

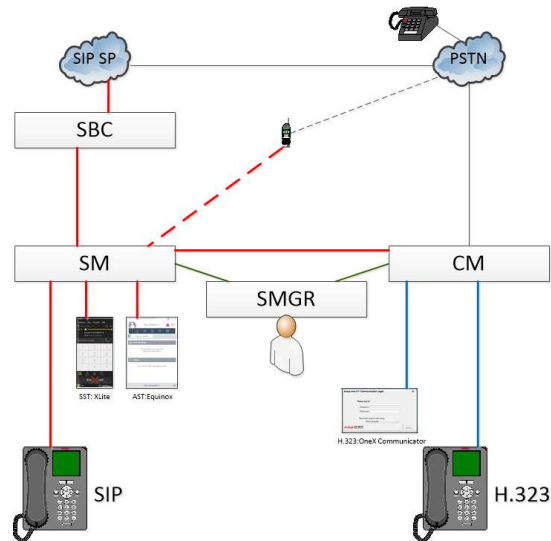
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intlx Solutions
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Adding SIP Endpoints using Avaya Aura[®] Session Manager

Workshop 1 (Basic Setup)





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Contents

<i>Course Synopsis</i>	3
<i>Course Agenda</i>	4
1.0 SIP Environment Configuration / Verification	5
1.1 SIP Readiness - Communication Manager Configurations:	6
1.2 SIP Readiness – System Manager Configurations:	11
2.0 Adding and Managing SIP Users	19
2.1 Adding a Non-ACM SIP User:.....	20
2.1.1 Users: User Management / Manage Users: <i>Identity</i>	20
2.1.3 CounterPath X-Lite Client: Install and Configure	23
2.1.4 CounterPath X-Lite Client: Status	25
2.2 Adding an ACM SIP User:	26
2.2.1 Users: User Management / Manage Users: <i>Identity</i>	26
2.2.4 Avaya OneX Communicator Client: Install and Configure	28
2.2.5 Avaya OneX Communicator Client: Status.....	35
3.0 Basic traceSM Usage	36
3.1 Using traceSM to monitor endpoint Registration:.....	37
3.1.1 Good registration in traceSM	37
3.1.2 Failed registration in traceSM	41
Appendix A: Acronyms Used.....	44
Appendix B: References	45



Course Synopsis

Adding SIP Endpoints using Avaya Aura® Session Manager Workshop 1 (Basic Setup)

Course Synopsis

The intent of this course is to provide the students with introductory information on administration, maintenance, and optimization of Avaya Aura® Session Manager with Avaya and Non-Avaya SIP endpoints. The content of this course can be considered foundational and will be used for future workshops that cover related topics. Throughout the workshop students will have the opportunity to participate in hands-on virtual lab exercises.

Optimal number of students for this class ranges from 2 to 12.

Each intlx-VLab pod will include:

- 1) Avaya® / intlx Solutions Vlab environment
 - a. 1 each Avaya Aura® System Manager
 - b. 1 each Avaya Aura® Session Manager
 - c. 1 each Avaya Aura® Communication Manager
- 2) 1 each Avaya one-X® Communicator Soft Client (to be downloaded)
- 3) 1 each Counterpath X-Lite Soft Client (to be downloaded)
- 4) VPN connectivity with login credentials

Class Material will include:

- 1) Electronic copy of Courseware and Reference Material

Classroom rules:

- 1) Ask Questions
- 2) Have Fun

Students are to provide their own PC or Mac with internet connectivity and may need the ability to download and install programs on their computer. At a minimum, computers should have the following software loaded prior to the start of class:

Required

1. Microsoft Office®
2. SSH and Telnet client application
3. Internet Browser
4. PDF viewer / reader

Optional

1. Microsoft Visio® or Microsoft Visio Viewer®
2. Wireshark®



Course Agenda

Session 1:

4 hours

SIP Environment Verification Discussion (Basic Setup):

- Communication Manager
- System Manager / Session Manager
 - Elements
 - Session Manager
 - Routing

Users

- User Management
 - Non-ACM SIP
 - ACM SIP

Basic traceSM

- Good Registration
- Failed Registration



1.0 SIP Environment Configuration / Verification

In this section we will complete or review the various configuration forms necessary to enable SIP endpoints in and Avaya SIP enabled network. As we step through the Communication Manager SAT, System Manager Web Interface, and the Session Manager CLI, we will point out and configure only those settings that are relevant and significant to complete the tasks this workshop is developed to address. Any settings' values not specifically mentioned are assumed to be left at the default value for the purpose of this workshop.

Assumptions:

This course and accompanying course documentation assumes the Avaya Aura System Manager, Avaya Aura Session Manager, and the Avaya Aura Communication Manager have all been installed and configured. It is also assumed that the Session Manager and Communication Manger have been added as managed elements to the System Manager, and Communication Manager has an established Dial Plan.

Note: * will denote a value that is used for all Avaya SIP environments; otherwise, the values used in production environments should reflect settings applicable to those environments (i.e. Trunk Group – Group Type: sip is common to all sip deployments)

1.1 SIP Readiness - Communication Manager Configurations:

1.1.1 IP Codec Set: "change ip-codec-set X"

```
change ip-codec-set 2 Page 1 of 2
IP CODEC SET
Codec Set: 2
Audio      Silence   Frames   Packet
Codec      Suppression Per Pkt   Size (ms)
1: G.711MU      n         2        20
2: G.729       n         2        20
3:             -         -         -
4:             -         -         -
5:             -         -         -
6:             -         -         -
7:             -         -         -
```

1. *"G.711MU"
2. *"G.729"

1.1.2 IP Network Region: "change ip-network-region X"

```
change ip-network-region 1 Page 1 of 20
IP NETWORK REGION
Region: 1
Location: 1 Authoritative Domain: VLab.intlx.com
Name: SIP Stub Network Region: n
MEDIA PARAMETERS
Codec Set: 2 Intra-region IP-IP Direct Audio: yes
UDP Port Min: 2048 Inter-region IP-IP Direct Audio: yes
UDP Port Max: 3329 IP Audio Hairpinning? n
DIFFSERV/TOS PARAMETERS
Call Control PHB Value: 46
Audio PHB Value: 46
Video PHB Value: 26
802.1P/Q PARAMETERS
Call Control 802.1p Priority: 6
Audio 802.1p Priority: 6
Video 802.1p Priority: 5 AUDIO RESOURCE RESERVATION PARAMETERS
H.323 IP ENDPOINTS RSVP Enabled? n
H.323 Link Bounce Recovery? y
Idle Traffic Interval (sec): 20
Keep-Alive Interval (sec): 5
Keep-Alive Count: 5
```

Location: "1"

Name: "SIP"

Codec Set: "2"

Authoritative Domain: "VLab.intlx.com"

1.1 SIP Readiness - Communication Manager Configurations (cont'd):

1.1.3 Node Names: "change node-names ip"

```
change node-names ip                                     Page 1 of 2
IP NODE NAMES
Name           IP Address
ASM-SM100
default
intlxlabs1AMS
intlxlabs1ASM
procr
procr6        ::
( 6 of 6 administered node-names were displayed )
Use 'list node-names' command to see all the administered node-names
Use 'change node-names ip xxx' to change a node-name 'xxx' or add a node-name
```

Add the Security Module of the Session Manager
ASM-SM100 AA.BB.CC.DD(IP Address)

1.1.4 SIP Signal Group: "add signal-group X"

```
display signaling-group 100                             Page 1 of 2
SIGNALING GROUP
Group Number: 100           Group Type: sip
IMS Enabled? y             Transport Method: tcp
Q-SIP? n
IP Video? n                Enforce SIPS URI for SRTP? y
Peer Detection Enabled? y Peer Server: SM
Prepend '+' to Outgoing Calling/Alerting/Diverting/Connected Public Numbers? y
Remove '+' from Incoming Called/Calling/Alerting/Diverting/Connected Numbers? n
Alert Incoming SIP Crisis Calls? n
Near-end Node Name: procr   Far-end Node Name: ASM-SM100
Near-end Listen Port: 5060  Far-end Listen Port: 5060
Far-end Network Region: 1
Far-end Domain: VLab.intlx.com
Bypass If IP Threshold Exceeded? n
Incoming Dialog Loopbacks: eliminate RFC 3389 Comfort Noise? n
DTMF over IP: rtp-payload      Direct IP-IP Audio Connections? y
Session Establishment Timer(min): 3 IP Audio Hairpinning? n
Enable Layer 3 Test? y         Initial IP-IP Direct Media? n
H.323 Station Outgoing Direct Media? n Alternate Route Timer(sec): 6
```

Group Type: *"sip"

Transport Method: "tcp"

Near -end Node Name: "procr"

Far -end Node-Name: "ASM-SM100"

Far-end Network Region: "2"

Far-end Domain: "VLab.intlx.com"



1.1 SIP Readiness - Communication Manager Configurations (cont'd):

1.1.5 Trunk Group: "add trunk-group X" P1

```
change trunk-group 10                                     Page 1 of 21
TRUNK GROUP
Group Number: 10          Group Type: sip          CDR Reports: y
Group Name: SIP          COR: 10          TN: 1          TAC: *010
Direction: two-way      Outgoing Display? n
Dial Access? n          Night Service:
Queue Length: 0
Service Type: tie          Auth Code? n
                          Member Assignment Method: auto
                          Signaling Group: 100
                          Number of Members: 5
```

Group Type: ***"sip"** TAC: **"*010"**
Group Name: **"SIP"** Service Type: **"tie"**
Direction: **"two-way"** Signal Group: **"100"**
Number of Members: **"5"**

1.1.5 Trunk Group: "add trunk-group X" P2

```
change trunk-group 10                                     Page 2 of 21
Group Type: sip
TRUNK PARAMETERS
Unicode Name: auto
Redirect On OPTIM Failure: 5000
SCCAN? n          Digital Loss Group: 18
Preferred Minimum Session Refresh Interval(sec): 1200
```

Preferred Minimum Session Refresh Interval (sec): ***"1200"**

1.1.5 Trunk Group: "add trunk-group X" P3

```
change trunk-group 10                                     Page 3 of 21
TRUNK FEATURES
ACA Assignment? n          Measured: none          Maintenance Tests? y
Numbering Format: private          UII Treatment: service-provider
Replace Restricted Numbers? n
Replace Unavailable Numbers? n
Hold/Unhold Notifications? y
Modify Tandem Calling Number: no
Show ANSWERED BY on Display? y
```

