



European Union's FP7 Programme
DG Connect
Directorate C: Excellence in Science
Unit C1: e-Infrastructure



**D3.4 Pilot Test System of a GDS and
integrated VC service with 3 institutions
among LA and EU**



A project of the Seventh Framework Programme (FP7)



This project is funded by the European Commission



A project implemented by RedCLARA

Periodical Progress Report

ELCIRA Deliverable: Pilot Test System of a GDS and integrated VC service with 3 institutions among LA and EU

Document Full Name	D3.4 Pilot Test System of a GDS and integrated VC service with 3 institutions among LA and EU
Date	2014-04-29
Activity	3.4. Pilot Test System of a GDS and integrated VC service with 3 institutions among LA and EU
Lead Partner	RENATA
Document status	Final
Classification Attribute	Public
Document link	

Abstract: This report aims to explain details of the deployment status about videoconference network, work done by Latin American NRENs, how to use the service and present results of the first tests over the pilot system.



A project of the Seventh Framework
Programme (FP7)



This project is funded by the European
Commission



A project implemented by RedCLARA

COPYRIGHT NOTICE

Copyright © Members of the ELCIRA Project, May 2014

ELCIRA (Europe Latin America Collaborative e-Infrastructure for Research Activities – Call (part) identifier: FP7-INFRASTRUCTURES-2012-1 – Project number: 313180) is a project co-funded by the European Commission within the Seventh Framework Programme (FP7), Infrastructures (DG Connect, Directorate C: Excellence in Science, Unit C1: e-Infrastructure). ELCIRA began on 1st June 2012 and will run for 24 months.

For more information on ELCIRA, its partners and contributors please see <http://elcira.redclara.net> (this website will be available in October 1st 2012).

You are permitted to copy and distribute, for non-profit purposes, verbatim copies of this document containing this copyright notice. This includes the right to copy this document in whole or in part, but without modification, into other documents if you attach the following reference to the copied elements: “Copyright © Members of the ELCIRA Project, 2012”.

Using this document in a way and/or for purposes not foreseen in the paragraph above, requires the prior written permission of the copyright holders.

The information contained in this document represents the views of the copyright holders as of the date such views were published.

THE INFORMATION CONTAINED IN THIS DOCUMENT IS PROVIDED BY THE COPYRIGHT HOLDERS “AS IT IS” AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT WILL THE MEMBERS OF THE ELCIRA COLLABORATION, INCLUDING THE COPYRIGHT HOLDERS, OR THE EUROPEAN COMMISSION BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THE INFORMATION CONTAINED IN THIS DOCUMENT, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.



A project of the Seventh Framework
Programme (FP7)



This project is funded by the European
Commission



A project implemented by RedCLARA

DELIVERABLE ROUTE

	Name	Member/Activity	Date	Responsible
From	Hern{an Garcia	RENATA	06-05-2014	RENATA
Revised by	Gustavo Garc{a	RedCLARA	06-05-2014	RedCLARA
Revised by				
Approved by	Florencio Utreras	RedCLARA/CEO	20-05-2014	RedCLARA



A project of the Seventh Framework
Programme (FP7)



This project is funded by the European
Commission



A project implemented by RedCLARA

TABLE OF CONTENTS

COPYRIGHT NOTICE.....	2
DELIVERABLE ROUTE.....	3
1 GLOSSARY.....	5
2 INTRODUCTION.....	5
3 THE HQVS PILOT NETWORK.....	5
3.1 PARTICIPANT COUNTRIES.....	6
3.2 IMPLEMENTATION STATUS BY NREN/COUNTRY.....	7
3.3 DIAL PLAN.....	8
4 EDUCONF INTEGRATION.....	9
4.4 IMPLEMENTED INFRASTRUCTURE.....	9
5 HOW TO USE GLOBAL DIALING SCHEME (GDS).....	10
6 REGISTERED ENDPOINT NUMBERS.....	11



A project of the Seventh Framework
Programme (FP7)



This project is funded by the European
Commission



A project implemented by RedCLARA

1 GLOSSARY

MCU	Multipoint Control Unit
GDS	Global dialing Scheme
HQVS	High Quality Video-conference Service
NREN	Network Research and Education Network
H.323	Standard set of protocols to establish videoconference calls

2 INTRODUCTION

The High Quality Videconference Service (HQVCS) was born in the ELCIRA project in order to enhance and promote video communications between researchers and academics of institutions of Europe and Latin America. HQVCS provides essentially the possibility to dial between Videoconference Equipments with phone numbers as conventional telephony, the quality of the call will depend of characteristics of the elements involved in a call process (MCU, Endpoints and H.323 Software Clients). Besides, this Gatekeeper network will allow VC managers to obtain statistics of the service and provides other features that improve the administration of calls.

This report aims to explain implementation status of the Pilot HQVCS service, the NRENs that are connected to the network, milestones, how to use the service and results of first tests.

