SIP.edu Workshop Tutorial

TAMU ITEC Lab

1. About BlueLava SIP.edu

BlueLava is a Debian Linux distribution developed by Pulver.com. Amongst other applications it contains SIP Express Router (SER) from IPTel and Asterisk Open PBX, which will be used in the setup of your SIP.edu server. Along with these two applications there have been several scripts written to expedite the setup process for the applications. BlueLava also comes with a straight forward web interface to assist in the management of these two packages. By the time you are done with this tutorial you will be able to have a working SIP server and SIP gateway all in one box. With the installation of a PRI to your PBX and a PRI card into your server you will be able to make calls to the rest of your extensions on your PBX.

2.Connect to the SIP.edu server

The lab utilizes the ser proxy and asterisk-based voice mail server.

The BlueLava server is configured using https

Page Name: <u>https://sipedu-univ</u> .tamu.edu/bluelava/edu

You are now connected to the Bluelava SIP.edu front-end to SER.

3. BlueLava SER Configuration Guide

Welcome to the BlueLava SIP.edu web front-end to SER. At the login screen enter in the login information for the admin.

User Name: admin Password: BAR

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Blue Lava	Blue	e Lava SIP. edu Login 11da (c) 2005 BhuLou Sottwar, LLC.		
Login	Please choose a menu item from the left.			
SignUp	To subscribe to this service, choose SignUp.			
	User	Name: admin		
	Passv	vord:		





System Parameters

The first menu item to look at is the System Parameters link. Click on that link and it will bring you to the System Parameters page as seen in the picture below.

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BlueLava			Blue Lava SIP.edu Configuration Coronate (s) 2005 Blackers Statem, LLC.			
Eystem Parameters			BlueLava Parameters	^		
PBX Gateways	Blue Lava Serial Number	123456	Enter the serial number from your CDROM cover			
PSTN Galeways	Registered Owner Email	chris.norton@tamu.edu	Enter the email of the registered owner			
System Status	WEB Passwd		The password used to log into this site.			
User Status	SIP to PBX Directory Tool	💿 sipldap	Choose the method for converting emails to PBX extensions. Methods are stored in: /usr/lib/bluelava/serLibDir/			
Alias Manager	Local Sign-Up Auth Method	⊙EMail ○LDAP	Choose Email or LDAP based authentication for new SIP device users. If you choose EMail, when a new user signs up, and account will be generated and sent via email. Choosing LDAP unlizes an existing password in LDAP (An LDAP password is needed.)			
Restart			STD Furning Directory (STD) Devianations			
Logout	SIP Domain	sipedu-univ10.tamu.edu	The domain name used in your sip addresses, e.g., if your email is bluto@FaberCollege.edu, your sip uri would be: sip bluto@FaberCollege.edu and you would enter FaberCollege.edu in this field.			
	SIP Port	5060	The UDP port used for SIP communications. default (5060)			
	SER worker threads	4	The number of ser worker threads/processes that should be started. Default (5)			
	SIP expire time Default	600	1			
	SIP expire time Min	300				
	SIP expire time Max	600	The default, minimum and maximum time, in seconds, that a SIP REGISTER message may be valid.			
	SIP RING Timeout		Number of seconds to wait for a final response when sending an INVITE. Determines how long a phone rings before going to voicemail.			
	SIP Transaction Timeout		Number of seconds to wait for a final response for other SIP messages.			



The first parameter you see is the "BlueLava Serial Number". In this field you will enter the serial number given to you with the BlueLava CDROM. For the purposes of this workshop the serial number is:

123456

The next parameter is "Register Owner Email". This should contain the email of the administrator for this machine. The purpose of entering in the administrator's email address is for updates distributed from BlueLava. Choose one member from your group to be the administrator and enter in his or her email.

The "WEB Passwd" parameter is the password that the administrator uses to login to the system. This is the same password that you might have had to uncomment using the text editor earlier. You can choose to change this password or you can leave it as is.