Numbering Format: **"private"**
Show ANSWERED BY on Display: **"y"**

1.1 SIP Readiness - Communication Manager Configurations (cont'd):

1.1.5 Trunk Group: "add trunk-group X" P4

```
add trunk-group next                               Page 4 of 21
PROTOCOL VARIATIONS
Mark Users as Phone? n
Prepend '+' to Calling/Alerting/Diverting/Connected Number? n
Send Transferring Party Information? n
Network Call Redirection? n
Send Diversion Header? n
Support Request History? y
Telephone Event Payload Type: 120
```

Telephone Event Payload Type: "120"

1.1.6 Route Pattern: "change route-pattern X"

```
change route-pattern 10                           Page 1 of 3
Pattern Number: 10    Pattern Name: SIP
SCCAN? n    Secure SIP? n    Used for SIP stations? n
Grp FRL NPA Pfx Hop Toll No.    Inserted    DCS/ IXC
No      Mrk Lmt List Del    Digits
1: 10  0  - - - - - - - - - - - - - - - - - - - - - - - - - - - - n user
2: - - - - - - - - - - - - - - - - - - - - - - - - - - - - n user
3: - - - - - - - - - - - - - - - - - - - - - - - - - - - - n user
4: - - - - - - - - - - - - - - - - - - - - - - - - - - - - n user
5: - - - - - - - - - - - - - - - - - - - - - - - - - - - - n user
6: - - - - - - - - - - - - - - - - - - - - - - - - - - - - n user
BCC VALUE TSC CA-TSC ITC BCIE Service/Feature PARM Sub Numbering LAR
0 1 2 M 4 W Request Dgts Format
1: y y y y y n n rest - - lev0-pvt next
2: y y y y y n n rest - - none
```

Group FRL

No

"10" "0"

Numbering LAR

Format

"levo-pvt" "next"

1.1.7 Uniform Dial Plan: "change uniform-dialplan X"

```
change uniform-dialplan 1                         Page 1 of 2
UNIFORM DIAL PLAN TABLE
Percent Full: 0
Matching
Pattern Len Del Insert Node
0010000001 11 0 aar n
10110000001 11 0 aar n
n
n
```

Matching

Pattern

"10010000001" Len: "11" Del: "0" Net: "aar"

Note: In actual production environments the private-numbering form may also need to be administered to accommodate the production dial plan.



1.1 SIP Readiness - Communication Manager Configurations (cont'd):

1.1.8 AAR: "change aar analysis X"

```
change aar analysis 1 Page 1 of 2
```

AAR DIGIT ANALYSIS TABLE						
Location: all						
Percent Full: 2						
Dialed String	Total		Route	Call	Node	ANI
	Min	Max	Pattern	Type	Num	Reqd
001	11	11	10	aar		n
1011	11	11	10	aar		n
2	7	7	254	aar		n
3	7	7	254	aar		n
4	7	7	254	aar		n
5	7	7	254	aar		n
6	7	7	254	aar		n
7	7	7	254	aar		n
8	7	7	254	aar		n
9	7	7	254	aar		n
						n
						n
						n
						n
						n
						n
						n

Dial String:	Total		Route Pattern	Call Type
	Min	Max		
"1001"	"11"	"11"	"10"	"aar"
"1011"	"11"	"11"	"10"	"aar"

We will come back to configure the stations that will be subscribing to CM features as part of the User Management section. Not all of our SIP extensions will subscribe to the CM features.

1.2 SIP Readiness – System Manager Configurations:

1.2.1 SIP Domain: Elements / Routing / Domains

The screenshot shows the AVAYA Aura System Manager 7.0 interface. The breadcrumb navigation is Home / Elements / Routing / Domains. The main heading is "Domain Management". A table lists one item:

Name	Type	Notes
* VLab.intlx.com	sip	

Buttons for "Commit" and "Cancel" are visible at the top right and bottom right of the configuration area.

Click **New**

Name: **"VLab.intlx.com"**

Type: **"sip"**

Click **Commit**

1.2.2 Location: Elements / Routing / Locations

The screenshot shows the AVAYA Aura System Manager 7.0 interface for Location configuration. The breadcrumb navigation is Home / Elements / Routing / Locations. The main heading is "Location Management".

Name: Lab 1
Notes: SIP Endpoints

Dial Plan Transparency in Survivable Mode: Enabled:

Listed Directory Number:
Associated CH SIP Entity:

Overall Managed Bandwidth:

Managed Bandwidth Units: Kbit/sec
Total Bandwidth:
Multimedia Bandwidth:
Audio Calls Can Take Multimedia Bandwidth:

Per-Call Bandwidth Parameters:

Maximum Multimedia Bandwidth (Intra-Location): 2000 Kbit/Sec
Maximum Multimedia Bandwidth (Inter-Location): 2000 Kbit/Sec
Minimum Multimedia Bandwidth: 64 Kbit/Sec
Default Audio Bandwidth: 80 Kbit/Sec

Alarm Threshold:

Overall Alarm Threshold: 80 %
Multimedia Alarm Threshold: 80 %
Latency before Overall Alarm Trigger: 5 Minutes
Latency before Multimedia Alarm Trigger: 5 Minutes

Location Pattern:

Add **Remove**

IP Address Pattern	Notes
* 10.*	

Buttons for "Commit" and "Cancel" are visible at the bottom of the configuration area.

Click **New**

Name: **"Lab 1"**

Scroll down to *Location Pattern*, click **add** and enter **"10.*"**

Click **Commit**



1.2 SIP Readiness – System Manager Configurations (cont'd):

1.2.3 SIP Entities: Elements / Routing / SIP Entities

SIP Entity Details Commit/Cancel

General

Name:

FQDN or IP Address:

Type:

Notes:

Location:

Outbound Proxy:

Time Zone:

Credential name:

SIP Link Monitoring:

Click **New**

Name: "intlxLab1ASM" FQDN or IP Address: "AA.BB.CC.DD"

Type: "Session Manager" Click **Commit**

Click **New**

Name: "intlxLab1CM"

FQDN or IP Address: "AA.BB.CC.DD"

Type: "CM" Click **Commit**

1.2.4 Entity Links: Elements / Routing / Entity Links

Entity Links Commit/Cancel

Name	SIP Entity 1	Protocol	Port	SIP Entity 2	DNS Override	Port	Connection Policy	Deny New Service
SM to CM	intlxLab1ASM	TCP	5060	intlxLab1CM	None	5060	Trusted	No

Click **New**

Name: "SM to CM"

SIP Entity 1: "intlxLab1ASM"

Protocol: "TCP"

SIP Entity 2: "intlxLab1CM"

Click **Commit**

Note: Setting the protocol to TLS is more secure and considered best practice

1.2 SIP Readiness – System Manager Configurations (cont'd):

1.2.5 SIP Entities: Elements / Routing / Routing Policies

Home Routing x

Home / Elements / Routing / Routing Policies Help ?

Routing Policy Details

Commit Cancel

General

* Name:

Disabled:

* Retries:

Notes:

SIP Entity as Destination

Select

Name	FQDN or IP Address	Type	Notes

Time of Day

Add Remove View Gaps/Overlaps

1 Item Filter: Enable

Ranking	Name	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Start Time	End Time	Notes
<input type="checkbox"/>	0	24/7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	00:00	23:59	Time Range 24/7

Select : All, None

Dial Patterns

Add Remove

0 Items Filter: Enable

Pattern	Min	Max	Emergency Call	SIP Domain	Originating Location	Notes

Click **New**

Name: **"To CM"**

In the **SIP Entity as Destination** section, Click **Select**

Home Routing x

Home / Elements / Routing / Routing Policies

SIP Entities

Select Cancel

SIP Entities

3 Items Filter:

Name	FQDN or IP Address	Type	Notes
<input type="radio"/> intlxLab1ASM	10.200.0.151	Session Manager	
<input type="radio"/> intlxlab1AvayaBreeze	10.200.0.161	Avaya Breeze	
<input checked="" type="radio"/> intlxLab1CM	10.200.0.153	CM	

Select : None

Select Cancel

Click the radio button for *intlxLab1CM*, the Click **Select**

1.2 SIP Readiness – System Manager Configurations (cont'd):

1.2.5 Routing Policies: Elements / Routing / Routing Policies (cont'd)

The screenshot shows the 'Routing Policy Details' configuration page. The left sidebar lists navigation options: Domains, Locations, Adaptations, SIP Entities, Entity Links, Time Ranges, Routing Policies (selected), Dial Patterns, Regular Expressions, and Defaults. The main content area is titled 'Routing Policy Details' and includes a 'Commit/Cancel' button. The 'General' section contains fields for 'Name' (To CM), 'Disabled' (checkbox), 'Retries' (0), and 'Notes'. The 'SIP Entity as Destination' section features a table with columns for Name, FQDN or IP Address, Type, and Notes. The 'Time of Day' section includes an 'Add/Remove/View Gaps/Overlaps' toolbar and a table with columns for Ranking, Name, days of the week, Start Time, End Time, and Notes. The 'Dial Patterns' section is partially visible at the bottom.

Click **Commit**

1.2.6 Dial Patterns: Elements / Routing / Dial Patterns

The screenshot shows the 'Dial Pattern Details' configuration page. The left sidebar lists navigation options: Domains, Locations, Adaptations, SIP Entities, Entity Links, Time Ranges, Routing Policies, Dial Patterns (selected), Regular Expressions, and Defaults. The main content area is titled 'Dial Pattern Details' and includes a 'Commit/Cancel' button. The 'General' section contains fields for 'Pattern' (1001xxxxxxx), 'Min' (11), 'Max' (11), 'Emergency Call' (checkbox), 'Emergency Priority' (1), 'Emergency Type', 'SIP Domain' (-ALL-), and 'Notes' (intxLab1CM extensions). The 'Originating Locations and Routing Policies' section features a table with columns for Originating Location Name, Originating Location Notes, Routing Policy Name, Rank, Routing Policy Disabled, Routing Policy Destination, and Routing Policy Notes. The 'Denied Originating Locations' section is empty.

Click **New**

Pattern: **"1001xxxxxxx"**

Min: **"11"**

Max: **"11"**

1.2 SIP Readiness – System Manager Configurations (cont'd):

1.2.6 Routing Policies: Elements / Routing / Dial Patterns (cont'd)

Home Routing x

Home / Elements / Routing / Dial Patterns Help ?