3 THE HQVS PILOT NETWORK

The service has been implemented with a series of hierarchical Gatekeeper that routes call requests using prefixes of numbers to establish a call between videoconference endpoints. These elements are connected as Neighbors of the Latin American Gatekeeper managed by RedCLARA.

There is a Latin-American Top Level Gatekeeper managed by RedCLARA that is connected to other international videoconference networks like eduCONF (Europe). This element will attend call requests from different LA NRENs and route them to other networks or to other NREN from LA.



A project of the Seventh Framework
Programme (FP7)

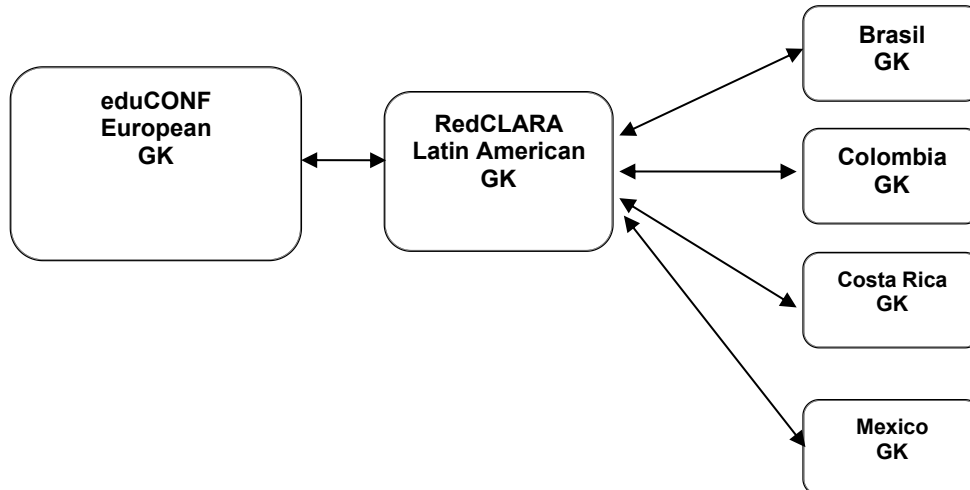


This project is funded by the European
Commission



A project implemented by RedCLARA

Latin American NRENs needs to implement a Gatekeeper solution to attend call requests to his country and been added to the Latin American Gatekeeper.



3.1 PARTICIPANT COUNTRIES

These are the NRENs/Countries that implemented Gatekeepers and are connected to the network.

Country	NREN	Country Code	Gatekeeper
Colombia	RENATA	+57	190.15.31.13
Costa Rica	CONARE	+56	200.9.33.200
Brazil	RNP	+55	200.130.15.16, 200.130.15.17
Mexico	CUDI	+52	200.23.60.25

Also can check members of NRENum.net which is a system that provides a network of ENUM servers to resolve numbers and easy find the requested resource. When a number is dialed Gatekeeper will query this ENUM tree and receive an URI to establish communication.

NRENum.net Members:

<https://confluence.terena.org/display/NRENum/Members>



A project of the Seventh Framework Programme (FP7)



This project is funded by the European Commission



A project implemented by RedCLARA

TERENA ENUM Participants:
<https://crawler.nrenum.net/>

3.2 IMPLEMENTATION STATUS BY NREN/COUNTRY

In November 2013, the Colombian NREN RENATA implemented a Gatekeeper solution that had been added as a neighbor of RedCLARA Gatekeeper. First tests were making calls using numbers to other institution from other countries like Czech Republic, Brazil and United Kingdom.

November 2013, RENATA contributed Costa Rican NREN CONARE to implement their Gatekeeper solution. Some tests were made making calls to RedCLARA MCU and between them.

December 2013, RENATA applies for delegation request for zone 7.5.nrenum.net at NRENum.net. There were technical problems in the deployment of ENUM server because NRENum.net team requires IPv4 reverse resolution, IPv6 address and two DNS servers (master and slave) to zone delegation.

February 2014, Zone 7.5.nrenum.net has been delegated to RENATA, next steps in this service is to use DNSSEC and maybe delegations to other zones of Colombia.

Status by Country/NREN:

Country	GDS enabled	NRENum.net	Status
Brazil	Yes	Yes	Pilot
Colombia	Yes	Yes	Pilot
Costa Rica	Yes	No	Pilot
México	Yes	No	Pilot

European institutions were integrated through the eduCONF Video-conference network. RedCLARA integrated its gatekeeper with the counterparts in Europe (eduCONF), Australia (ARRNET), United Kindom (JANET), and Ireland (HEANET).



A project of the Seventh Framework
Programme (FP7)



This project is funded by the European
Commission



A project implemented by RedCLARA

This work was carried out with the support from the eduCONF team, who provided the initial configurations, and collaborated with problem management and call testing.

3.3 DIAL PLAN

According to the Global dialing Scheme (GDS) every participant of the High Quality Videconference Service has to define or use a number that follows E.164 ITU recommendation.

E.164 ITU Recommendation:
<IC><CC><ZP><EN>

IC	International Code	Defined as (00)
CC	Country Code	Standard country codes are used
ZP	Zone Prefix	RedCLARA recommendation is (01) that fits very good
EN	Endpoint Number	Assigned by the NREN to every Endpoint connected

NOTE: Country codes at <http://countrycode.org/>

This existing dial plan works as routing rules configured on Gatekeepers, this type of connection is known as Neighbor. To ENSURE that the network works properly, is recommended to follow these principles:

1. RedCLARA Gatekeeper MUST have only International and Latin American NREN Gatekeepers as Neighbors
2. Latin American NRENs Gatekeepers MUST have RedCLARA Gatekeeper as Neighbor with 00,!<CC> routing rule to them.
3. Other institutions connected beneath NRENs have to define their own routing rules



A project of the Seventh Framework
Programme (FP7)

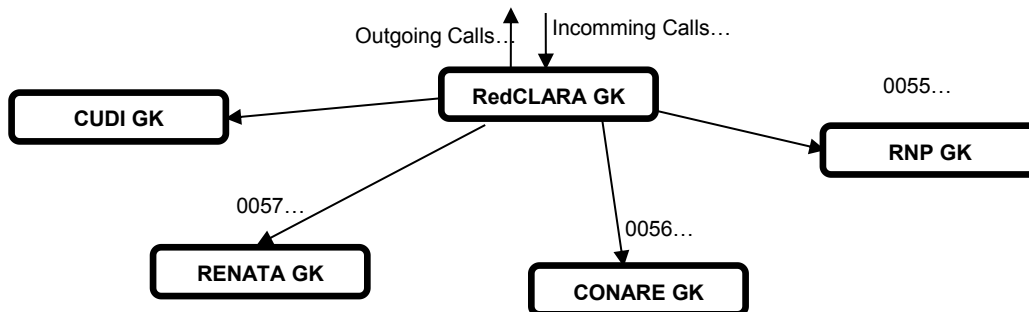


This project is funded by the European
Commission



A project implemented by RedCLARA

This is explained in the next figure:



4 EDUCONF INTEGRATION

EduCONF network managed by GEANT allows communications with institutions of Europe and uses Gatekeepers to route call requests. To an NREN is easy to be integrated with this network thanks to RedCLARA. RedCLARA has worked with the eduCONF team in the integration of the new Latin-American network and its European counterpart.

4.4 IMPLEMENTED INFRASTRUCTURE

The continental network gatekeepers works as the core routing points for calls between its networks. Here is the list with the information about implemented infrastructure.

Top Levels Gatekeepers

Continent or Zone	Ruled by	IP Address
Europe	GEANT	193.198.203.131, 150.254.161.50
Latin America	RedCLARA	200.0.206.181
United States	Internet2	207.75.164.39, 64.57.22.6, 207.75.164.90,



A project of the Seventh Framework
Programme (FP7)



This project is funded by the European
Commission



A project implemented by RedCLARA

192.148.244.130,
152.2.17.185

NREN Gatekeepers

Country	Ruled by	IP Address
Colombia	RENATA	190.15.31.13
Brazil	RNP	200.130.15.16, 200.130.15.17
Costa Rica	CONARE	200.9.33.200
Mexico	CUDI	200.23.60.25

5 HOW TO USE GLOBAL DIALING SCHEME (GDS)

Briefly, the steps to join and use the HQVCS are as following:

- 1) Implement a Gatekeeper for your NREN or Institution.
- 2) Request joining your GK to Latin American Top Level Gatekeeper managed by RedCLARA.
- 3) Register on your Gatekeeper by setting up H.323 connection parameters on the settings of your Endpoint.
- 4) Start making calls using numbers.

NOTE: If your NREN or Institution counts with a Gatekeeper, only steps 3 and 4 are needed. Setting up H.323 parameters may vary depending of the brand of your Endpoint, but basically the process of registration on Gatekeeper is automatic.

Make a Test Call:
RedCLARA test room with the number: 0056012010020

NOTE: Quality of calls depends of elements involved in the call.



A project of the Seventh Framework
Programme (FP7)



This project is funded by the European
Commission



A project implemented by RedCLARA

6 HQVCS TEST NUMBERS

These are the test numbers by integrated Latin-American NRENs:

NREN	Country	Endpoint/Room	Number
RENATA	Colombia	Meeting Room 1	0057015302604
RENATA	Colombia	MCU	0057015302701
RedCLARA	Chile	MCU Test Room	0056012010020
CONARE	Costa Rica	Meeting Room	005060125195700
CUDI	Mexico	Meeting Room	
RNP	Brasil	MCU	0055901234

The following are the tested numbers in eduCONF's network:

Country	Number
Portugal	00351400102136
Croatia	003857580629999
Czech Republic	00420950087999
Germany	00491009791
Poland	004861102000001
Slovenia	0038601010000



A project of the Seventh Framework
Programme (FP7)



This project is funded by the European
Commission



A project implemented by RedCLARA