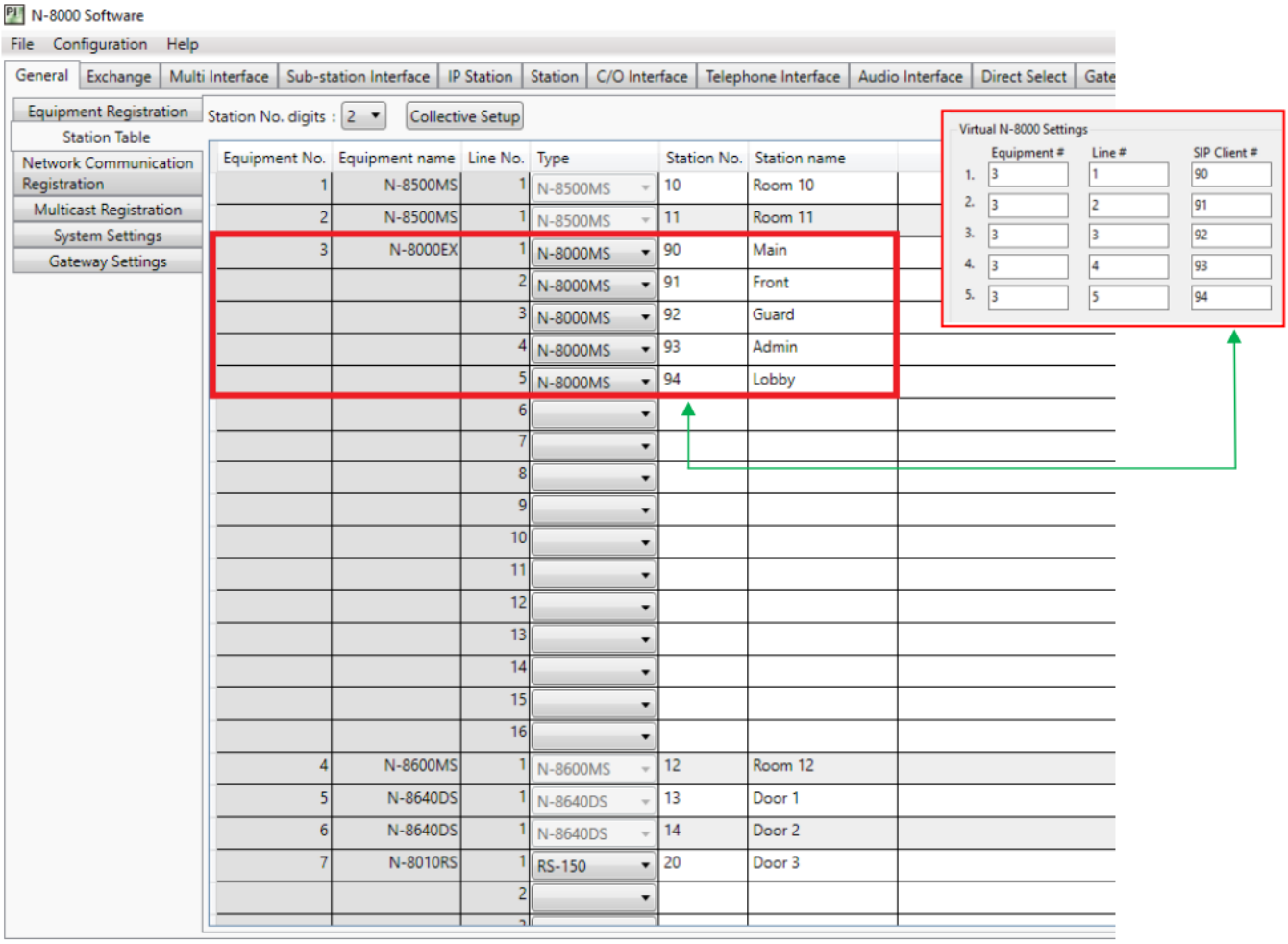


1.3. N-8000 Software Configuration

In the N-8000 Setting software, the SIP Gateway is defined as N-8000EX. Insert the IP address and the port number (default is 80) of the PC where the SIP Gateway is installed.
In this example, the SIP gateway is defined under Equipment #3.



Under “Station No.”, fill in the SIP extension number you would like to call (Line 1 to 5 only). These numbers should match with the “SIP Client #” in the Virtual N-8000 Settings (section 1.1 – Step 4).
The station name shall reflect the room/space where the SIP phone is located.



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Documents / Resources

	TOA N-8000 SIP Gateway [pdf] Instruction Manual N-8000 SIP Gateway, N-8000, SIP Gateway, Gateway

References

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