v2.9.1

Contents

Introduction

Background

The Cancer Central Clinical Participant Registry (C3PR) is a web-based application used for end-to-end registration of patients to clinical trials. This includes capturing information related to consent forms, eligibility, stratification, randomization, and screening. Clinical workflows are enabled by both subject- and study-centric views into the registration process. C3PR can be run in a standalone mode where study definitions, investigators, study personnel, and sites are entered into the system, or C3PR can be run in an integrated mode with the caBIG Clinical Trials Suite. C3PR also enables multi-site clinical trials where registration information is entered locally at affiliate sites and the registration is completed by call-out to the coordinating site.

Throughout the development of C3PR, a number of elaborator and adopter sites are actively being engaged to help define requirements and test the application. Our primary elaborators include Duke, Wake Forest, Mayo, Westat, CALGB, CCR, and the Coalition of Cooperative Groups. Our primary adopters include Duke and Wake Forest with engagement of Georgetown and CCR.

C3PR release 1 was developed by Nortel Solutions and released in 2006. Release 2 was developed by Duke Cancer Center in collaboration with SemanticBits, LLC and was released in March, 2008. The current version, C3PR v2.9.1, was released on September 30, 2010 in conjunction with the caBIG Clinical Trials Suite v.2.2.

Scope

This installation guide outlines the supported configurations, along with installing, setting up and configuring the application and databases for the caBIG Central Clinical Participant Registry version 2.9.1 (C3PRv2.9.1).

This document is designed to meet the needs of administrators who will be deploying C3PR. To perform the tasks outlined in this document, you should be familiar with and knowledgeable of running command-line utilities and web applications in application containers, as well as configuring databases. Ideally, the person performing these functions should be someone who is an experienced system administrator.

Note: C3PRv2.9.1 is a component of the caBIG Clinical Trials Suite (the Suite). Installation instructions and other documentation related to the Suite can be found at https://wiki.nci.nih.gov/x/AVFyAQ

Note: Configuring security is not part of the installation guide. See the C3PRv2.9.1 administration guide for instructions on this:
http://gforge.nci.nih.gov/plugins/scmcvs/cvsweb.php/c3prv2/documentation/design/c3prv2_administration_guide.doc?

C3PR Team

C3PR is a highly collaborative project made up of domain and technical experts from Duke Cancer Center, SemanticBits, Wake Forest Cancer Center, Mayo Clinic, CALGB, and Westat.

Team	Members	Team	Members
Duke	• Bob Annechiarico (Project Director, Co-investigator) • Pankaj Agarwal (Project Manager) • Mohammad Farid (DBA) • Peter Le (IT Analyst) • Vijaya Chadaram, RN (Subject Matter Expert) • Emily Allred (Admin)	SemanticBits	• Ram Chilukuri (Technical Director, Architect) • Denis Krylov (Architect) • Kruttik Aggarwal (Lead Developer) • Ramakrishna Gundala (Developer) • Vinay Gangoli (Developer) • Himanshu Gupta (Developer) • Wesley Wiggins (Business Analyst) • Karthik Iyer (QA Tester) • Ben Traynham (UI Developer) • Jessica Pritchard (Technical Writer)
Wake Forest	• Bob Morrell (Institutional Lead, Subject Matter Expert) • Don Babcock (Technical Expert) • Lisa Dixon (Subject Matter Expert) • Claire Kimbrough (Subject Matter Expert)		
		Mayo Clinic	• Sharon Elcombe (Institutional Lead, Subject Matter Expert)
CALGB	• Kimberly Johnson (Institutional Lead, Subject Matter Expert)	Westat	• Steve Riordan (Institutional Lead, Subject Matter Expert)

	• Amish Shah (IT Analyst)

Contact and Support

Name	Contact
End User Forum	https://cabig-kc.nci.nih.gov/CTMS/forums/viewforum.php?f=17
Technical Forum	https://cabig-kc.nci.nih.gov/CTMS/forums/viewforum.php?f=15