The "SIP to PBX Directory Tool" parameter currently only has one choice, but it will be expanded in the future as more options are available to convert the emails to PBX extensions.

The "Local Sign-Up Auth Method" has two different choices Email or LDAP. For a first time or small user deployment the Email auth method is acceptable.

The "SIP Domain" parameter is the most essential parameter on this page. For this workshop the SIP Domain parameter just so happens to be the same as the server's domain name. In a typical campus deployment the SIP Domain parameter corresponds to the root of the university's domain (ex. tamu.edu), and the server's domain name is something different. Make sure to enter in the server's domain name into this field.

The rest of the parameters in the previous picture should remain at their defaults. We will not be addressing those parameters at this time. In the picture below are the remaining parameters for the "System Parameters" page.

		LDAP Parameters	
LDAP Domain	localhost	The domain name used in your LDAP queries.	
LDAP Host	localhost	The FQDN of your Idap server.	
LDAP Port	1030	The port on which LDAP queries are made.	
LDAP Passwd		The password used to make the LDAP queries for passwords.	
Voice Mail Server		Auxillary Servers The Internet Address and port (hostport) of the Voicemail server.	
Voice Mail Prefix		Text to be prepended to the URI in INVITEs sent to the Voice Mail server.	
Announcement Server		The Hostport of the Annoucement server.	
bttp://cipeduumio10.tamu.edubluelava/edubases.php	Submit		~

The LDAP parameters for this workshop are:

LDAP Domain: sip.edu LDAP Host: sipedu-gw.tamu.edu LDAP Port: 389 LDAP Password: **BLANK** (leave bank)

When deploying this system on a campus consult with your LDAP admin before entering these parameters. The voicemail and announcement parameters will not be covered in this session, but should be considered in a more advanced deployment. SIP.edu Workshop Tutorial



PBX<u>CAMPUS</u>Gateways

The <u>Campus PBX</u> Gateways link in the menu on the left contains all the parameters for creating a dial plan for SIP callers to reach the gateway associated with the PBX, but calls will not be completed until necessary gateway configurations are applied. The "Prefix" field should contain the digit pattern you want to match. The "Drop" field should contain the number of digits to be dropped from the leftmost part of the original dialed number. Prepend and Append add the digits entered into their respective fields to the beginning or end of the digit string. Finally, the gateway field should contain the gateway's domain name or IP address followed by a colon and the port (5078).

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<u>Blue</u> Lava				Blue Lava SIP.ed Corvrista (c) 2005 Blue	u Configuration	
Dystem Parameters	Gateway and Ope	y Config n gatewa	uration This ta yl	ble controls how intenet-)	based users reach your PBX users.	Note Well: This is a Free
s bit Gateways	Prefix	Drop	Prepend	Append	Gateway	
PSTN Gateways	5	0			sipedu-gw.tamu.edu:5078	Edit Delete
System Status	7	0	0	i.	sipedu-gw.tamu.edu:5078	Edit Delete
User Status	8	0			sipedu-gw.tamu.edu:5078	Edit Delete
77 3.4	2	0			sipedu-gw.tamu.edu:5078	Edit Delete
<u>User Manager</u>	9	0			sipedu-gw.tamu.edu:5078	Edit Delete
Alias Manager						Add
Restart	5 Gatew	ays curre	ntly defined			
Logout	 Pi Di Pi Aj G 	refix lead rop numb repend st ppend sta ateway b	ling digits in phon ber of leading digi tring to add to U ring to append to nostname to us in	e number when choosing its to drop from initial strin RI after dropping leading o URI after dropping leadir uri	this gateway g kigits ng digits	

Enter in the following suggested dial plan into the chart on the webpage: (feel free to experiment!)

Prefix	Drop	Prepend	Append	Gateway
2	0			<u>165.91.160.4:5060</u> sipedu-gw.tamu.edu:5078
5	0			sipedu-gw.tamu.edu:5078_165.91.160.4:5060
7	0			<u>165.91.160.4:5060sipedu-gw.tamu.edu:5078</u>
8	0			<u>165.91.160.4:5060sipedu-gw.tamu.edu:5078</u>
92	0			sipedu-gw.tamu.edu:5078165.91.160.4:5060
93	0			<u>165.91.160.4:5060sipedu-gw.tamu.edu:5078</u>
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95	0			<u>165.91.160.4:5060sipedu-gw.tamu.edu:5078</u>
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97	0			<u>165.91.160.4:5060sipedu-gw.tamu.edu:5078</u>
98	0			sipedu-gw.tamu.edu:5078165.91.160.4:5060
99	0			<u>165.91.160.4:5060sipedu-gw.tamu.edu:5078</u>



This dial plan now gives a SIP user agent the ability to reach the gateway for any five digit extension containing a 2, 5, 7, or 8. The dial plan also allows the user agent to reach the gateway for any 9 plus 7 digit number except for 91, which is considered a pattern that matches long distance calling. Dialing long distance is covered in the next section.

TOLL Gateways

In order to have the option to restrict the ability for a user agent to make long distance calls, the PSTN /Toll Gateway Parameters page was created. When a user of the SER system is created they are given an option to be placed in a grouping that gives them permission to dial long distance. Other users of the system that do not reside in this grouping or that are not members of the proxy will not be able to make long distance calls.



To allow the privileged users of the SER proxy to dial long distance the following information needs to be entered on this page.

Check Use Gateway Gateway Host:Port : sipedu-univ10.tamu.edu:5060<u>(use 10, not your table number)</u> Drop Digits: 2 Prefix: 9

(note: this prefix is prepended to the URI before the sending to the gateway,)



Voice mail

🕘 https://sipedu-uni	v10.tamu.edu/bluelava/edu/ - Microsoft Internet Explorer	
<u>File E</u> dit <u>V</u> iew F <u>a</u> ve	rites <u>T</u> ools <u>H</u> elp	
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Address 🕘 https://siped	u-univ 10. tamu, edu/bluelava/edu/	Go
Links 🙆 Google 💰 we	ather 👩 Dictionary.com 🦁 RealPlayer 👸 Windows 💖 Windows Marketplace 👸 Customize Links	>>
0		^
	Blue Lava SIP.edu Configuration	~
System		^
Parameters	Auxillary Servers	
Campus Gateways	rver sipedu.pulver.com:5060 The Internet Address and port (hostport) of the Voicemail server.	
Toll V	bice Mail Prefix VM Text to be prepended to the URI in INVITEs ser to the Voice Mail server.	ıt
User Status Se	nouncement sipedu.pulver.com:5060 The Host:port of the Annoucement server.	
User	Submit	=
Manager 🖌		~
🛃 Done	🔒 🧶 Internet	. e

On the "System Paramters Page"

The voice mail server should be set up as follows:

Voice Mail Server:sipedu.pulver.com:5060voice Mail Server:VM_(upper case)

The announcement server may be left blank.

<u>These setting specifies how the voicemail server is used. If a user "Joe.Smith" is suscribed to voicemail, if a call to the user results in no answer, the call is directed to sip:VM_Joe.Smih@sipedu.pulver.com:5060.</u>

User Manager

The user manager page is a method for adding users to the SER system. User's records can also be looked up and modified as well. To create a user using this method type in the name of the user to be created and click the create button. The information below will appear and that user's password, remote party id, and long distance privileges will be set. Once done with the configuration of this user click the modify button and the configuration for this user will be saved.

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<u>Ŗ</u> ļųę Ļ ąvą	Blue Lava SIP.edu Config Copyright (c) 2005 BibeLava Software, L	nration LC.
System Parameters PBX Gateways	User Name: cnorton	Create
<u>PSTN Gateways</u> System Status	Enter a username or wild Details	icard.
User Status User Manager		
Alias Manager	Username cnorton	
Restart	Password	15 IS
Logout	Email email@sipedu	-univ10.tamu.edu
	Calling Number/RPID 9794583911	15
	Priviledges 1d	
	Long Distance	

Using the user portion of your email, create a user and subscribe to voicemail and Long Distance.

Alias Manager

Once a user has been created then that user will need to be assigned an alias. With an alias PBX and PSTN users can reach this new user account. In the alias field the number to be assigned to that user must be entered. In the contact field the entire SIP URI must be entered to not receive an error. Below is an example of an alias created along with a proper URI. Other non numerical aliases can be created, but they will not be able to be used by traditional telephony devices. Note: the wildcard character for searching is '%';



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System Parameters	Alias 19794583	Cc 911	ontact		
PSTN Gateways		Search	Create		
System Status		Enter a username	or wildcard.		
<u>User Status</u> <u>User Manager</u> <u>Alias Manager</u>	/usr/sbin/serctl alias add 97945835 sip:cnorton@sipedu-univ10.tamu.edu 200 Added to table ('9794583911','sip:cnorton@sipedu-v Done	911 sip:cnorton univ10.tamu.edu	@sipedu-univ10.tamu ') to 'aliases'	.edu	
<u>Restart</u> Logout	No Matches foundThis command operates on	the persistent store	e. It may take upto 2 minu	tes for changes to be vi	sible.

Create an alias for one of the phone numbers that come to your 'university'. (see board) The TAMU gateway will send the last five digits to your table.

System Status

The System Status page below contains all the information that SER collects about other related processes, SIP message transaction, and system up time. There is nothing to configure on this page, but this page will come in handy to monitor overall usage of the server.



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System Parameters PBX Gateways PSTN Gateways	[cycle #: ; if Server: Sip EX] Now: Sun May : Up Since: Sun I Up time: 3735	constant make sure server lives and fifo is on] press router (0.8.14-1 (1386/linux)) 1.09:42:29 2005 fay 1 08:40:14 2005 [sec]	
<u>System Status</u> User Status	Transaction Sta Current: O (O) Replied localy Completion stat	atistics waiting) Total: 3 (0 local) : 11 :us 6xx: 0, 5xx: 0, 4xx: 2, 3xx: 0,2xx: 1	
<u>User Manager</u> <u>Alias Manager</u> <u>Restart</u> Logout	Stateless Serva 200: 11 202: 0 300: 0 301: 0 3 400: 0 401: 9 4 500: 0 5xx: 0 6xx: 0 failures: 0	er Statistics 2xx: 0 102: 0 3xx: 0 103: 0 404: 2 407: 2 408: 0 483: 0 4xx: 0	
	UsrLoc Stats Domain Register 'aliases' 4 0 'location' 2 0 0 11586 1 11588 2 11589 3 11590 4 11597 5 11598 6 11599 7 11604 8 11605 9 11606 10 11645 11 11646 12 11647 13 11648 14 11653 15 11654	attendant receiver child=0 sock=0 0 127.0.0.1:5060 receiver child=1 sock=0 0 127.0.0.1:5060 receiver child=2 sock=0 0 127.0.0.1:5060 receiver child=3 sock=0 0 127.0.0.1:5060 receiver child=1 sock=1 0 165.91.82.95:5060 receiver child=2 sock=1 0 165.91.82.95:5060 receiver child=3 sock=1 0 165.91.82.95:5060 receiver child=3 sock=1 0 165.91.82.95:5060 fifo server timer top receiver top receiver top receiver top receiver top receiver top receiver top receiver top receiver top neceiver top meess	
Done			



User Status

The user status page contains all the information on a particular user in the database. The information for a user in the database includes alias, user location, user contact information, remote party id, and ld priviledges. Again there is nothing to configure on this page. Below is an example of a user's status.









System Status

Visit the "system status" and "Process Status pages" for a system view.

Congratulations you have now done a basic user setup for a BlueLava SER Proxy. There are far more advanced features underneath the front-end that was seen here. I encourage you to investigate all options and parameters that can be done with this system.