Dial Pattern Details Commit Cancel

General

* Pattern:

* Min:

* Max:

Emergency Call:

Emergency Priority:

Emergency Type:

SIP Domain:

Notes:

Originating Locations and Routing Policies

Add Remove

0 Items Filter: Enable

<input type="checkbox"/>	Originating Location Name	Originating Location Notes	Routing Policy Name	Rank	Routing Policy Disabled	Routing Policy Destination	Routing Policy Notes

Denied Originating Locations

In the Originating Locations and Routing Policies section, Click Add

Home Routing x

Home / Elements / Routing / Dial Patterns Help ?

Originating Location Select Cancel

Originating Location

Apply The Selected Routing Policies to All Originating Locations

1 Item Filter: Enable

<input checked="" type="checkbox"/>	Name	Notes
<input type="checkbox"/>	Lab 1	SIP Endpoints

Select : All, None

Routing Policies

1 Item Filter: Enable

<input checked="" type="checkbox"/>	Name	Disabled	Destination	Notes
<input checked="" type="checkbox"/>	To CM	<input type="checkbox"/>	intlxLab1CM	

In the "Originating Location" section click to check

Apply The Selected Routing Policies to All Originating Locations

In the "Routing Policies" section Click to check *To CM*, then Click *Select*

Note: Other designs may be more complex and require other selections; these settings should not be considered universal

1.2 SIP Readiness – System Manager Configurations (cont'd):

1.2.6 Routing Policies: Elements / Routing / Dial Patterns (cont'd)

Home Routing x

Home / Elements / Routing / Dial Patterns Help ?

Dial Pattern Details

Commit Cancel

General

* Pattern:

* Min:

* Max:

Emergency Call:

Emergency Priority:

Emergency Type:

SIP Domain:

Notes:

Originating Locations and Routing Policies

Add Remove

1 Item Filter: Enable

Originating Location Name	Originating Location Notes	Routing Policy Name	Rank	Routing Policy Disabled	Routing Policy Destination	Routing Policy Notes
<input type="checkbox"/> -ALL-		To CM	0	<input type="checkbox"/>	intlixLab1CM	

Select : All, None

Denied Originating Locations

Add Remove

0 Items Filter: Enable

Originating Location	Notes
----------------------	-------

Commit Cancel

Click **Commit**

1.2.7 Applications: Elements / Session Manager / Application Configuration

Home Session Manager x

Home / Elements / Session Manager / Application Configuration

Application Configuration

Sub Pages

Action	Description	Help
Applications	Administer individual Applications for use in Application Sequences.	Applications Page Fields
Application Sequences	Administer Application Sequences for call application sequencing.	Application Sequences Page Fields
Conference Factories	Administer well known and factory URI mappings for conferencing.	Conference Factories Main Page Fields Conference Factory Set Editor Page Fields
Implicit Users	Administer dial pattern rules for call application sequencing.	Implicit Users Page Fields
NRS Proxy Users	Administer NRS proxy user rules.	NRS Proxy Users Page Fields

Click **Applications**

1.2 SIP Readiness – System Manager Configurations (cont'd):

1.2.7 Applications: Elements / Session Manager / Application Configuration (cont'd)

Applications
This page allows you to add, edit, or remove applications for available SIP Entities.

Application Entries

0 Items Filter: Enable

Application Name	SIP Entity	Media Filtering	Description
No application entries have been defined.			

Click New

Application Editor [Commit] [Cancel]

Application

* Name:

* SIP Entity:

* CM System for SIP Entity: [Refresh] [View/Add CM Systems](#)

Description:

Application Attributes (optional)

Name	Value
Application Handle	<input type="text"/>
URI Parameters	<input type="text"/>

Application Media Attributes

Enable Media Filtering

Audio	Video	Text	Match Type	If SDP Missing
<input type="text" value="YES"/>	<input type="text" value="YES"/>	<input type="text" value="YES"/>	<input type="text" value="NOT_EXACT"/>	<input type="text" value="ALLOW"/>

* Required [Commit] [Cancel]

Name: "CM7" SIP Entity: "intlxLab1CM"
 CM System for SIP Entity: "intlxLab1CM"

Click *Commit*

1.2 SIP Readiness – System Manager Configurations (cont'd):

1.2.7 Applications: Elements / Session Manager / Application Configuration (cont'd)

Home / Elements / Session Manager / Application Configuration / Applications

Applications
This page allows you to add, edit, or remove applications for available SIP Entities.

Application Entries

New Edit Delete

1 Item Filter: Enable

Application Name	SIP Entity	Media Filtering	Description
CMZ	intlxLab1CM	<input type="checkbox"/>	Vlab Lab 1 CM 7

Select : All, None

Click Application Sequences

Home / Elements / Session Manager / Application Configuration / Application Sequences

Application Sequences
This page allows you to add, edit, or remove sequences of applications.

Application Sequences

New Edit Delete

0 Items Filter: Enable

Name	Description
No Application Sequences Have Been Administered	

Click New

Application Sequence

*Name

Description

Applications in this Sequence

Move First Move Last Remove

1 Item

Sequence Order (first to last)	Name	SIP Entity	Mandatory	Description
1	CMZ	intlxLab1CM	<input checked="" type="checkbox"/>	Vlab Lab 1 CM 7

Select : All, None

Available Applications

1 Item Filter: Enable

Name	SIP Entity	Description
CMZ	intlxLab1CM	Vlab Lab 1 CM 7

* Required

Name: "CM 7 App"

In the "Available Applications" section, click the + by CM7, then click *Commit*



2.0 Adding and Managing SIP Users

In this section we will add two different types of SIP users:

- 1) We will add a Non-ACM SIP user with no CM profile into the Session Manager only, and then use the Counterpath X-Lite soft client to log into the Session Manager.**
- 2) We will add an ACM SIP user with a CM profile into both CM and Session Manager, and then use the Avaya OneX Communicator soft client to log into Session Manager.**

Once we have our clients logged in, we will look at various screens to determine the users' status, and then place test calls between the users.

2.1 Adding a Non-ACM SIP User:

2.1.1 Users: User Management / Manage Users: *Identity*

The screenshot shows the 'User Management' interface. On the left is a navigation menu with options like 'Manage Users', 'Public Contacts', 'Shared Addresses', 'System Presence', 'ACLs', 'Communication', 'Profile Password', and 'Policy'. The main area displays a search bar and a table of users.

Last Name	First Name	Display Name	Login Name	SIP Handle	Last Login
admin	admin	Default Administrator	admin		February 7, 2017 7:55:01 AM -06:00

Click **New**

The screenshot shows the 'New User Profile' form. The 'Identity' section is expanded, showing fields for user information. The 'Login Name' field is highlighted with a red box.

Fields shown in the Identity section:

- Last Name: Tesla
- Last Name (Latin Translation): Tesla
- First Name: Nikola
- First Name (Latin Translation): Nikola
- Middle Name: (empty)
- Description: (empty)
- Login Name: 10000001@vlab.intlx.com
- User Type: Basic
- Password: (masked with dots)
- Confirm Password: (masked with dots)
- Localized Display Name: (empty)
- Endpoint Display Name: (empty)
- Title: (empty)
- Language Preference: (dropdown)
- Time Zone: (dropdown)
- Employee ID: (empty)
- Department: (empty)
- Company: (empty)

Last Name: "Tesla"

First Name: "Nikola"

Login Name: 1011000001@vlab.intlx.com

Password: "intlx2017"

Confirm Password: "intlx2017" Click *Commit & Continue*

2.1 Adding a Non-ACM SIP User (cont'd):

2.1.2 Users: User Management / Manage Users: *Communication Profile*

Home / Users / User Management / Manage Users

User Profile Edit: 1011000001@vlab.intlx.com

Communication Profile

Communication Profile Password: [Edit](#)

Name	Select
Primary	None

Click *Edit* beside the blank box labeled Communication Profile Password:

User Profile Edit: 1011000001@vlab.intlx.com

Communication Profile

Communication Profile Password:

Confirm Password: [Cancel](#)

Name	Select
Primary	None

Communication Profile Password: "1324354657"

Confirm Password: "1324354657"

Click *Commit & Continue*

Communication Profile

Communication Profile Password:

Confirm Password: [Cancel](#)

Name	Select
Primary	None

* Name:

Default:

Communication Address

Type	Handle	Domain
No Records found		

In the Communication Address Section, Click *+New*

2.1 Adding a Non-ACM SIP User (cont'd):

2.1.2 Users: User Management / Manage Users: *Communication Profile* (cont'd)

Communication Address ▾

New Edit Delete

Type	Handle	Domain
No Records found		

Type: Avaya SIP ▾

* Fully Qualified Address: 10110000001 @ VLab.intlx.com ▾

Add Cancel

Fully Qualified Address: "10110000001"

@: "VLab.intlx.com" (select)

Click *Add*

Click to check the box beside *Session Manager Profile*

Session Manager Profile ▾

Avaya Breeze Profile ▾

CM Endpoint Profile ▾

Communication Address ▾

Type	Handle	Domain
Avaya SIP	10110000001	VLab.intlx.com

Select : All, None

Session Manager Profile ▾

SIP Registration

* Primary Session Manager: intlxLab1ASM

Primary	Secondary	Maximum
2	0	2

Secondary Session Manager:

Survivability Server:

Max. Simultaneous Devices: 1 ▾

Block New Registration When Maximum Registrations Active?

Application Sequences

Origination Sequence: (None) ▾

Termination Sequence: (None) ▾

Call Routing Settings

* Home Location: Lab 1 ▾

Conference Factory Set: (None) ▾

Call History Settings

Enable Centralized Call History?

Avaya Breeze Profile ▾

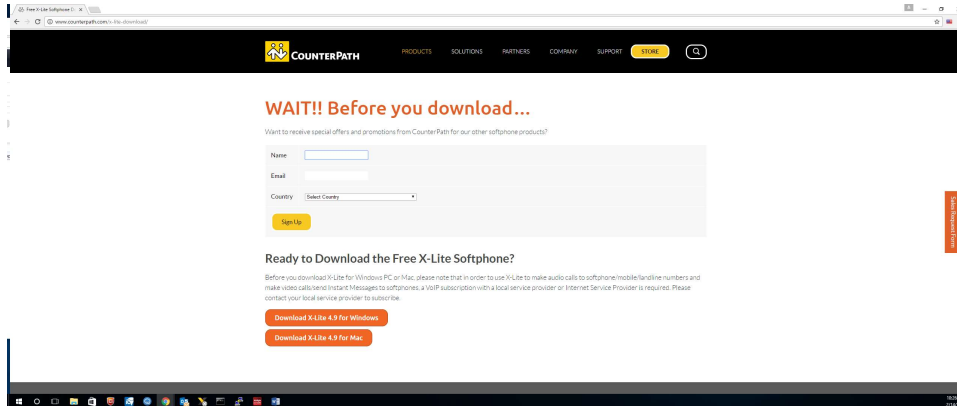
Primary Session Manager: "intlxLab1ASM"

Home Location: "Lab 1"

Click *Commit & Continue*

2.1 Adding a Non-ACM SIP User (cont'd):

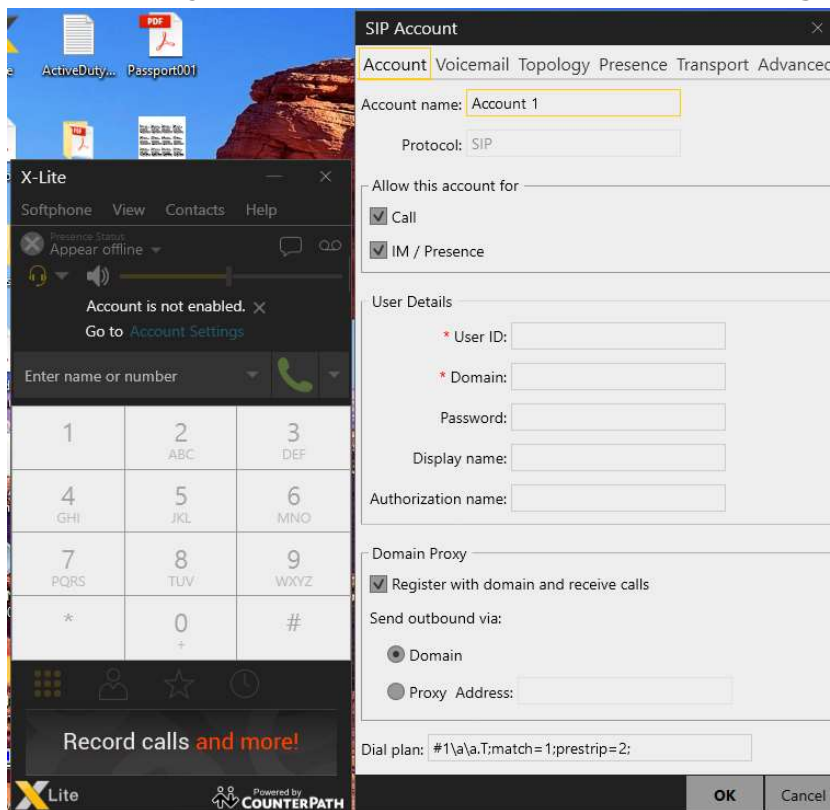
2.1.3 CounterPath X-Lite Client: Install and Configure Browse to: WWW.counterpath.com/x-lite-download/



Select the appropriate downloads for your OS

Note: you may need to click proceed if any warning signs appear from any security programs

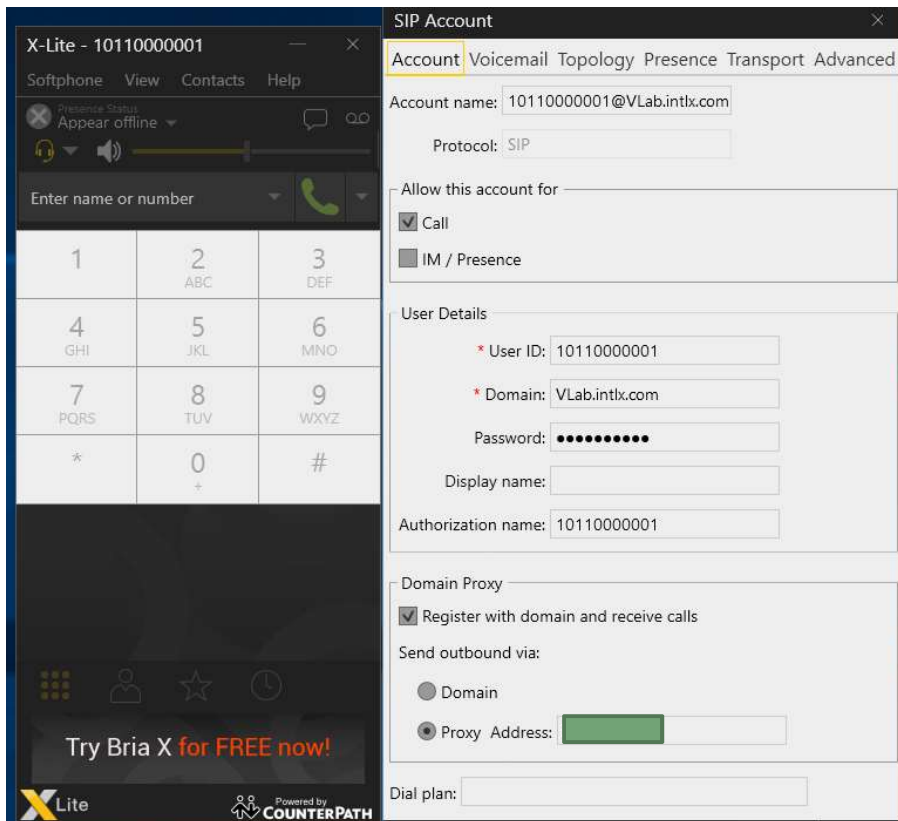
Once the program is downloaded, navigate to the folder it was downloaded to and double-click the X-Lite icon. Follow the prompts through the installation process. Once the installation is complete, open the application and click *Softphone*, and then click *Account Settings*



Note: the initial default settings are shown in the above graphic

2.1 Adding a Non-ACM SIP User (cont'd):

2.1.3 CounterPath X-Lite Client: Install and Configure (cont'd)



Account name: "10110000001@VLab.intlx.com"

User ID: "10110000001" Domain: "VLab.intlx.com"

Password: "1324354657" Display name: "XLite SST"

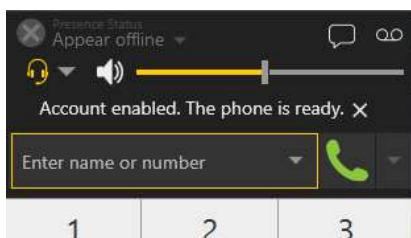
Authorization name: "10110000001"

Click Radio Button for Proxy Address: "AA.BB.CC.DD"

Uncheck *IM / Presence*

Clear default Dial plan entries

Click *OK*



As the client registers you should see the message "Account enabled. The phone is ready."

2.1 Adding a Non-ACM SIP User (cont'd):

2.1.4 CounterPath X-Lite Client: Status

User Registrations
Select rows to send notifications to devices. Click on Details column for complete registration status.

View: Default Force Unregister AST Device Notifications: Reboot Reload Fallback As of 8:40 AM

2 Items Show All Filter: Enabled

	Details	Address	First Name	Last Name	Actual Location	IP Address	Remote Office	Shared Control	Simult. Devices	AST Device	Registered		
											Prim	Sec	Sun
<input type="checkbox"/>	Show	10110000001@VLab.intlix.com	Nikola	Tesla	Lab 1	10.212.212.1	<input type="checkbox"/>	<input type="checkbox"/>	1/1	<input type="checkbox"/>	<input checked="" type="checkbox"/> (AC)	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Show	---	Leonardo	Da Vinci	---	---	<input type="checkbox"/>	<input type="checkbox"/>	0/1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

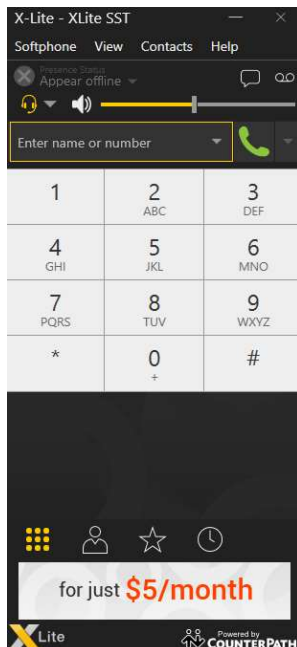
Select : All, None

In System Manager, navigate to:

Elements / Session Manager / System Status / User Registrations and verify the *Address*, *Actual Location*, *IP Address* all have entries.

The *Simult. Devices* field should show 1/1 and there should be a check in the box under *Prim* in the *Registered* column

The Client should appear as in the graphic below:





2.2 Adding an ACM SIP User:

2.2.1 Users: User Management / Manage Users: *Identity*

With the exception of Session Manager Profile Application Sequences and the additional *CM Endpoint Profile* under the *Communication Profile* Tab, adding an ACM SIP user in Session Manager follows the same sequence as adding a Non-ACM user from section 2.1:

Navigate to Users: User Management / Manage Users:

Click **+New**

Last Name: "Da Vinci"

First Name: "Leonardo"

Login Name: 10010000001@vlab.intlx.com

Password: "intlx2017"

Confirm Password: "intlx2017"

Click **Commit & Continue**

2.2.2 Users: User Management / Manage Users: *Communication Profile*

Click **Edit** beside the blank box labeled Communication Profile Password:

Communication Profile Password: "1324354657"

Confirm Password: "1324354657"

Click **Commit & Continue**

In the Communication Address Section, Click **+New**

Fully Qualified Address: "10010000001"

@: "VLab.intlx.com" (select)

Click **Add**

Click to check the box beside Session Manager Profile

Primary Session Manager: "intlxLab1ASM"

Origination Sequence: "CM 7 App" (select)

Termination Sequence: "CM 7 App" (select)

Home Location: "Lab 1"

Click **Commit & Continue**



2.2 Adding an ACM SIP User (cont'd):

2.2.2 User Management / Manage Users: *Communication Profile (cont'd)*

Click to check the box beside **CM Endpoint Profile**

Application Sequences
Origination Sequence: CM 7 App
Termination Sequence: CM 7 App

Call Routing Settings
* Home Location: Lab 1
Conference Factory Set: (None)

Call History Settings
Enable Centralized Call History?

Avaya Breeze Profile

CM Endpoint Profile

* System: intlxLab1CM
* Profile Type: Endpoint
Use Existing Endpoints:
* Extension: [Display Extension Ranges](#)
10010000001 [Endpoint Editor](#)
Template: Select/Reset
Set Type: 9611SIP
Security Code: *****
Port: S00001
Voice Mail Number:
Preferred Handle: (None)
Calculate Route Pattern:
Sip Trunk: aar
Enhanced Callr-Info display for 1-line phones:
Delete Endpoint on Unassign of Endpoint from User or on Delete User:
Override Endpoint Name and Localized Name:
Allow H.323 and SIP Endpoint Dual Registration:

System: "intlxLab1CM" (select)

Extension: "10010000001"

Template: "9611SIP_Default_CM_7_o"

Security Code: "13243546"

Click **Commit & Continue**

2.2 Adding an ACM SIP User (cont'd):

2.2.3 Communication Manager: "change station x"

```

change station 1001000003                               Page 1 of 6
STATION
Extension: 1001-000-0003                               Lock Messages? n          BCC: 0
Type: 9611SIP                                         Security Code: *          TN: 1
Port: S00007                                          Coverage Path 1:          COR: 1
Name: [REDACTED]                                     Coverage Path 2:          COS: 1
                                                    Hunt-to Station:
STATION OPTIONS
Loss Group: 19                                         Time of Day Lock Table: _
                                                    Message Lamp Ext: 1001-000-0003
Display Language: english                             Button Modules: 0
Survivable COR: internal                              IP SoftPhone? y
Survivable Trunk Dest? y                             IP Video Softphone? n
                                                    Short/Prefixed Registration Allowed: default
  
```

IP Softphone: "y"

2.2.4 Avaya OneX Communicator Client: Install and Configure

Note: If you have not already downloaded Avaya OneX Communicator from support.avaya.com, you will need to know your SSO login to access software entitlements at PLDS

Browse to: support.avaya.com and log in with your SSO login credentials

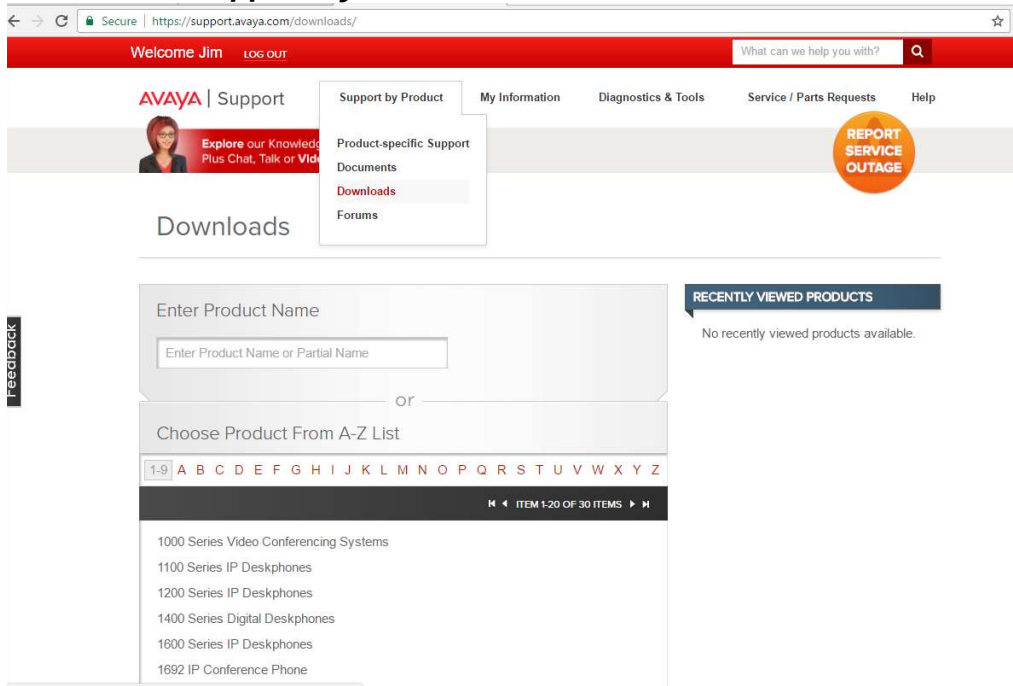
The screenshot shows the Avaya Support website interface. At the top, there is a navigation bar with "AVAYA | Support" and links for "Support by Product", "My Information", "Diagnostics & Tools", "Service / Parts Requests", and "Help". Below this is a search bar and a "REPORT SERVICE OUTAGE" button. The main content area features several sections:

- Latest News:** A blue banner with links to learn more and a note about legacy customers.
- Ask Ava:** A section promoting access to solutions and Live Agents, with a link to the Service Community.
- Register now:** A call to action to take full advantage of AVAYA Support.
- COMPANY NEWS:** A section with three news items, each with a "Click here" link.
- Support by Product:** A section with an image of Avaya devices and text describing product-specific support pages.
- We've gone mobile:** A section with an image of a mobile device and text describing mobile access to support resources.
- Feedback:** A vertical button on the left side of the page.
- Ask Ava** and **Security** are listed as additional support options at the bottom.

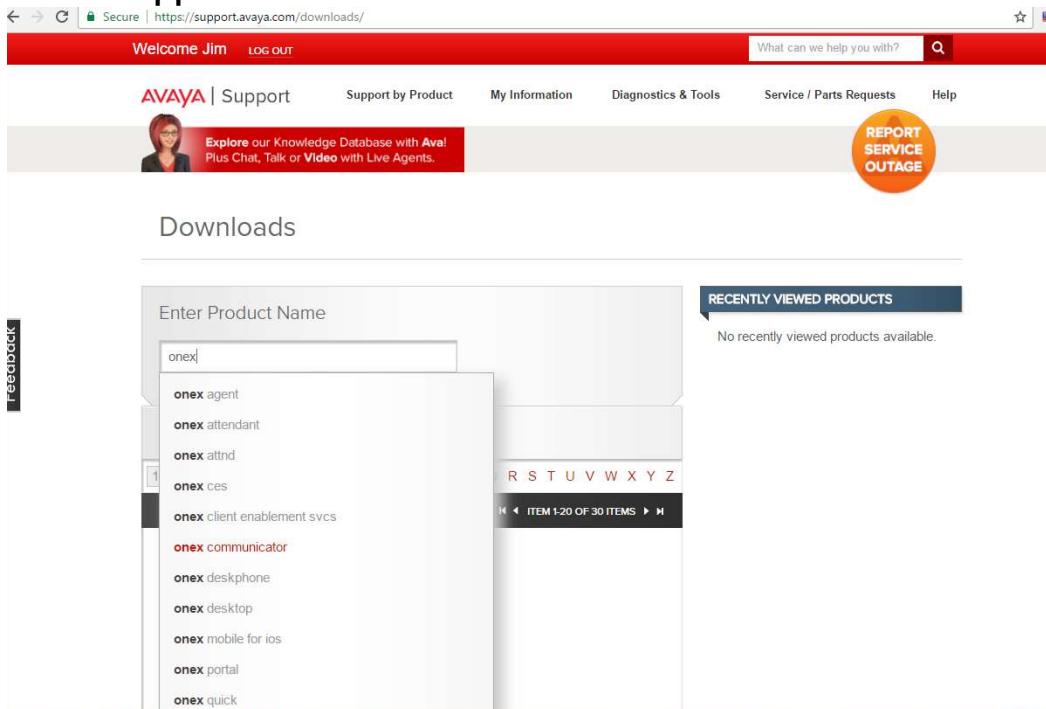
2.2 Adding an ACM SIP User (cont'd):

2.2.4 Avaya OneX Communicator Client: Install and Configure (cont'd)

Hover over *Support by Product* and click *Downloads*



Start typing *onex* in the *Enter Product Name* and click *onex communicator* when it appears



2.2 Adding an ACM SIP User (cont'd):

2.2.4 Avaya OneX Communicator Client: Install and Configure (cont'd)

Click the down arrow by **Choose Release** and click **6.2.x**

Click **Avaya one-X® Communicator Release 6.2 Service Pack 12, 6.2.x**

Click the link labeled: **onexc_6.2.12.0.4.zip , 6.2.x**



2.2 Adding an ACM SIP User (cont'd):

2.2.4 Avaya OneX Communicator Client: Install and Configure (cont'd)

Click Download

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% indicates wildcard search

Download pub ID:

Group name:

%Download name:

Application:

Download type:

Version (leave blank to display all software versions):

[Search Downloads](#) [Advanced search]

Showing: 1-1 of 1 [Expand all](#) [Collapse all](#) [Hide previous downloads](#)

	Version	Type	Application	Download Description
	6.2	Software Downloads	one-X Communicator	Avaya one-X Communicator R6.2 with Service Pack 12 Download ID:OXC0000062;Size:121 MB;Release date:Sep 30, 2016 More...

Showing: 1-1 of 1 [Expand all](#) [Collapse all](#) [Hide previous downloads](#)

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Navigate to the Download destination directory and extract the *oncexc* files to a folder of your choosing

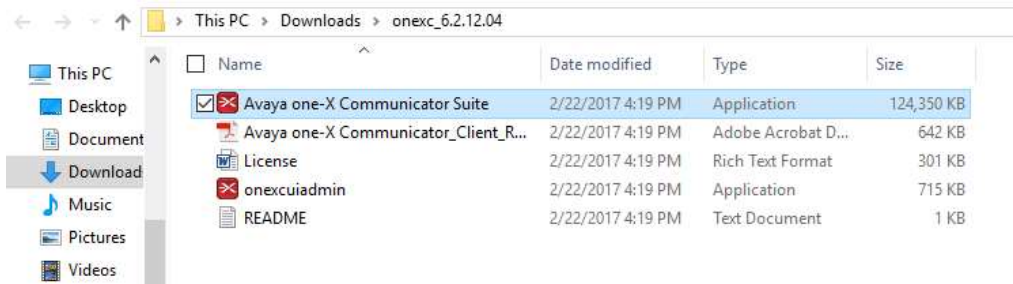
File Explorer: Downloads

Name	Date modified	Type	Size
oncexc_6.2.12.04	2/22/2017 4:01 PM	Compressed (zipped)...	124,181 KB
connectSSH (1)	2/22/2017 2:56 PM	Windows Batch File	1 KB
connectSSH	2/22/2017 1:50 PM	Windows Batch File	1 KB
ite_4.9.7.1_83372	2/22/2017 9:59 AM	Application	65,769 KB
ItemManagerCA.cacert	2/16/2017 9:48 AM	Security Certificate	2 KB
exc_6.2.12.04 (1)	2/16/2017 8:47 AM	Compressed (zipped)...	124,181 KB
phosinstall	2/10/2017 12:03 PM	Application	22,379 KB