Related Documents

End User	Analysis	Technical	Management
C3PR Main Project Page	Use Cases	Architecture Guide	Vision and Scope
Tool Landing Page	Requirements Specification	Domain Analysis Model	Project Plan
End User Guide	Activity Diagrams	Implementation Model	Scrum Artifacts
Training Library	BRIDG Compliance Report	Multisite Deployment Guidelines	Adoption Plan
Installation Guide	BAM Compliance Report	Deployment Diagrams	Communications Plan
Configuration Guide	COPPA Gap Analysis	C3PR Multisite Deployment Pilot	Test Plan
Release Notes	C3PR 2.0 Silver Compatibility Package		Test Logs
			Test Script
			Arc Requests
			Lessons Learned
			C3PR caBIG License

C3PR Software and Technology Requirements

Hardware Requirements

There are no stringent hardware requirements because C3PR is a lightweight web application not intended to have a very large code base. However, you may use the following for guidance on hardware requirements:

Processor	Pentium PIII, above 1.5 GHz
RAM	Minimum 512MB (for testing), 2 GB recommended
Operating System	Any that runs Java, recommended: Linux, Windows 2000, XP, Mac OS X 10.4.x
Hard Disk Space	Minimum 500MB free space

Software Requirements

You must download and install the required software that is not included with the C3PRv2. The software name, version, description, and URL hyperlinks (for download) are indicated in the table below:

Software	Version	Description	URL
Java Software Development Kit (SDK)	JDK 5.0 Update 11 or higher	The J2SE Software Development Kit (SDK) supports creating J2SE applications.	http://java.sun.com/javase/downloads/index_jdk5.jsp
Oracle 9i/10g Database *	9i/10g only	Oracle is a commercially-available, relational database management system (RDBMS) that can be used on all major operating systems.	http://www.oracle.com/technology/software/products/database/ora
PostGreSQL*	8.2 only	PostgreSQL is a powerful, open source relational database system. It runs on all major operating systems.	http://www.postgresql.org/ftp/source/
Globus Toolkit	4.0.3 only	Globus toolkit is an open source WSRF-compliant web services java container. Only the Java ws-core source version is needed.	http://www.globus.org/toolkit/downloads/4.0.3/#wscore_bin
Tomcat Web Server*	5.0.28 or later	Open source servlet container	http://archive.apache.org/dist/tomcat/tomcat-5/v5.0.28/bin/jakarta-
Ant**	1.6.5 or later	Ant is used for building the C3PR application.	http://archive.apache.org/dist/ant/binaries/

* Either Oracle OR PostGreSQL (not both) is required as an RDBMS for C3PR application. Note that C3PRv2 doesn't support SQL Server, which had been supported by C3PRv1.

** Included with the Graphical Installer

```
Note - Drivers for Oracle 9i/10g and PostGreSQL are included with the C3PR.
If you are using a different version of Oracle, you must obtain the
appropriate drivers.  JDBC drivers can be downloaded from the Sun Developer
Network at http://developers.sun.com/product/jdbc/drivers/index.html, or
from the individual vendor's sites (for example, the Oracle 9i driver
classes12.zip can be downloaded from
http://www.oracle.com/technology/software/tech/java/sqlj_jdbc/htdocs/
jdbc817.html). These drivers should be placed in the {project_home}/lib
directory and the {CATALINA_HOME}/common/lib directory to enable connection
to the appropriate database.  In addition, some manual modification of the
Hibernate configuration files may be necessary.  Hibernate is a set of
libraries included with C3PR.
```

Installing C3PR

C3PRv2.9.1 has been tested with the operating systems and hardware specified previously in this guide. We cannot guarantee C3PRv2.9.1 will work if you are using variations of these operating systems and/or hardware.

C3PRv2.9.1 can be installed using either command line or using graphical installer.
1. Graphical installer
2. Command line installation

Running C3PR

If you selected to install a new tomcat, then you must set your CATALINA_HOME environment variable .

Open command prompt, change directory to <CATALINA_HOME>\bin

Run the following command to start tomcat server:

```
startup.bat (windows)
startup.sh (unix)
```

After your web application server has completely finished starting, open the browser with the following URL: http://localhost:9080/c3pr

C3PR Login page should be displayed with successful installation.To login use the default Username:c3pr_admin and Password:c3pr_admin

```
Note: The installer?s version of tomcat runs on port 9080. Your existing
tomcat might be on a different URL/Port.  Replace localhost:port with the
correct hostname/port assignment.  The port assignment will be the Tomcat
container that has been configured for the application server.
Example:
  http://cbvapp-q1009.nci.nih.gov:8080/c3pr
  To login, use the default userid: cctsdemo1@nci.nih.gov
  Password: cctsdemo1
```

Configuring C3PR

When installing C3PR for the first time or when using a blank database, a setup module will guide you through creating a new user the first time you run the application.

In order to create a Super User, follow the steps below:

Note: The user you create will not automatically have access to all studies in the system. The user will have to be added to a study in order to take advantage of certain types of C3PR functionality, such as registering a subject.

1. Enter the basic details of the research staff member you wish to create. A red asterisk marks all of the mandatory fields.

2. Enter the username and password.
3. Add the organization to which you wish to associate the research staff member. Click the green **Save** button

to continue.

4. Fill-in the required configuration details and click the green **Save** button once you have done so.

Use the following table to provide configuration parameters.

Property Name	Description	Default/New Value
Local Site	Configure the hosting study site.	CRB / **<YOUR_LOCAL_SITE>**
Image URL for site's banner	Image of hosting study site's banner.	/c3pr/images/nci_logo_35pxh.png / http://**<YOUR_LOCAL_SITE_BANNER_URL>**
Notification link back	Determines whether or not C3PR data will be contained in email notifications. 'Yes'(default) specifies that only links and no data will be included in	Yes / No

	notifications.	
C3PR URL	Enter the URL for C3PR. This is the application URL which you can spot on the browser URL field.	https://cbvapp-d1017.nci.nih.gov:28443/c3pr / http://**<YOUR_LOCAL_SITE_C3PR_INSTANCE_URL>**
SMTP Server	The name of the outgoing exchange mail server.	smtp.gmail.com / **<YOUR_MAIL_SERVER>**
SMTP port	Default port value is set to 465. If your email exchange server is configured to any other port than 465, update the port number is this field.	465 / **<YOUR_MAIL_SERVER_PORT>**
SMTP user name	Only required if the mail server requires authentication. Enter a valid username for the smtp account that will be used by the application to send email notifications.	c3prproject@gmail.com / **<YOUR_MAIL_SERVER_USERNAME>**
SMTP password	Only required if the mail server requires authentication. Enter the password for the smtp account.	password / **<YOUR_MAIL_SERVER_PASSWORD>**
SMTP protocol	Set to HTTPS if mail exchange requires secure SMTP otherwise set to HTTP.	smtps / **<YOUR_MAIL_SERVER_PROTOCOL>**
SMTP authentication	Set SMTP authentication to true if mail server requires authentication.	Yes / **<YOUR_MAIL_SERVER_AUTHENTICATION>**
SMTP SSL authentication	Only requires when SSL authentication is required	Yes / **<YOUR_MAIL_SERVER_AUTHENTICATION_REQUIRED>**
From address	The from address to be defined for all mail sent by C3PR.	c3pr@suite.com / **<YOUR_MAIL_FROM_ADDRESS>**

	This does not have to be a real email address.	
Enable authentication	Switch to turn on/off authorization. The value may not be applied until the application is restarted.	Yes / Yes
Authentication mode	This defines the strategy C3PR uses to authenticate. Possible values are 'local','cas' and 'webSSO'.	Local / webSSO
WebSSO base URL	WebSSO server URL. Enter the webSSO URL that you have deployed in the previous steps.	https://cbvapp-d1017.nci.nih.gov:48443/cas / https://**<YOUR_WEBSOO_SERVER_URL>**
WebSSO certificate file	Websso certificate file path. This is the trust store file where you have stored the websso server certificate by running InstallCert.java	**<YOUR_TRUST_STORE_FILE_PATH>**
Host certificate file	Host certificate file path.	**<YOUR_HOST_CERT_FILE_PATH>**
Host key	Host certificate file path.	**<YOUR_HOST_KEY_FILE_PATH>**
Enable Multisite	Switch to turn on/off multi-site environment. The value may not be applied until the application is restarted.	No / No
IFS URL		NA
IDP URL		NA
Enable COPPA	Switch to turn on/off NCI Enterprise Services (COPPA) integration.	No / Yes
Enable ESB		No / Yes