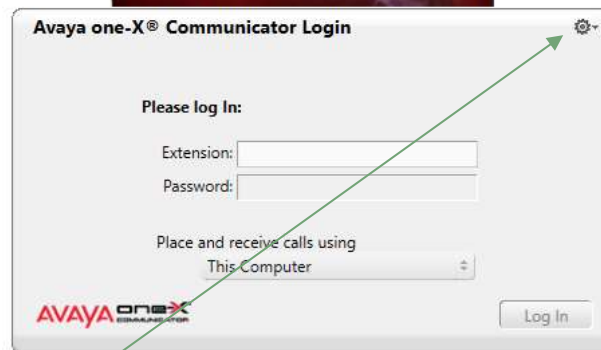
2.2 Adding an ACM SIP User (cont'd):

2.2.4 Avaya OneX Communicator Client: Install and Configure (cont'd)

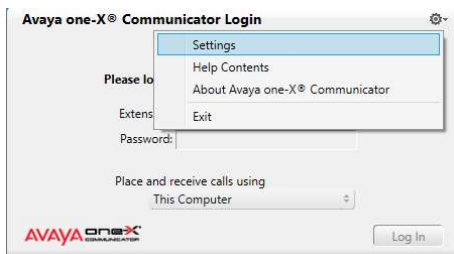
Navigate to the Extraction destination directory and double-click *Avaya on-x Communicator Suite*



Follow the Installation prompts, accept the license terms and use all default settings. Launch the application when finished



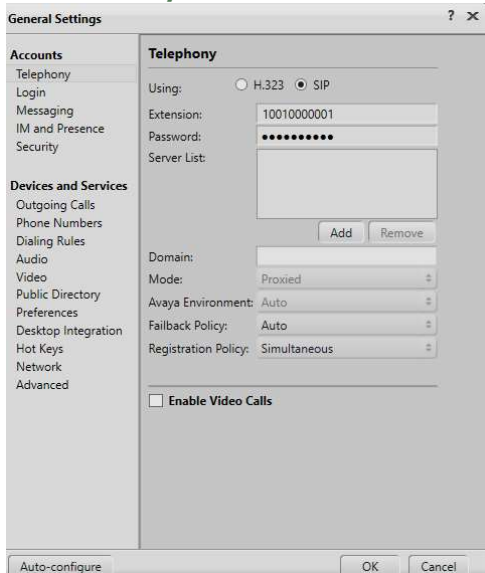
Click the menu icon



Click Settings

2.2 Adding an ACM SIP User (cont'd):

2.2.4 Avaya OneX Communicator Client: Install and Configure (cont'd)

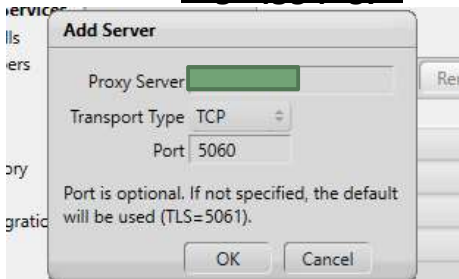


Click the **SIP** Radio Button

Extension: **"10010000001"**

Password: **"1324354657"**

Click **Add**

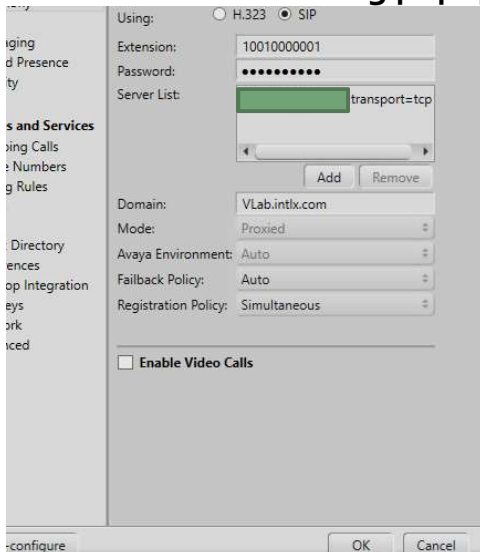


Proxy Server: **"AA.BB.CC.DD"**

Click **Transport Type** Arrow to select **TCP**

Click **OK** on the warning popup

Click **OK**



Domain: **"VLab.intlx.com"**

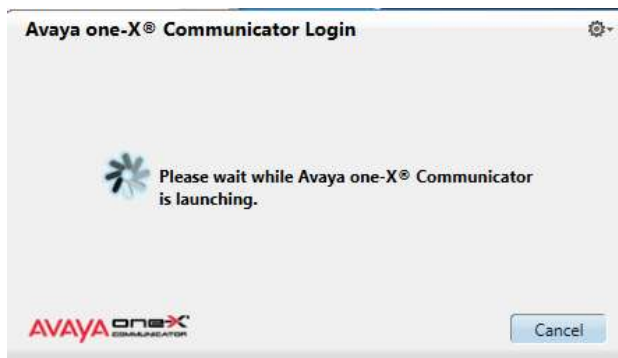
Click **OK**

2.2 Adding an ACMSIP User (cont'd):

2.2.4 Avaya OneX Communicator Client: Install and Configure (cont'd)



Click *Log In*



As the client registers you should see a window similar to the one in the graphic above.

2.2 Adding an ACM SIP User (cont'd):

2.2.5 Avaya OneX Communicator Client: Status

User Registrations

Select rows to send notifications to devices. Click on Details column for complete registration status.

View: Default Force Unregister AST Device Notifications: Reboot Reload Failback As of 3:49 PM

2 Items Show All Filter: Enable

	Details	Address	First Name	Last Name	Actual Location	IP Address	Remote Office	Shared Control	Simult. Devices	AST Device	Registered		
											Prim	Sec	Surv
<input type="checkbox"/>	Show	10110000001@VLab.intlx.com	Nikola	Tesla	Lab 1	10.212.212.1	<input type="checkbox"/>	<input type="checkbox"/>	1/1	<input type="checkbox"/>	<input checked="" type="checkbox"/> (AC)	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Show	10010000001@VLab.intlx.com	Leonardo	Da Vinci	Lab 1	10.212.212.1	<input type="checkbox"/>	<input type="checkbox"/>	1/1	<input type="checkbox"/>	<input checked="" type="checkbox"/> (AC)	<input type="checkbox"/>	<input type="checkbox"/>

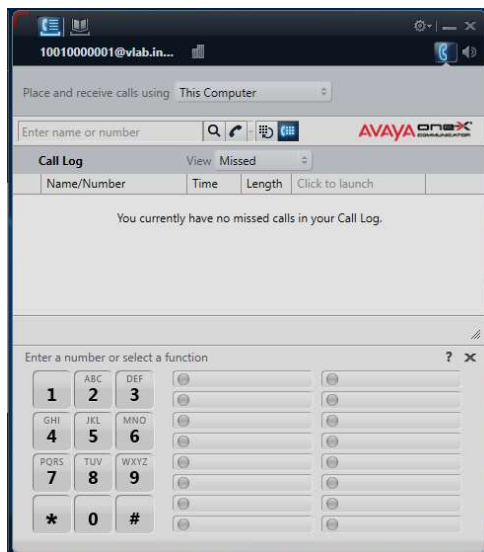
Select : All, None

In System Manager, navigate to:

Elements / Session Manager / System Status / User Registrations and verify the *Address*, *Actual Location*, *IP Address* all have entries.

The *Simult. Devices* field should show 1/1 and there should be a check in the box under *Prim* in the *Registered* column

The Client should appear as in the graphic below:





3.0 Basic traceSM Usage

In this section we will look at the Session Manager traceSM tool that can be used to help isolate and resolve issues as they occur.

For the purpose of this workshop, we will focus on SIP endpoint registration, comparing the traceSM output of a good registration vs. a failed registration.

3.1 Using traceSM to monitor endpoint Registration:

3.1.1 Good registration in traceSM

```
cust@intlxLab1ASM:~  
poses only. The actual or attempted unauthorized access, use, or modification of  
this system is strictly prohibited.  
  
Unauthorized users are subject to company disciplinary procedures and or crimina  
l and civil penalties under state, federal, or other applicable domestic and for  
eign laws.  
  
The use of this system may be monitored and recorded for administrative and secu  
rity reasons. Anyone accessing this system expressly consents to such monitorin  
g and recording, and is advised that if it reveals possible evidence of criminal  
activity, the evidence of such activity may be provided to law enforcement offi  
cials.  
All users must comply with all corporate instructions regarding the protection o  
f information assets.  
  
Using keyboard-interactive authentication.  
Password:  
Access denied  
Using keyboard-interactive authentication.  
Password:  
Last login: Thu Feb 23 13:46:03 EST 2017 from 10.212.212.1 on pts/1  
Last failed login: Mon Feb 27 12:40:37 EST 2017 from 10.212.212.1 on ssh:notty  
There was 1 failed login attempt since the last successful login.  
[cust@intlxLab1ASM ~]$ traceSM
```

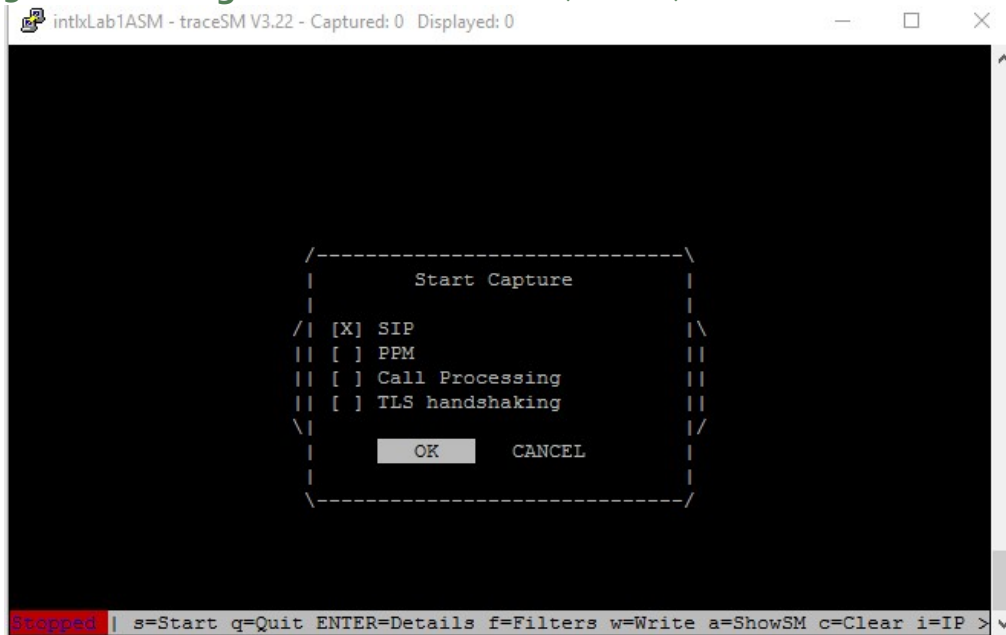
1. Ensure the Avaya one-X® Communicator client is logged out
2. Launch an SSH session to the SM at AA.BB.CC.DD and log in using *cust* and a password of *******
3. At the resulting command prompt enter *traceSM* and hit return

```
intlxLab1ASM - traceSM V3.22 - Captured: 0 Displayed: 0  
  
|-----|  
| Press 's' to start the capture |  
|-----|  
  
Stopped | s=Start q=Quit ENTER=Details f=Filters w=Write a=ShowSM c=Clear i=IP >
```

4. Press *s* to start the trace

3.1 Using traceSM to monitor endpoint Registration (cont'd):

3.1.1 Good registration in traceSM (cont'd)



5. Press *Enter* and then launch the Avaya one-X® application

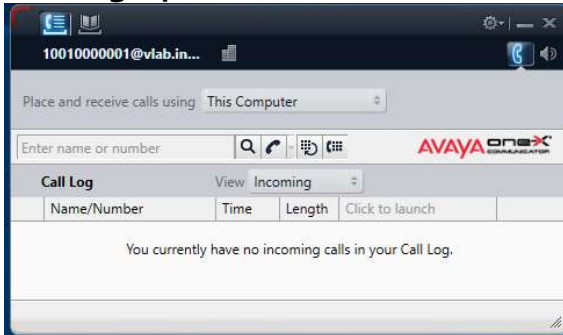


6. Click *Log In* on the Avaya one-X® client and observe the SIP messages as the client registers

3.1 Using traceSM to monitor endpoint Registration (cont'd):

3.1.1 Good registration in traceSM (cont'd)

After the Avaya one-X® client has finished registering, it may appear similar to the graphic below:



7. Click on or in the SM window and press s to stop the trace
8. Move your cursor up to the first message from 10010000001 to SM100 and press Enter

```

-----
10010000001          intlxLab1CM
                        SM100
-----
11:00:31.891 | --REGISTE-- | | | (2) sip:10010000001@vlab.intlx.com Exp:3600
11:00:31.893 | <--Unautho- | | | (2) 401 Unauthorized
11:00:31.965 | --REGISTE--> | | | (2) sip:10010000001@vlab.intlx.com Exp:3600
11:00:31.968 | <--200 OK--> | | | (2) 200 OK (REGISTER)
11:00:32.041 | --SUBSCRI-> | | | (3) sip:10010000001@vlab.intlx.com Ev:avaya-cm-feature-status Exp:86400
11:00:32.043 | <--Unautho- | | | (3) 401 Unauthorized
11:00:32.127 | --SUBSCRI-> | | | (3) sip:10010000001@vlab.intlx.com Ev:avaya-cm-feature-status Exp:86400
11:00:32.130 | <--ACCEPT- | | | (3) 202 ACCEPTED
11:00:32.131 | | | | (4) <sip:10010000001@vlab.intlx.com> Ev:avaya-cm-feature-status Exp:0
11:00:32.132 | <--200 OK--> | | | (4) 200 OK (SUBSCRIBE)
11:00:32.132 | <--NOTIFY--> | | | (4) <sip:10010000001@vlab.intlx.com> Ev:avaya-cm-feature-status
11:00:32.135 | <--NOTIFY--> | | | (3) <sip:10010000001@vlab.intlx.com> Ev:avaya-cm-feature-status
11:00:32.135 | | | | (4) 400 Bad Request(no body in polling NOTIFY)
11:00:32.309 | --200 OK--> | | | (3) 200 OK (NOTIFY)
11:01:03.517 | --SUBSCRI-> | | | (8) sip:10010000001@vlab.intlx.com Ev:avaya-cm-feature-status Exp:86400
11:01:03.519 | <--Unautho- | | | (8) 401 Unauthorized
11:01:03.589 | --SUBSCRI-> | | | (8) sip:10010000001@vlab.intlx.com Ev:avaya-cm-feature-status Exp:86400
11:0/-----
11:0|
11:0|
-----
11:0|REGISTER sip:vlab.intlx.com SIP/2.0
11:0|From: sip:10010000001@vlab.intlx.com;tag=-1920464858b59e78-4b1564c0_F10010000001:
11:0|To: sip:10010000001@vlab.intlx.com
11:0|Call-ID: 1_5c34fca5-4201cf77-4b1564e0_R@
|CSeq: 1 REGISTER
|Via: SIP/2.0/TCP :53223;branch=z9hG4bK1_5c34fca5-8008047-4b15649c_R10010000001
|Content-Length: 0
|Max-Forwards: 70
|Contact: <sip:10010000001@ :53223;transport=tcp>;q=1;expires=3600;reg-id=1;+sip.instance="urn:uuid:543ad163-4057-5836-891c-b40d5f4a20c5">
|Allow: INVITE, CANCEL, BYE, ACK, SUBSCRIBE, NOTIFY, MESSAGE, INFO, PUBLISH, REFER, UPDATE
|User-Agent: Avaya one-X Communicator/6.2.12.04 (Engine GA-2.2.0.142; Windows NT 6.2, 64-bit)
|Supported: eventlist, vnd.avaya.ipo
-----

```

Note the banner of the sub-window in this example shows the IP address of the client contacting the SM100 interface of the Session Manager via TCP and in the body of the message, along with a lot of other information, we see **CSeq: 1 REGISTER**

3.1 Using traceSM to monitor endpoint Registration (cont'd):

3.1.1 Good registration in traceSM (cont'd)

Notice the *“Unauthorized”* message sent from the SM100 back to the client in the very next message caught in the trace. This message will prompt the endpoint to re-submit the registration request, but this time with the appropriate SM *“Authorization”* credentials:

```

-----
10010000001          intlxLab1CM
SM100
-----
11:00:31.891 |--REGISTE->| | | (2) sip:10010000001@vlab.intlx.com Exp:3600
11:00:31.968 |--Unautho-| | | (2) 401 Unauthorized
11:00:31.965 |--REGISTE->| | | (2) sip:10010000001@vlab.intlx.com Exp:3600
11:00:31.968 |<--200 OK--| | | (2) 200 OK (REGISTER)
11:00:32.041 |--SUBSCRI->| | | (3) sip:10010000001@vlab.intlx.com Ev:avaya-cm-feature-status Exp:86400
11:00:32.043 |<--Unautho-| | | (3) 401 Unauthorized
11:00:32.127 |--SUBSCRI->| | | (3) sip:10010000001@vlab.intlx.com Ev:avaya-cm-feature-status Exp:86400
11:00:32.130 |<--ACCEPTE-| | | (3) 202 ACCEPTED
11:00:32.131 | | | | (4) <sip:10010000001@vlab.intlx.com> Ev:avaya-cm-feature-status Exp:0
11:00:32.132 |<--200 OK--| | | (4) 200 OK (SUBSCRIBE)
11:00:32.132 |<--NOTIFY--| | | (4) <sip:10010000001@vlab.intlx.com> Ev:avaya-cm-feature-status
11:00:32.135 |<--NOTIFY--| | | (3) <sip:10010000001@vlab.intlx.com> Ev:avaya-cm-feature-status
11:00:32.135 | | | | (4) 400 Bad Request (no body in polling NOTIFY)
11:00:32.309 |--200 OK-->| | | (3) 200 OK (NOTIFY)
11:01:03.517 |--SUBSCRI->| | | (8) sip:10010000001@vlab.intlx.com Ev:avaya-cm-feature-status Exp:86400
-----
11:0| | | | 1:53223 --TCP-> | | | 5060
-----
11:0|
11:0|REGISTER sip:vlab.intlx.com SIP/2.0
11:0|From: sip:10010000001@vlab.intlx.com;tag=-1920464858b59e78-4b1564c0_F10010000001:
11:0|To: sip:10010000001@vlab.intlx.com
11:0|Call-ID: 1_5c34fca5-4201cf77-4b1564e0_R
11:0|CSeq: 2 REGISTER
11:0|Via: SIP/2.0/TCP | | | 1:53223;branch=z9hG4bK2_5c34f4cf42ed04639-4b15640c_R10010000001
|Content-Length: 0
|Max-Forwards: 70
|Contact: <sip:10010000001@: | | | 53223;transport=tcp;q=1;expires=3600;reg-id=1;+sip.instance="<urn:uuid:543ad
|163-4057-5836-891c-b40d5f4a20c5">
|Allow: INVITE, CANCEL, BYE, ACK, SUBSCRIBE, NOTIFY, MESSAGE, INFO, PUBLISH, REFER, UPDATE
|User-Agent: Avaya one-X Communicator/6.2.12.04 (Engine GA-2.2.0.142; Windows NT 6.2, 64-bit)
|Supported: eventlist, vnd.avaya.ipo
|Authorization: Digest username="10010000001",realm="VLab.intlx.com",nonce="15a8573a0940a573dbeed1666f5e2c62bb2951e6b
|dc",uri="sip:vlab.intlx.com",response="7d9cc3484903d111c6e200ec1bf30a4f",cnonce="1fb0d4cf833fe5bbd2efb23e32854abf7",o
|paque="1234567890abcdef",qop=auth,nc=00000001
-----

```

Being as this user also has a CM profile, that same sequence is followed as the CM extension requests registration and then has to provide the appropriate authentication credentials to register with CM as an extension. These are the messages following the first *“200 OK”* response from the SM100.

3.1 Using traceSM to monitor endpoint Registration (cont'd):

3.1.2 Failed registration in traceSM

If we have an environment where we have endpoints with multiple profiles, such as the Avaya CM profile for our 1001000001 user, it is possible to get the security codes and communication profile passwords confused. Let's look at what happens if we try to register our Avaya one-X® client using the security code from its CM profile, as opposed to the Communication profile password:

```
poses only. The actual or attempted unauthorized access, use, or modification of
this system is strictly prohibited.

Unauthorized users are subject to company disciplinary procedures and or crimina
l and civil penalties under state, federal, or other applicable domestic and for
eign laws.

The use of this system may be monitored and recorded for administrative and secu
rity reasons. Anyone accessing this system expressly consents to such monitorin
g and recording, and is advised that if it reveals possible evidence of criminal
activity, the evidence of such activity may be provided to law enforcement offi
cials.
All users must comply with all corporate instructions regarding the protection o
f information assets.

Using keyboard-interactive authentication.
Password:
Access denied
Using keyboard-interactive authentication.
Password:
Last login: Thu Feb 23 13:46:03 EST 2017 from [REDACTED] on pts/1
Last failed login: Mon Feb 27 12:40:37 EST 2017 from 1[REDACTED] on ssh:notty
There was 1 failed login attempt since the last successful login.
[cust@intlixLab1ASM ~]$ traceSM
```

1. Ensure the Avaya one-X® Communicator client is logged out
2. Launch an SSH session to the SM at AA.BB.CC.DD and log in using *cust* and a password of *******
3. At the resulting command prompt enter *traceSM* and hit return

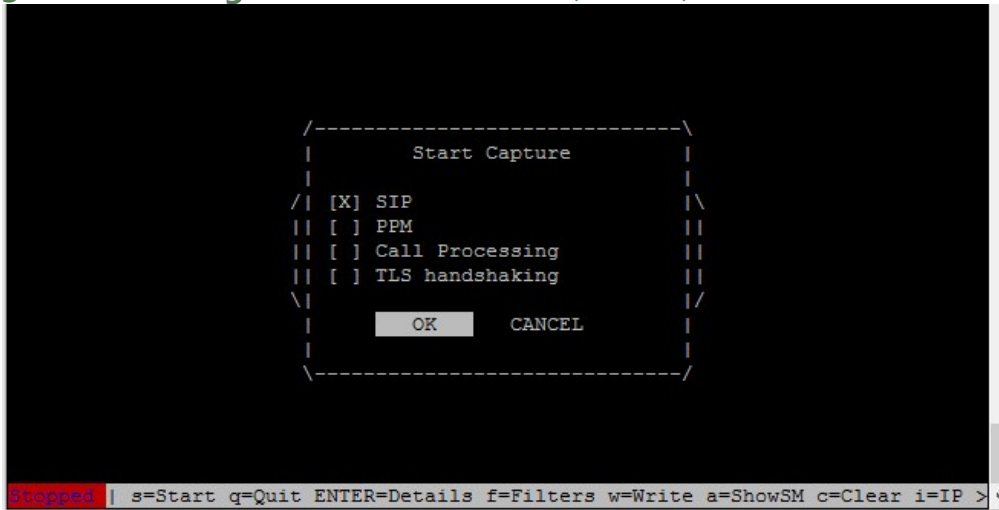
```

/-----\
| Press 's' to start the capture |
|-----|
Stopped | s=Start q=Quit ENTER=Details f=Filters w=Write a=ShowSM c=Clear i=IP >
```

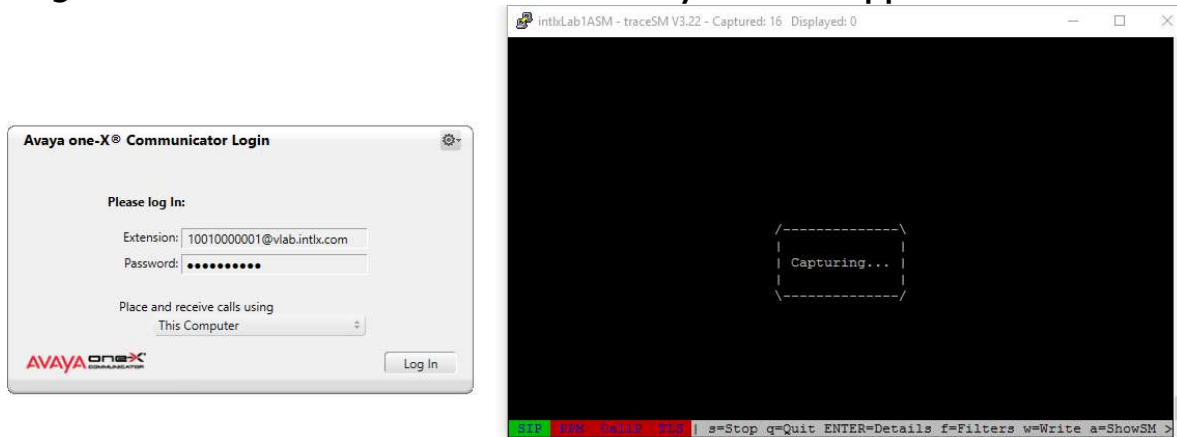
4. Press **s** to start the trace

3.1 Using traceSM to monitor endpoint Registration (cont'd):

3.1.2 Failed registration in traceSM (cont'd)



5. Press **Enter** and then launch the Avaya one-X® application



6. Change the Password to "13243546"

7. Click **Log In** on the Avaya one-X® client and observe the SIP messages as the client attempts to register

Note: The client will immediately show "Your login attempt was unsuccessful."



3.1 Using traceSM to monitor endpoint Registration (cont'd):

3.1.2 Failed registration in traceSM (cont'd)

The first three messages in the trace look very similar to the successful registration, but the "Forbidden" message from the SM100 to the client is our first clue in the trace that something is not as it should be:

8. Click on or in the SM window and press s to stop the trace
9. Move your cursor up to the first "Forbidden" message from SM100 and press Enter

```

intlixLab1ASM - traceSM V3.22 - Captured: 464 Displayed: 228
-----
10010000001
SM100
-----
13:09:24.639 | --REGISTE->| | | (1) sip:10010000001@vlab.intlix.com Exp:3600
13:09:24.641 | <--Unautho-| | | (1) 401 Unauthorized
13:09:24.723 | --REGISTE->| | | (1) sip:10010000001@vlab.intlix.com Exp:3600
13:09:24.725 | --Forbidd-| | | (1) 403 Forbidden (Authorization Failed)
13:09:24.929 | --REGISTE->| | | (2) sip:10010000001@vlab.intlix.com Exp:3600
13:09:24.930 | <--Unautho-| | | (2) 401 Unauthorized
13:09:25.001 | --REGISTE->| | | (2) sip:10010000001@vlab.intlix.com Exp:3600
13:09:25.004 | <--Forbidd-| | | (2) 403 Forbidden (Authorization Failed)
13:09:25.205 | --REGISTE->| | | (3) sip:10010000001@vlab.intlix.com Exp:3600
13:09:25.207 | <--Unautho-| | | (3) 401 Unauthorized
13:09:25.277 | --REGISTE->| | | (3) sip:10010000001@vlab.intlix.com Exp:3600
13:09:25.279 | <--Forbidd-| | | (3) 403 Forbidden (Authorization Failed)
13:09:25.487 | --REGISTE->| | | (4) sip:10010000001@vlab.intlix.com Exp:3600
-----
13:0/-----
13:0| | :5060 --TCP-> | :52718
-----
13:0|SIP/2.0 403 Forbidden (Authorization Failed)
13:0|Call-ID: 1_5caafb2116b795a1-4a9f4811_R0:
13:0|CSeq: 2 REGISTER
13:0|From: <sip:10010000001@vlab.intlix.com>;tag=-f38bb4458b5bcad-4a9f4820_F10010000001:
13:0|To: <sip:10010000001@vlab.intlix.com>;tag=3784698946416365_local.1484775523879_1609307_1616968
13:0|Via: SIP/2.0/TCP :52718;branch=z9hG4bK2_5caafb6f-7dcf105f-4a9f45bd_R10010000001
13:0|Av-Global-Session-ID: 09525b40-fde1-11e6-8d12-0050569511ea
13:0|Server: AVAYA-SM-7.0.1.2.701230
13:0|Content-Length: 0
-----
13:09:26.412 | --REGISTE->| | | (7) sip:10010000001@vlab.intlix.com Exp:3600
13:09:26.415 | <--Forbidd-| | | (7) 403 Forbidden (Authorization Failed)
13:09:26.609 | --REGISTE->| | | (8) sip:10010000001@vlab.intlix.com Exp:3600
13:09:26.611 | <--Unautho-| | | (8) 401 Unauthorized
13:09:26.681 | --REGISTE->| | | (8) sip:10010000001@vlab.intlix.com Exp:3600
13:09:26.684 | <--Forbidd-| | | (8) 403 Forbidden (Authorization Failed)
13:09:26.884 | --REGISTE->| | | (9) sip:10010000001@vlab.intlix.com Exp:3600
13:09:26.885 | <--Unautho-| | | (9) 401 Unauthorized
13:09:26.957 | --REGISTE->| | | (9) sip:10010000001@vlab.intlix.com Exp:3600
13:09:26.960 | <--Forbidd-| | | (9) 403 Forbidden (Authorization Failed)
13:09:27.167 | --REGISTE->| | | (10) sip:10010000001@vlab.intlix.com Exp:3600
13:09:27.168 | <--Unautho-| | | (10) 401 Unauthorized
13:09:27.239 | --REGISTE->| | | (10) sip:10010000001@vlab.intlix.com Exp:3600
-----
s=Start q=Quit ENTER=Details f=Filters w=Write a>ShowSM c=Clear i=IP r=RTP g=GoTo d=Calls u=Fu

```

Note the "SIP/2.0 403 Forbidden (Authorization Failed)" header in the message



Appendix A: Acronyms Used

<u>AAR:</u>	Alternate Automated Routing
<u>ACM or CM:</u>	Avaya Communication Manager or Communication Manager
<u>ASM or SM:</u>	Avaya Session Manager or Session Manager
<u>CLI:</u>	Command Line Interface
<u>IP:</u>	Internet Protocol
<u>PDF:</u>	Portable Document Format
<u>PLDS:</u>	Product Licensing and Delivery System
<u>SAT:</u>	System Administration Terminal
<u>SIP:</u>	Session Initiation Protocol
<u>SSH:</u>	Secure Shell
<u>SSO:</u>	Single Sign On
<u>TCP:</u>	Transmission Control Protocol
<u>TLS:</u>	Transport Layer Security
<u>VPN:</u>	Virtual Private Network



Appendix B: References

Solution Interoperability Lab Application Notes, Avaya Inc (2010). *Configuring 9600 Series SIP Telephones with Avaya Aura™ Session Manager Release 6.0 and Avaya Aura™ Communication Manager Evolution Server Release 6.0 – Issue 1.0*, retrieved from <https://support.avaya.com>