	Switch to turn on/off Enterprise Service Bus	
Smoke test service URL		NA
C3D hotlink URL	The base URL for the C3D deployment to which this C3PR instance can link.	https://**<YOUR_C3D_INSTANCE_URL>**
C3D browser window name	The name that will be given to the browser window in which C3D will open up.	_c3d
caAERS hotlink URL	The base URL for the caAERS deployment to which this C3PR instance can link.	https://**<YOUR_CAAERS_INSTANCE_URL>**
caAERS browser window name	The name that will be given to the browser window in which caAERS will open up.	_caaers
PSC hotlink URL	The base URL for the PSC deployment to which this C3PR instance can link.	https://**<YOUR_PSC_INSTANCE_URL>**
PSC browser window name	The name that will be given to the browser window in which PSC will open up.	_psc
Integration Hub (ESB) URL	URL for the Enterprise Service Bus.	https://**<YOUR_INTEGRATIONHUB_INSTANCE_URL>**
Integration Hub timeout(in seconds)	Timeout in seconds for Integration Hub.	120

If C3PR is installed on an existing database and if C3PR admin is not present, then you will see the user setup screen. If the hosting site name and SMTP configuration is not present, then you will see the configuration screen.

For an existing installation of C3PR, you can modify the configuration parameters by clicking the Administration tab and then clicking Configure C3PR to access the configuration panel.

Note: Some configuration parameters require web server restart. It is advised to restart web server after making configuration parameter changes.

Note: For Suite installation, you will have to configure WebSSO integration. See the <u>End User Guide</u> for more details.

Troubleshooting

Problem: My installation failed with the message ?class sun.tools.javac.Main not on the classpath. Perhaps JAVA_HOME does not point to the JDK. Its currently set to c:/Program Files/Java/jre_1.5.0_11?

Solution: This can happen when installing in the Microsoft Windows Operating system. First, try running the installer from the command prompt (as described in step5).

If the above solution does not work then copy the tools.jar file from $JAVA_HOME/lib/ to c:/Program Files/Java/jre_1.5.0_11/lib/ext directory. If the $JAVA_HOME/jre/lib/ext does not exist then go ahead and create it. Re-run the installer after doing this.

```
 Note: c:/Program Files/Java/jre_1.5.0_11 can be different on your system
```

Problem: My installation failed at the final step with the message ?edu.northwestern.bioinformatics.bering.Migration??

Solution: This means the database create/update scripts did not work. Please check the database URL you entered in the installer. Also, make sure that an empty database is available to the installer. The installer can created the tables etc. but not create a database.

Problem: My installation failed at the final step with the message: ?FATAL ERROR: c3pr_dev datbase does no exist?

Solution: This implies that you do not have an empty database created as instructed in Step 8 of the Graphical Installer chapter.

Appendix A. Glossary

Term	Definition
AJAX	Asynchronous JavaScript and XML
API	Application Programming Interface
BC	Binding Component
caArray	cancer Array Informatics
caBIG	cancer Biomedical Informatics Grid
caBIO	cancer Biomedical Infrastructure Objects
caCORE	cancer Common Ontologic Representation Environment
caDSR	cancer Data Standards Repository
C3PR	Cancer Translational Research Informatics Platform
CDE	Common Data Element
CSM	Common Security Module
CSV	Comma Delimited
DAO	Data Access Objects
DCQL	Distributed Common Query Language
DWR	Direct Web Remoting
EA	Enterprise Architect
ESB	Enterprise Service Bus
EVS	Enterprise Vocabulary Services
GAARDS	Grid authentication and authorization with Reliably Distributed Services
GUI	Graphical User Interface
HASTE	High-level Automated System Test Environment
HTTP	Hypertext Transfer Protocol
IdP	Identity Provider
JAAS	Java Authentication and Authorization Service
JAR	Java Archive
Javadoc	Tool for generating API documentation in HTML format
JDBC	Java Database Connectivity
JMS	Java Message Service
JSP	JavaServer Pages
JUnit	A simple framework to write repeatable tests
metadata	Definitional data that provides information about documentation or other data
NCI	National Cancer Institute
NCICB	National Cancer Institute Center for Bioinformatics
NMR	Normalized Message Router
ORM	Object Relational Mapping
RDBMS	Relational Database Management System
SDK	Software Development Kit
SE	Service Engine
Semantic connector	A development kit to link model elements to NCICB EVS concepts

SQL	Structured Query Language	
UML	Unified Modeling Language	
WSRF	Web service resource framework	

Name (required):

Website:

Comment: