IDM UID
9KMNAD
VERSION CREATED ON / VERSION / STATUS
20 Jun 2013 / 2.3 / Signed
EXTERNAL REFERENCE

Report

CODAC PON Archiving System - Test Plan

Test Plan of CODAC PON Archiving System

Approval Process			
	Name	*Action*	*Affiliation*
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Document Security: level 1 (IO unclassified) *RO: Di Maio Franck*			
Read Access	**RO, project administrator, LG: SOPRA extra, AD: ITER, AD: External Collaborators, AD: Division - Control System Division, AD: Section - CODAC, AD: Auditors, AD: ITER Management Assessor**		

Change Log				
Title (Uid)	***Version***	***Latest Status***	***Issue Date***	***Description of Change***
CODAC PON Archiving System - Test Plan (9KMNAD_v2_3)	v2.3	Signed	20 Jun 2013	Check for SEVERE messages in the log files
CODAC PON Archiving System - Test Plan (9KMNAD_v2_2)	v2.2	Signed	04 Jun 2013	Plot Toolbar, and Properties Panel Test Cases Web Interface Test Case
CODAC PON Archiving System - Test Plan (9KMNAD_v2_1)	v2.1	Signed	01 Feb 2013	Demo SVN Unit
CODAC PON Archiving System - Test Plan (9KMNAD_v2_0)	v2.0	Signed	21 Jan 2013	Test of: - event driven archiving - archiving scan mode - archiving monitor with threshold mode - archived data types 6KSamples/sec performance tests.
CODAC PON Archiving System - Test Plan (9KMNAD_v1_2)	v1.2	Signed	06 Jun 2012	At CSS startup, the Welcome screen should be closed
CODAC PON Archiving System - Test Plan (9KMNAD_v1_1)	v1.1	Signed	06 Jun 2012	Additional information regarding the workspace dedicated to the tests.
CODAC PON Archiving System - Test Plan (9KMNAD_v1_0)	v1.0	Signed	05 Jun 2012	

CODAC PON Archiving System

Software Test Plan (STP)
Based on QA Template Version <1.0>

This document describes the tests that should be performed for CODAC PON Archiving System in order to be installed as part of Core System release. Different test cases are described, as well as and test pass-fail criteria.

Contents

1 INTRODUCTION

1.1 Purpose

This document describes the tests that should be performed for CSS BEAUTY - Best Ever Archive Utility, Yet - in order to be installed as part of CODAC Core System. These tests also compare the capabilities of BEAUTY against these described in Philosophy of ITER PON Archiving (ITER_D_B7N2B7).

Particular functions to be tested are the archive engine configuration via an XML file generated by SDD, the different archiving/sampling modes and archive graphical user interface (GUI) that plots historic and live data – i.e. the main components of the archive system as shown on Figure 1-I - BEAUTY Architecture, except for "Other tools for configuration & samples" not part of CODAC Core System.

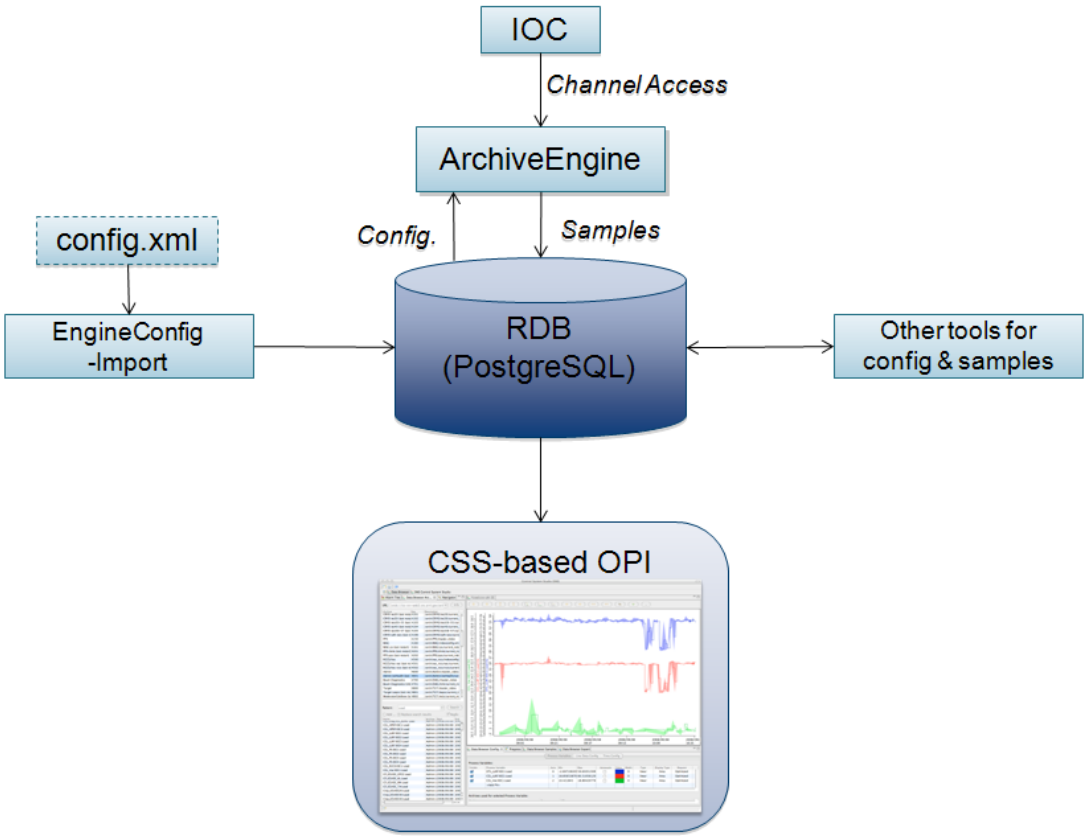


Figure 1-I - BEAUTY Architecture

1.2 Scope

The test items are:

- The operational version of BEAUTY,
- The data, including all the configuration data needed to run the archive system,
- The documentation, including the online help and the release notes.

The installation and uninstallation of the components are not part of this test plan.

1.3 System/Software overview and key features

Best Ever Archive Utility, Yet (BEAUTY) - is a distributed archive system consisting of:

- Archive Engine which takes samples from IOCs via Channel Access
- And stores them on a Relational Database with their original time stamp, alarm status/severity, process variable value and metadata (unit, limits…),
- CSS user interface for accessing to historic data samples in that storage.

1.4 References

[RD1] IEEE 829-2008 Standard for Software and System Test Documentation

[RD2] Bugzilla Manual for CODAC Core System Developers (33KAC4)

[RD3] STR-T – Software Test Report Template (6SBGVY)

[RD4] Philosophy of ITER PON Archiving (B7N2B7)

1.5 Definitions

BEAUTY	Best Ever Archive Utility, Yet
CSS	Control System Studio
EPICS	Experimental Physics and Industrial Control System
IOC	Input / Output Controller
PV	Process Variable
CA	Channel Access
RDB	Relational Database
GUI	Graphical User Interface
SVN	Apache Subversion
STP	Software Test Plan
STR	Software Test Report

2 DETAILS OF THE TESTING PROCESS

2.1 Definition of test levels

The described component tests will focus on the desired features of CODAC PON Archiving System.

Following test levels are defined in this test plan to organize the testing activity.

Archive Configuration Component Test	**CFG**
Test of the different archiving modes import configuration	
Archive Engine Component Test	**ENG**
Test of archiving overrun and monitoring	
Archive Display Component Test	**DSP**
Test of archived data plot in CSS	
Archive Web Interface Component Test	**WEB**
Test of archived data plot in Web Data Browser	
Archive Report Component Test	**RPT**
Test of Web Archive Reports	
Archive Engine System Performance Test	**PRF**
Test of at least 4K samples archived continuously in the database	

2.2 Test administration

2.2.1 Anomaly resolution and reporting

Anomaly Reports shall be submitted in Bugzilla.

2.2.2 Test reporting requirements

The test logs shall be generated to record the outcome of test procedures as described in section *.4 and *.5 of the level test plans.

2.2.3 Test deliverables

The test deliverables include:

- Component Test Logs / Reports
- Anomaly Reports with Bugzilla bug references.

Test input data are registered in SVN source code repository.

No other test tool is needed.

The test reports may be submitted on ITER IDM.

3 COMPONENT TEST PLAN

3.1 Scope

3.1.1 Test items and their identifiers

CODAC PON Archiving System includes the following products:

- org.csstudio.iter.archive.config.rdb.product with the list of features:
  - org.csstudio.iter.archive.config.rdb.app.feature
  - org.csstudio.iter.core.util.feature
  - org.eclipse.iter.feature
- org.csstudio.iter.archive.engine.product with the list of features:
  - org.csstudio.iter.archive.engine.app.feature
  - org.csstudio.iter.core.util.feature
  - org.eclipse.iter.feature

3.1.2 Features to be tested

The main CODAC PON Archiving System features to be tested are:

- Archive configuration import/export
- Archive Engine startup and monitoring
- PV changes notification and archiving
- Historical data plot

3.1.3 Features not to be tested

The Other tools for configuration and samples are not part of CODAC PON Archiving System for now.

3.2 Approach

3.2.1 Testing Methods

The overall approach for the level of testing is the Black box method to test the functionality of CODAC PON Archiving System.

3.2.2 Item pass/fail criteria

Each major anomaly found determines whether each test item has passed or failed testing.

3.3 Test Environment / Infrastructure

Core System in its development role version should be installed on a CODAC standard machine. Access to SVN is required.

3.4 Component Test Procedures

3.4.1 CFG01 - Archive Configuration Import

Prerequisite

In a Linux console, create a working directory, download and start a demo IOC:
0. $ rm -Rf ~/.css
1.$ mkdir test
2.$ cd test
3.$ svn co https://svnpub.iter.org/codac/iter/codac/dev/units/m-css/trunk/products/ITER/products/org.csstudio.iter.archive.engine.product/demo/m-TEST-BEAUTY

```
A    m-TEST-BEAUTY/.project
A    m-TEST-BEAUTY/doc
A    m-TEST-BEAUTY/doc/STP-CODAC_Engineering_Archiving_System.pdf
A    m-TEST-BEAUTY/src
A    …
A    m-TEST-BEAUTY/sdd.xml
A    m-TEST-BEAUTY/pom.xml
Checked out revision xxx.
```

4.$ cd m-TEST-BEAUTY

5.$ softIoc -s -d src/main/epics/TEST-BTY0App/Db/PSH0-TEST-BTY0.db

```
Starting iocInit

############################################################
## EPICS R3.14.12.3-rc1 $Date: Mon 2012-12-03 16:39:27 -0600$
## EPICS Base built Dec 10 2012
############################################################
cas warning: Configured TCP port was unavailable.
cas warning: Using dynamically assigned TCP port 51323,
cas warning: but now two or more servers share the same UDP port.
cas warning: Depending on your IP kernel this server may not be
cas warning: reachable with UDP unicast (a host's IP in EPICS_CA_ADDR_LIST)
iocRun: All initialization complete
epics>
```

6. List the EPICS PVs defined in the database with the command dbl

```
epics> dbl
TEST-BTY0:AI1
TEST-BTY0:AI2
TEST-BTY0:AI3
TEST-BTY0:ARCHIVE
TEST-BTY0:BI
TEST-BTY0:RAMP1
TEST-BTY0:RAMP2
TEST-BTY0:RNDM-AI
TEST-BTY0:RNDM-BI
TEST-BTY0:RNDM-MBBI
TEST-BTY0:COMPRESS
TEST-BTY0:LONGIN
TEST-BTY0:MBBI
TEST-BTY0:STRING
TEST-BTY0:WAVEFORM
epics>
```

Test Cases

1. Positive confirmation of the archive configuration loaded

Procedure

In another Linux console or new Tab:

	1.$ cd test/m-TEST-BEAUTY 2.$ archive-configtool -engine demo -description 'Demo Test Engine' -port 5812 -import -config src/main/beauty/TEST-BTY0-beauty.xml -replace_engine Check that the Demo Archive Engine is configured 3. $ archive-configtool -list

Pass Criteria	2. The output of the command should be:
	`archive-configtool -engine demo -port 5812 -import -config src/main/beauty/TEST-BTY0-beauty.xml -replace_engine`
	`Importing : src/main/beauty/TEST-BTY0-beauty.xml`
	`Engine : demo`
	`Description : Demo Test Engine`
	`URL : http://localhost:5812/main`
	`Replace engine: true`
	`Steal channels: false`
	`2012-12-14 10:39:39.711 INFO [Thread 19] org.apache.activemq.transport.failover.FailoverTransport (doReconnect) - Successfully connected to tcp://localhost:61616`
	…
	`Import 'demo', Group 'TEST-BTY0'`
	`Import 'demo', Group 'TEST-BTY0-SYSM'`
	3. The output of the command should contain the following declaration:
	`archive-configtool -list`
	`2013-01-07 13:43:16.931 INFO [Thread 19] org.apache.activemq.transport.failover.FailoverTransport (doReconnect) - Successfully connected to tcp://localhost:61616`
	`Engine 'demo' (Demo Test Engine) at http://localhost:5812/main [xx]`
	…

	3.4.2 CFG02 - Archive Configuration Export
Prerequisite	1. Archive Configuration Imported successfully
Test Cases	1. Positive confirmation of the archive configuration export
Procedure	In the previous Linux console, export the Demo Archive Engine configuration: 1.$ archive-configtool -engine demo -export -config src/main/beauty/export-beauty.xml Check the exported configuration: 3. $ gedit src/main/beauty/export-beauty.xml& After the check, close gedit.

Pass Criteria	1. The output of the command should be:
	`archive-configtool -engine demo -export -config src/main/beauty/export-beauty.xml`
	`Exporting config for engine demo to src/main/beauty/export-beauty.xml`
	`2013-01-07 13:50:18.700 INFO [Thread 19] org.apache.activemq.transport.failover.FailoverTransport (doReconnect) - Successfully connected to tcp://localhost:61616`
	2. The xml configuration should be:
	`<?xml version="1.0" encoding="UTF-8" standalone="no"?>`
	`<!-- Created by ArchiveConfigTool -engine demo -export 2013/01/21 09:16:05.560116728 -->`

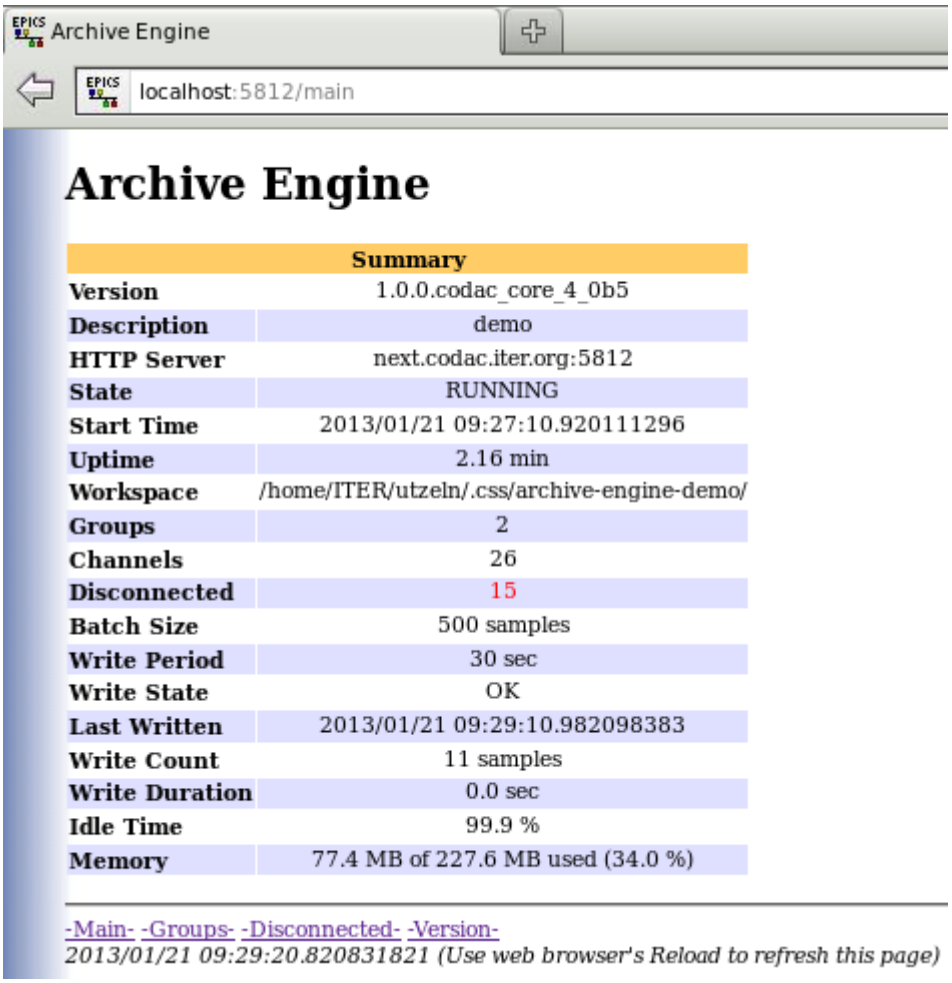
```
<engineconfig>
  <group>
    <name>TEST-BTY0</name>
      <channel><name>TEST-BTY0:AI1</name><period>00:00:00.100</period><monitor/></channel>
      <channel><name>TEST-BTY0:AI2</name><period>00:00:00.100</period><monitor/></channel>
      <channel><name>TEST-BTY0:AI3</name><period>00:00:00.100</period><monitor/></channel>
      <channel><name>TEST-BTY0:ARCHIVE</name><period>00:00:01</period><monitor/><enable/></channel>
      <channel><name>TEST-BTY0:BI</name><period>00:00:01</period><monitor/></channel>
      <channel><name>TEST-BTY0:LONGIN</name><period>00:00:00.100</period><monitor/></channel>
      <channel><name>TEST-BTY0:MBBI</name><period>00:00:01</period><monitor/></channel>
      <channel><name>TEST-BTY0:RAMP1</name><period>00:00:02</period><monitor/></channel>
      <channel><name>TEST-BTY0:RAMP2</name><period>00:00:02</period><monitor/></channel>
      <channel><name>TEST-BTY0:STRING</name><period>00:05:00</period><scan/></channel>
      <channel><name>TEST-BTY0:WAVEFORM</name><period>00:01:00</period><scan/></channel>
  </group>
  <group>
    <name>TEST-BTY0-SYSM</name>
      <channel><name>TEST-BTY0-SYSM:H0-CLOAD</name><period>00:00:05</period><monitor/></channel>
      <channel><name>TEST-BTY0-SYSM:H0-FLOAD</name><period>00:00:05</period><monitor/></channel>
      <channel><name>TEST-BTY0-SYSM:H0-MLOAD</name><period>00:00:05</period><monitor/></channel>
      <channel><name>TEST-BTY0-SYSM:H0-NPRDROP</name><period>00:00:05</period><monitor/></channel>
      <channel><name>TEST-BTY0-SYSM:H0-NPSDROP</name><period>00:00:05</period><monitor/></channel>
      <channel><name>TEST-BTY0-SYSM:H0CORE-CPUUTL</name><period>00:00:05</period><monitor/></channel>
      <channel><name>TEST-BTY0-SYSM:H0CORE-DBDLC</name><period>00:05:00</period><monitor/></channel>
      <channel><name>TEST-BTY0-SYSM:H0CORE-FDUTL</name><period>00:00:05</period><monitor/></channel>
      <channel><name>TEST-BTY0-SYSM:H0CORE-MEMUTL</name><period>00:00:05</period><monitor/></channel>
      <channel><name>TEST-BTY0-SYSM:H0CORE-UPT</name><period>00:05:00</period><scan/></channel>
      <channel><name>TEST-BTY0-SYSM:H0SYSM-CPUUTL</name><period>00:00:05</period><monitor/></channel>
      <channel><name>TEST-BTY0-SYSM:H0SYSM-DBDLC</name><period>00:05:00</period><monitor/></channel>
      <channel><name>TEST-BTY0-SYSM:H0SYSM-FDUTL</name><period>00:00:05</period><monitor/></channel>
      <channel><name>TEST-BTY0-SYSM:H0SYSM-MEMUTL</name><period>00:00:05</period><monitor/></channel>
      <channel><name>TEST-BTY0-SYSM:H0SYSM-UPT</name><period>00:05:00</period><scan/></channel>
  </group>
</engineconfig>
```

3.4.3 ENG01 - Archive Engine Startup

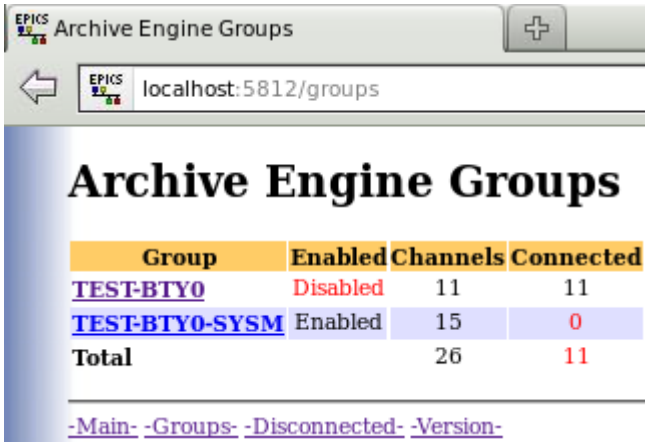
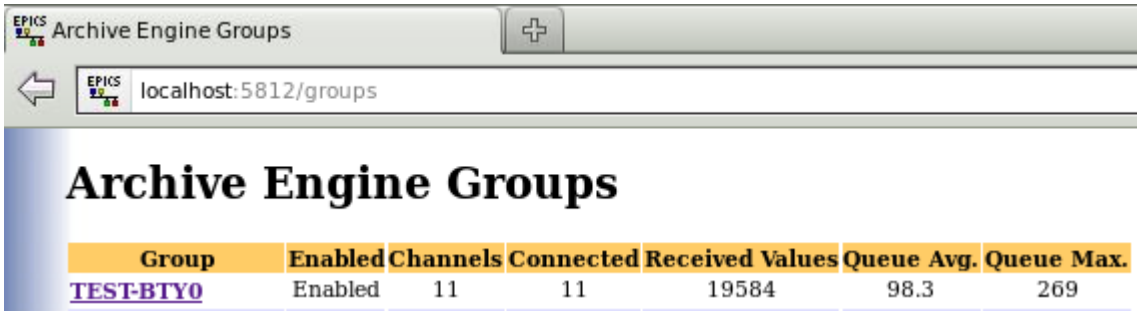
Prerequisite	1. Demo IOC running 2. Archive Configuration Imported successfully
Test Cases	1. Positive confirmation of the demo Archive Engine started
Procedure	In the previous Linux console, start the “demo” Archive Engine: 1.$ archive-engine -port 5812 -engine demo&

Pass Criteria	1. The output of the command should be:
	`$ INFO [Thread 10] org.csstudio.archive.engine.Application (start) - Archive Engine <version>`
	`INFO [Thread 10] org.csstudio.archive.engine.server.EngineServer (<init>) - Engine HTTP Server on http://localhost:5812/main`
	`INFO [Thread 10] org.csstudio.archive.engine.Application (start) - Reading configuration 'demo'`
	`INFO [Thread 10] org.csstudio.archive.engine.Application (start) - Read configuration: 0 channels in 0.943 seconds`
	`2013-01-21 09:27:10.813 CONFIG [Thread 1] org.csstudio.utility.pvmanager.epics.Epics3DataSource (<clinit>) - Loading epics data source parameters: com.cosylab.epics.caj.CAJContext - 2`
	`2013-01-21 09:27:10.885 CONFIG [Thread 1] org.csstudio.utility.pvmanager.Activator (start) - Adding data source ca`
	`2013-01-21 09:27:10.885 CONFIG [Thread 1] org.csstudio.utility.pvmanager.Activator (start) - Adding data source sim`
	`2013-01-21 09:27:10.886 CONFIG [Thread 1] org.csstudio.utility.pvmanager.Activator (start) - Adding data source loc`
	`2013-01-21 09:27:10.886 CONFIG [Thread 1] org.csstudio.utility.pvmanager.Activator (start) - Adding data source epics`
	`2013-01-21 09:27:10.888 CONFIG [Thread 1] org.csstudio.utility.pvmanager.Activator (start) - Setting default data source to epics`
	`<… many Info messages …>`

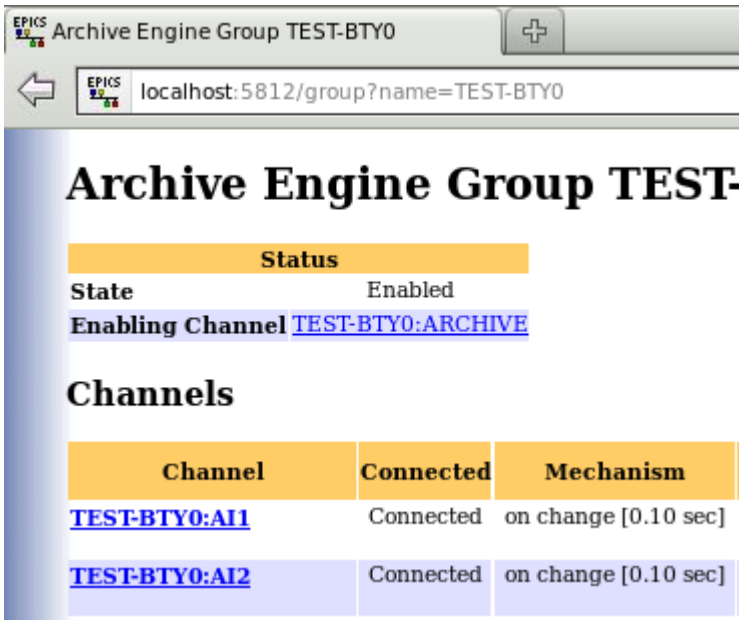
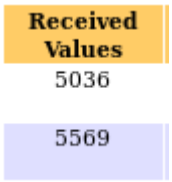
	3.4.4 ENG02 - Archive Engine Monitoring
Prerequisite	1. Demo IOC running 2. Archive Configuration imported 3. Archive Engine started
Test Cases	1. Positive confirmation of the Archive Engine Monitoring
Procedure	In the previous Linux console, start the web interface of the demo Archive Engine: 1.$ firefox http://localhost:5812/main&
Pass Criteria	1. The demo Archive Engine web interface should display the Write State (OK), Write Count (0) and Last Written sample time:
	3.4.5 ENG03 - Event Driven Archiving
Prerequisite	1. Demo IOC running 2. Archive Configuration imported

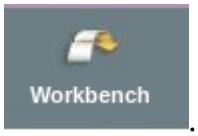
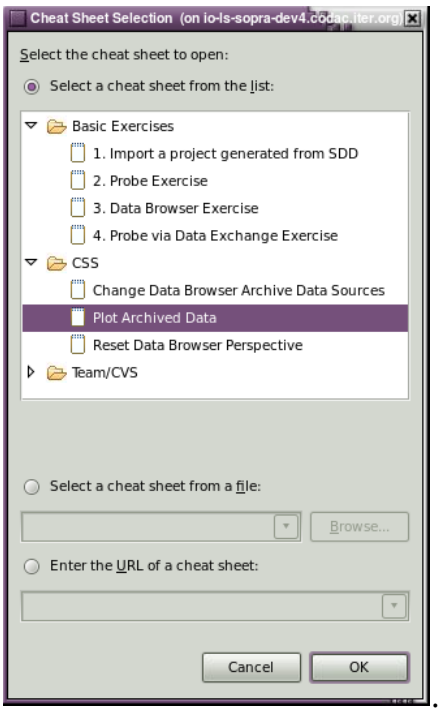
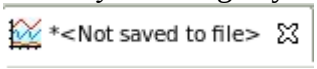


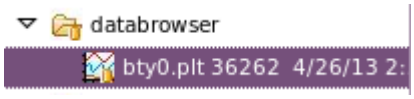
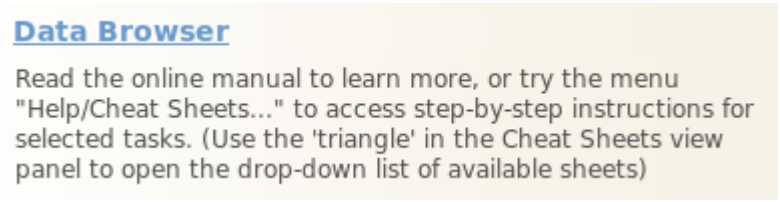
	3. Archive Engine started
Test Cases	1. Archiving is enabled according to a specific variable defined as the “enabling” variable - TEST-BTY0:ARCHIVE: whenever the value of this variable is ON, sampling and archiving of the whole group TEST-BTY0 will be enabled until the variable returns to OFF
Procedure	Using the previous web interface of the demo Archive Engine: 1. Click on the link Groups at the bottom of the screen and check the status of the group TEST-BTY0 From the previous Linux console, change the Enabling PV value: 2.$ caput TEST-BTY0:ARCHIVE ON 3. Refresh the Archive Engine Groups Web page and check if the status of the group TEST-BTY0 has changed

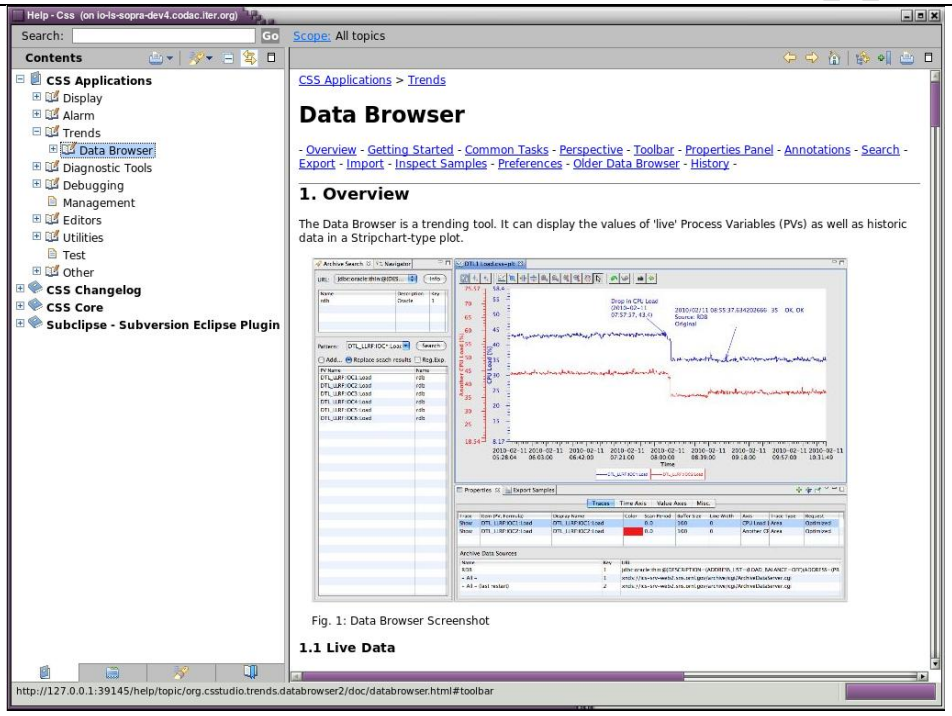
Pass Criteria	1. The Archive Engine Groups page should inform that the group TEST-BTY0 is Disabled:
	 
	
	2. The output of the caput command is:
	`Old : TEST-BTY0:ARCHIVE OFF`
	`New : TEST-BTY0:ARCHIVE ON`
	3. The Archive Engine Groups page should inform that the group TEST-BTY0 is now Enabled and provide some statistics regarding the queue:
	 

	3.4.6 ENG04 - Archiving Monitor Mode
Prerequisite	1. Demo IOC running

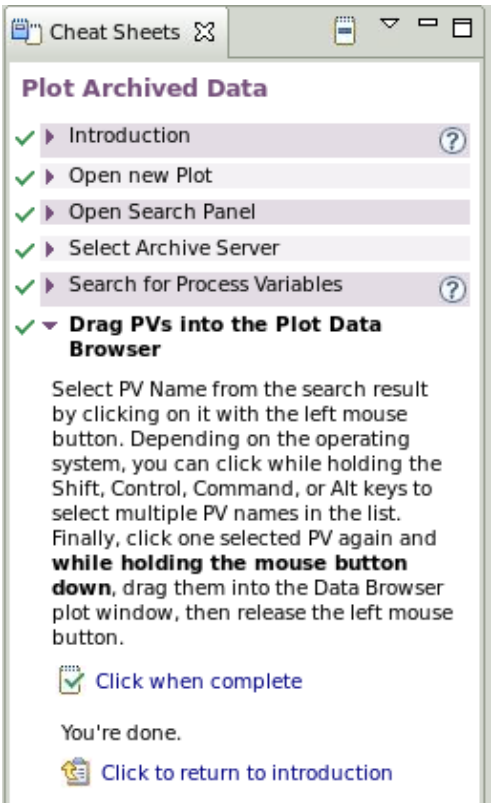
	2. Archive Configuration imported 3. Archive Engine started and Group Enabled
Test Cases	1. Using the Archiving Monitor mode, each value received is stored: • In this mode, the Archive Engine requests a Channel Access Monitor, i.e. it subscribes to changes and stores all the values sent out, • The Channel Access server determines when values are sent to the Archive Engine client. TEST-BTY0:AI1 is an analogue value at 10Hz from 0 to 100C with an archive threshold ADEL of 5 – so only changes above 5C will be archived. On the other hand, TEST-BTY0:AI2 is also an analogue value at 10Hz from 0 to 100C but without ADEL defined – so all changes will be archived, at 10 values per second.
Procedure	Using the previous Archive Engine Groups Web page: 1. Click on the link TEST-BTY0 and check the Received Values for TEST-BTY0:AI1 and TEST-BTY0:AI2
Pass Criteria	1. The Archive Engine Group TEST-BTY0 page should show that the 2 analogue signals are archived on change at estimated rate of 10Hz:  2. And it should show that more values are archived for the PV without ADEL threshold: TEST-BTY0:AI1 samples < TEST-BTY0:AI2 samples. 
	3.4.7 DSP01 - Data Plot

Prerequisite	1. Demo IOC running 2. Archive Configuration imported 3. Archive Engine started	
Test Cases	1. Positive confirmation of historical data retrieval	
Procedure	In the previous Linux console, start the Operator Interface to plot historical data: 0. $ cd .. 1.$ css& 2. Select a Workspace by browsing and selecting the working directory test. Click on OK to validate the workspace Check the Welcome pages and online Help: 3. From the Welcome to "CSS for ITER!" Page, click on "First Steps". A short description of CSS Data Browser should be given. Click then on the link "Data Browser" in this "First Steps" page, just before the short description. The Online Help is displayed. 4. Close the Online Help windows and Close the Welcome screen by clicking on Workbench icon:  . From the Help menu, select the option Cheat Sheets… and from the Cheat Sheet Selection dialog, select CSS -> Plot Archived Data:  . Do the lesson with Pattern Search criteria "TEST-BTY0:*" and by selecting any test PVs. When finished, close the Cheat Sheets View. Close the data plot  and do not	

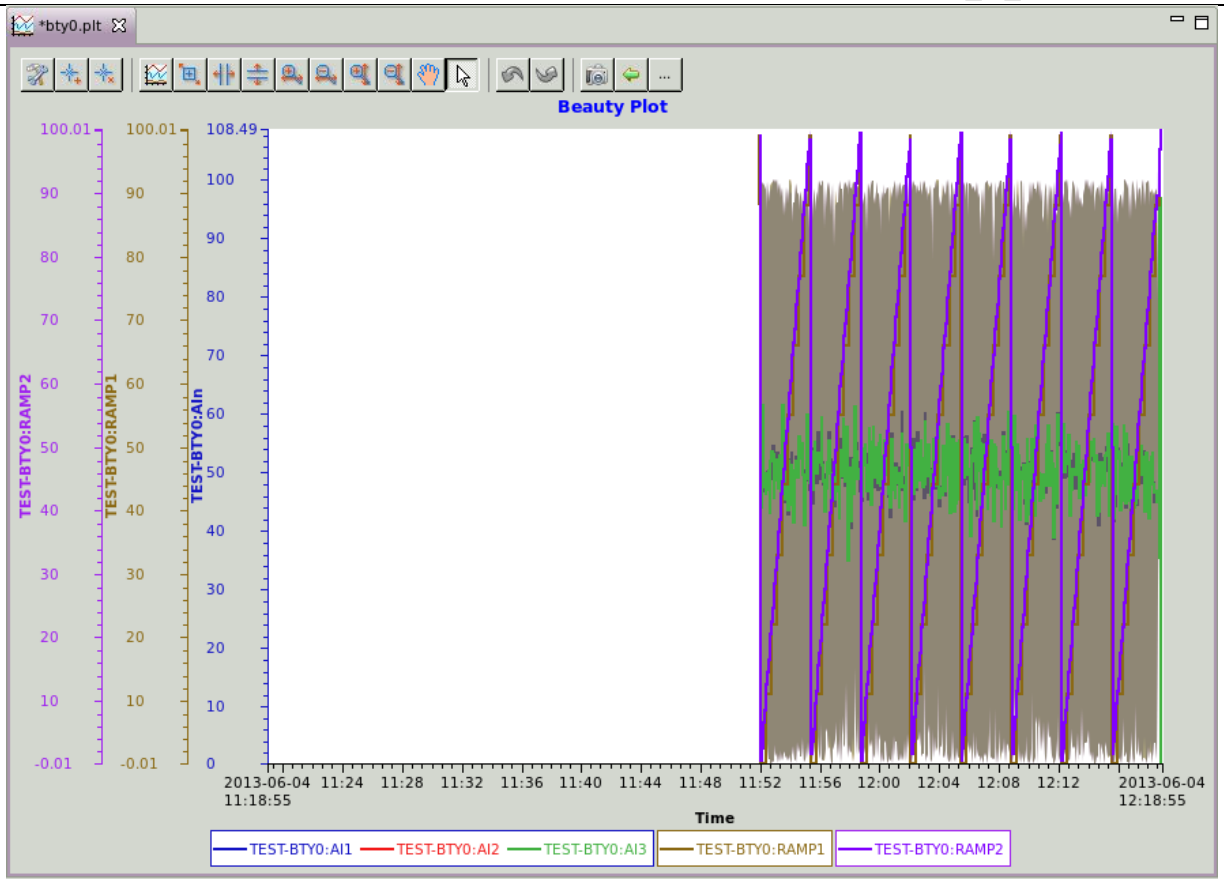
	save the modified plot configuration file. Import the demo project into the Workspace from CSS Navigator View: 5. Right-click and select the option Import… and then General -> "Existing Projects into Workspace". Click on Next button. To select the root directory, click on Browse button, select m-TEST-BEAUTY and click OK. To import the selected project, click on Finish 6. From CSS Navigator View, browse m-TEST-BEAUTY->src->main->databrowser and double-click on the file bty0.plt:  7. Close the plot configuration file  and do not save the changes: 	
Pass Criteria	3. Welcome First Steps for CSS Data Browser should appear:  After clicking on : Data Browser", the Online Help is opened on the Data Browser topic:	



4. Once the lesson is finished, the Cheat Sheets View should look like:

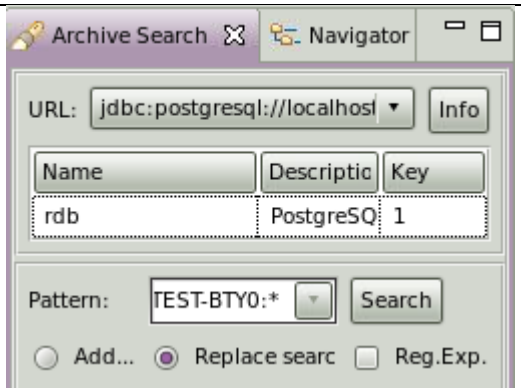


6. The predefined plot should be opened:



3.4.8 DSP02 – Historical Data Plot

Prerequisite	1. Demo IOC running 2. Archive Configuration imported 3. Archive Engine started
Test Cases	1. Positive confirmation of historical data retrieval
Procedure	In CSS, open a new plot: 1. Click on button Open a new Data Browser plot  in the menu bar In CSS, from the Archive Search View: 2. Enter in the Pattern field TEST-BTY0:* and click on Enter key

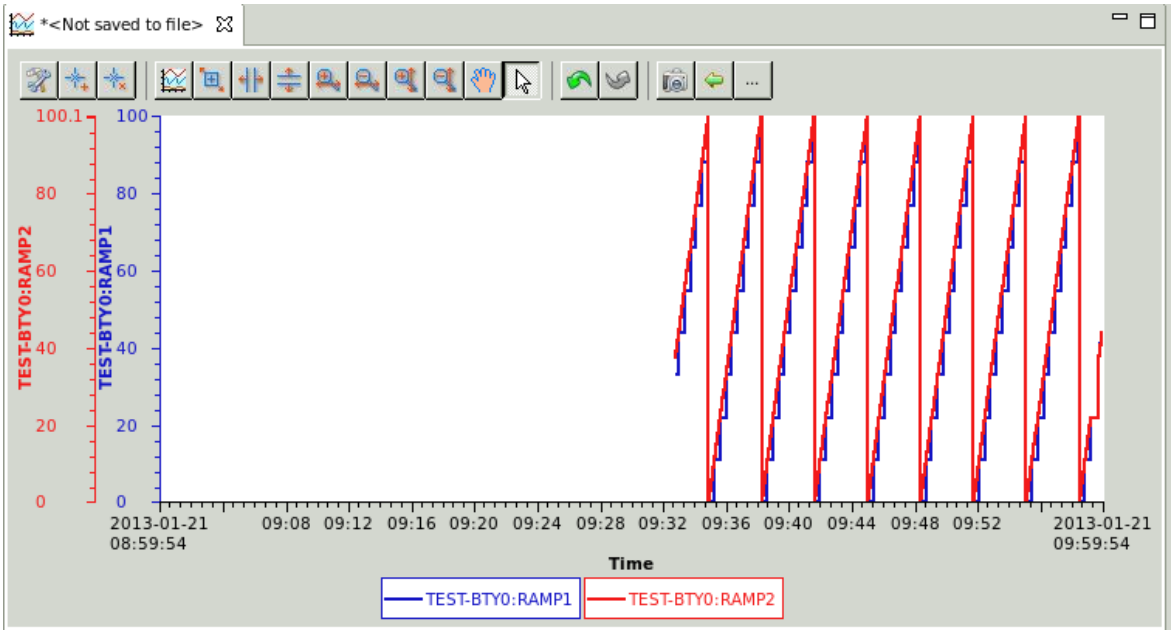


3. Drag and drop the 2 ramp PVs from the searched PVs list to the plot - TEST-BTY0:RAMP1 and TEST-BTY0:RAMP2

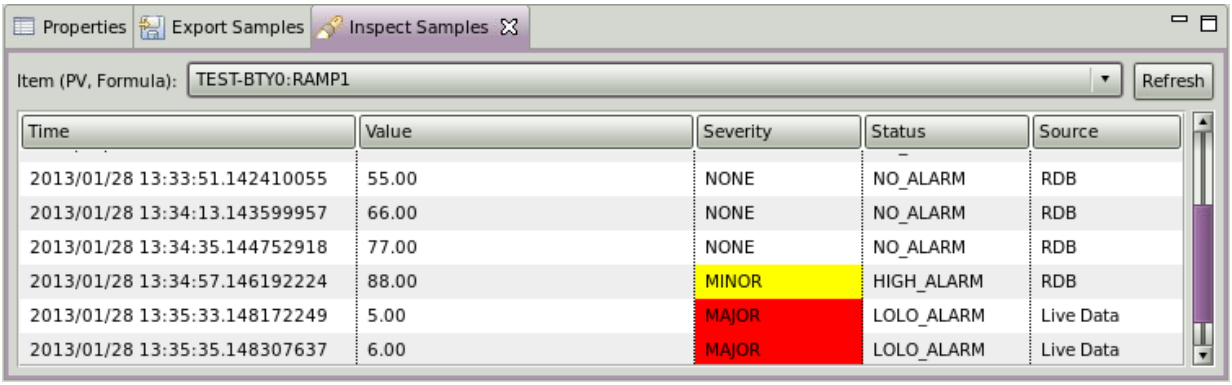
4. Right-click on the plot and select the option Inspect Samples. In the view, select one of the 2 plotted PVs and check that the first samples have been retrieved from the database (RDB)

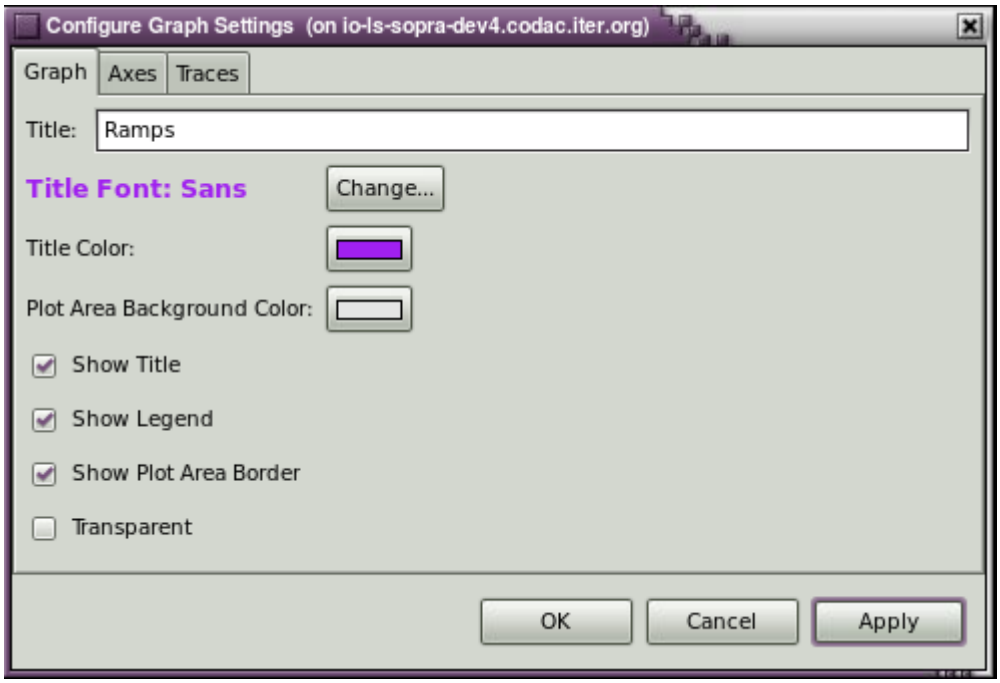
Pass Criteria

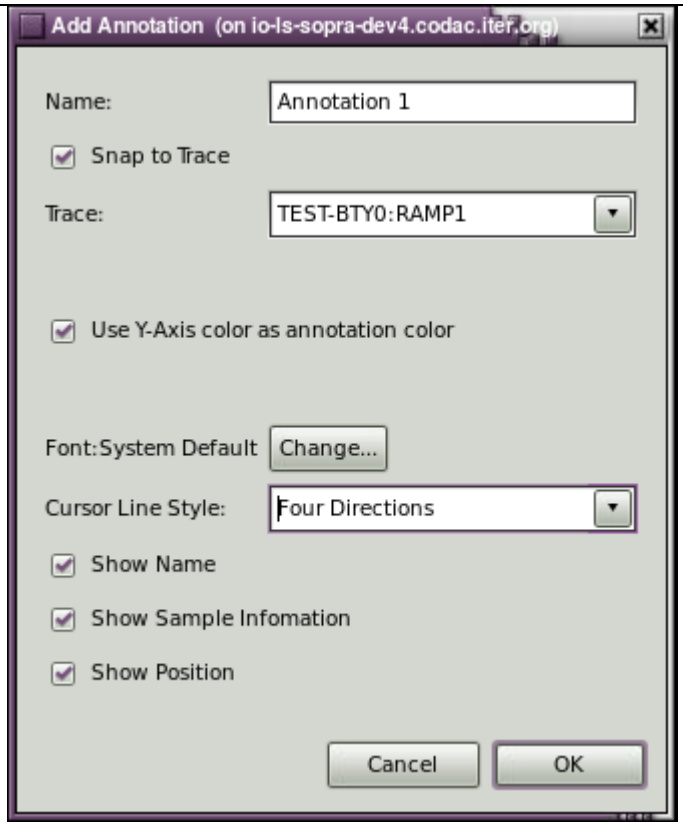
3. Historical data from -1hour should be plotted:



4. Source of the first samples is RDB:



	3.4.9 DSP03 – Plot Toolbar
Prerequisite	1. Demo IOC running 2. Archive Configuration imported 3. Archive Engine started
Test Cases	1. Positive confirmation of historical data retrieval
Procedure	In CSS, from the previous plot of TEST-BTY0:RAMP1 and TEST-BTY0:RAMP2: 1. Click on button  "Configure Settings" from the Plot Toolbar. Add a Title to the plot "Ramps", change the default Title Color and Plot Area Background Color. Check the box: "Show Plot Area Border". Click on Apply and then OK  2. Click on the button  "Add Annotation" from the Plot Toolbar and check "Snap to Trace" on TEST-BTY0:RAMP1 and that the Cursor Line Style is "Four Directions":



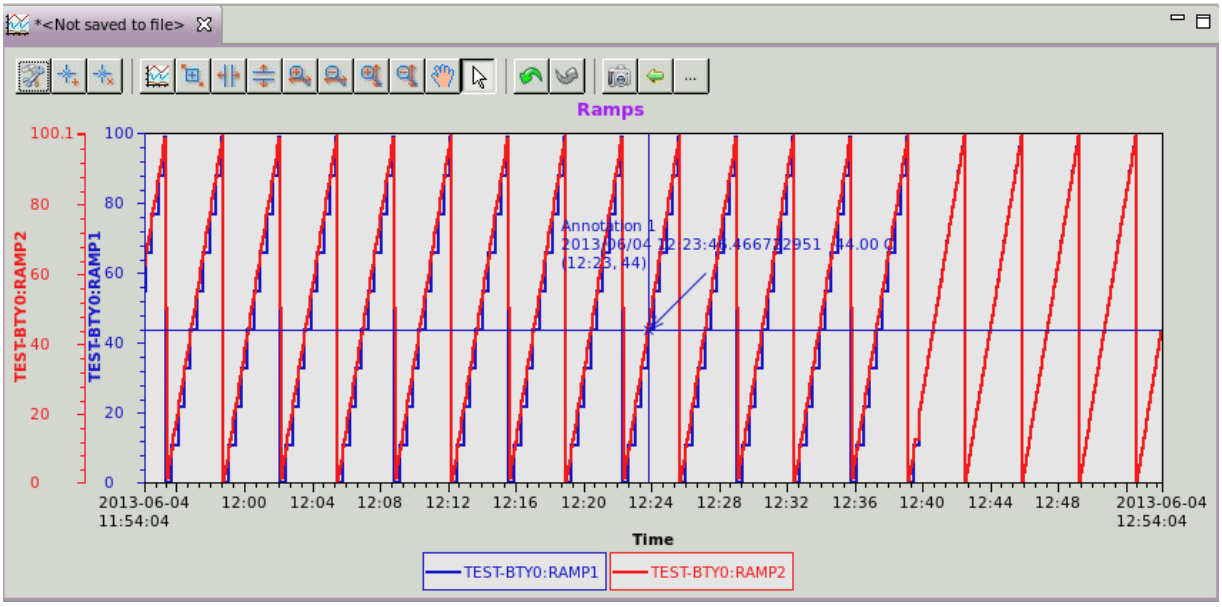
Move the annotation in the plot

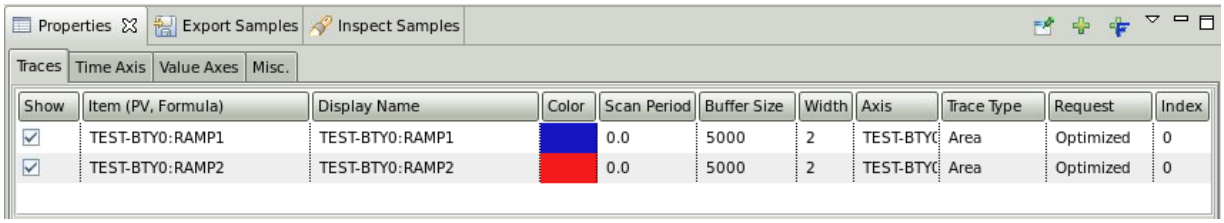
3. From the Plot Toolbar, click on  Zoom In Horizontally and hold the mouse pointer to zoom into time axis. Do the same with  Zoom Out Horizontally

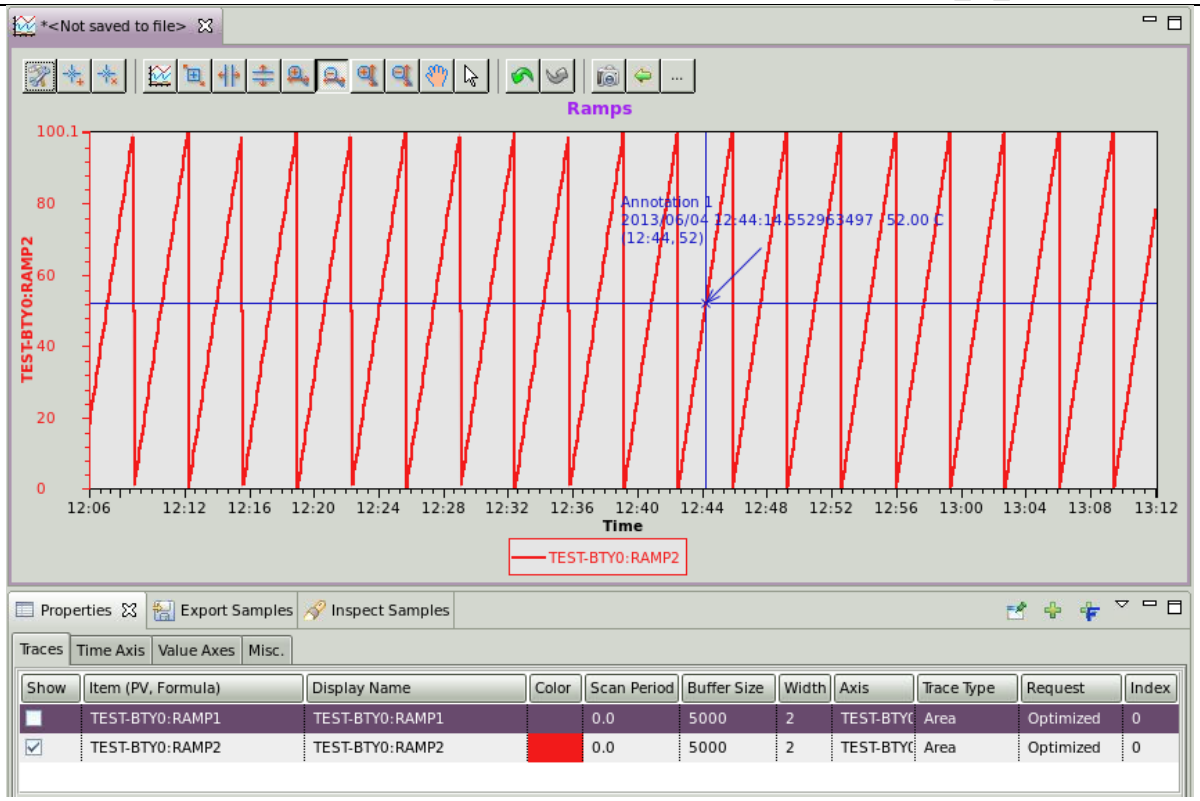
4. From the Plot Toolbar, click on  Undo button many times in order to go back in the initial state for the horizontal zoom

Pass Criteria

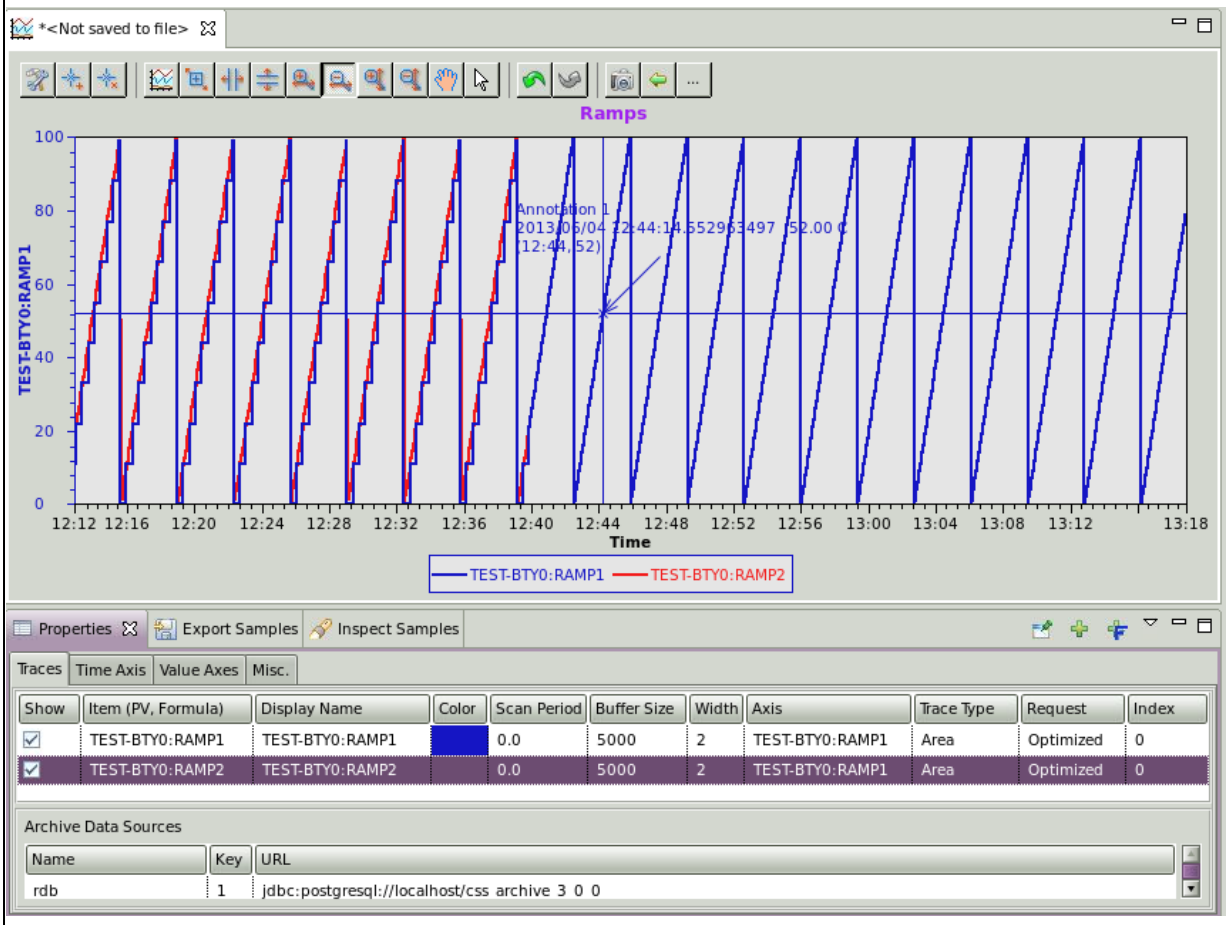
2. Plot setting changes and the annotation should be displayed on the plot:

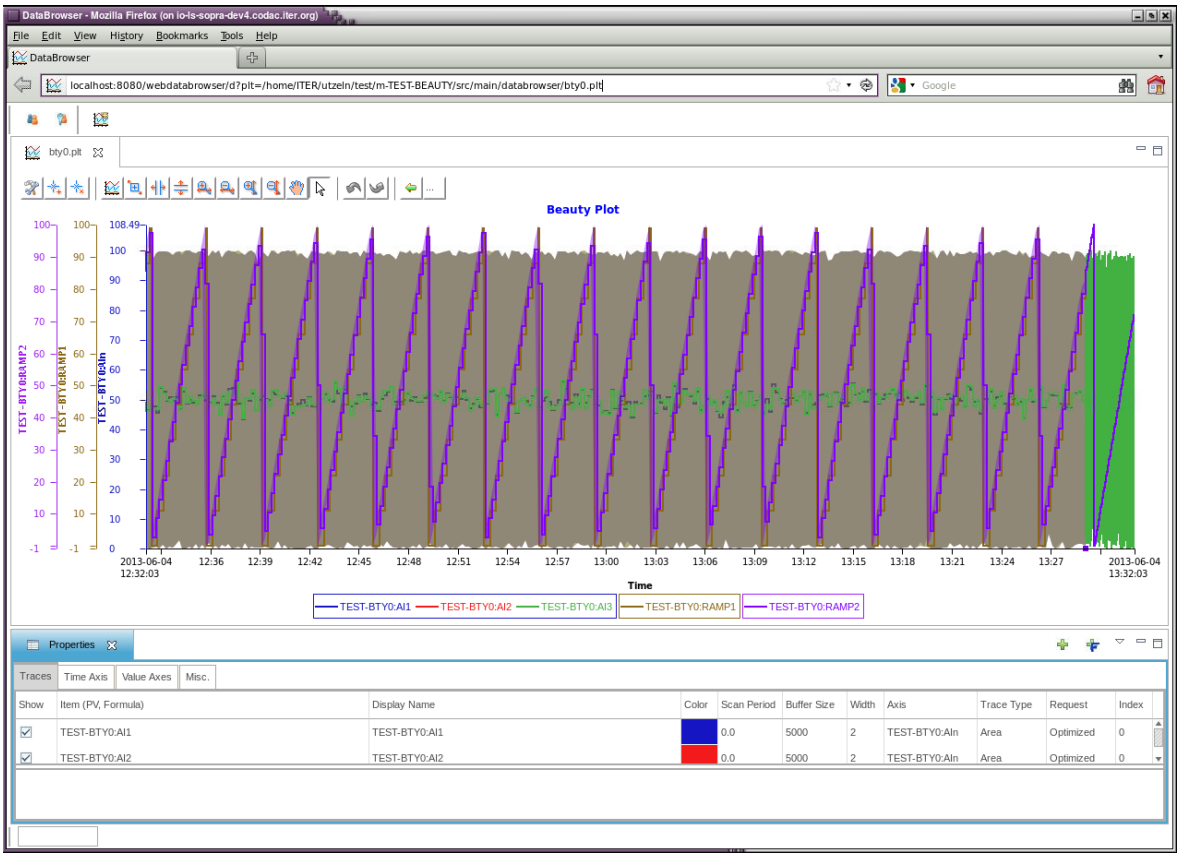


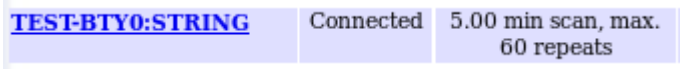
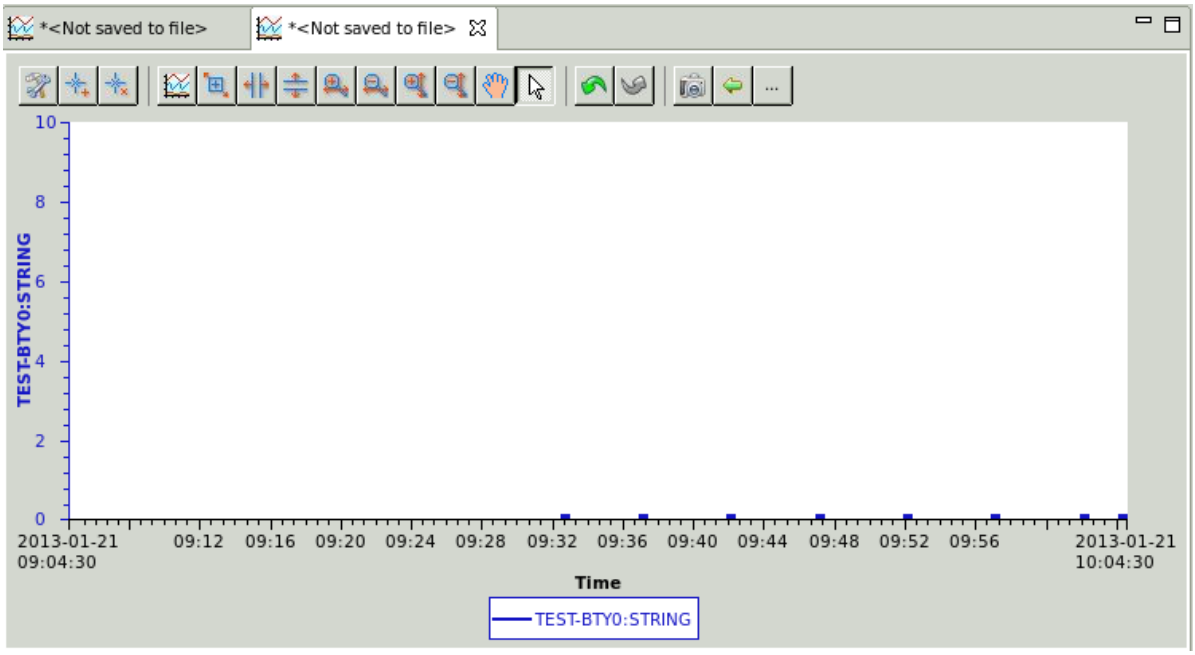
	3.4.10 DSP04 – Properties Panel	
Prerequisite	1. Demo IOC running 2. Archive Configuration imported 3. Archive Engine started	
Test Cases	1. Positive confirmation of historical data retrieval	
Procedure	In CSS, from the previous plot of TEST-BTY0:RAMP1 and TEST-BTY0:RAMP2: 1. Select the plot by clicking on it. The Properties Panel shows the properties of the plot 2. On Traces Tab: uncheck the box "Show" related to TEST-BTY0:RAMP1 to hide temporally the trace. Confirm the information message 3. Show again TEST-BTY0:RAMP1 and change the Axis of TEST-BTY0:RAMP2 to "TEST-BTY0:RAMP1" in order to plot the 2 ramps on the same axis 4. Close the plot and do not save the changes	
Pass Criteria	1. The plot properties should be displayed:  2. Only TEST-BTY0:RAMP2 should be plotted:	

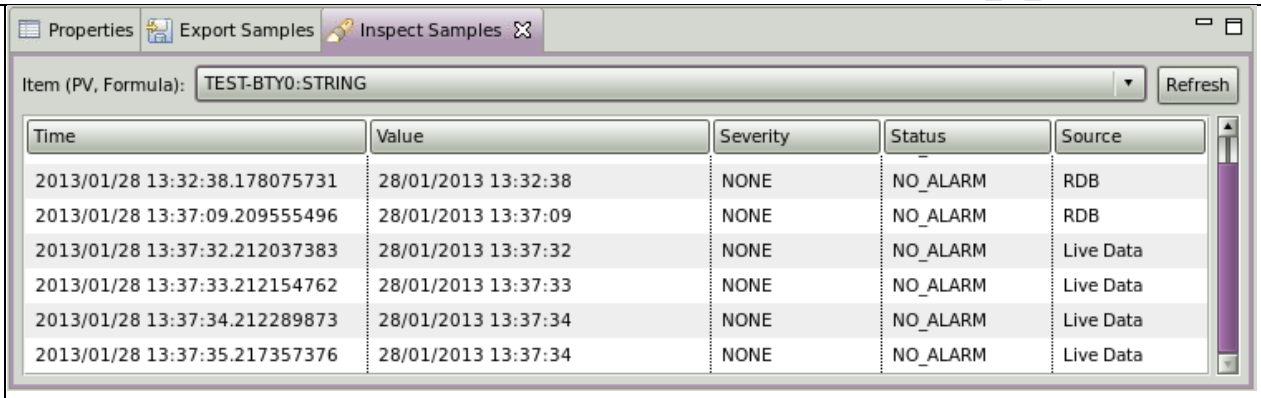


3. The 2 ramps should be displayed on the same axis:



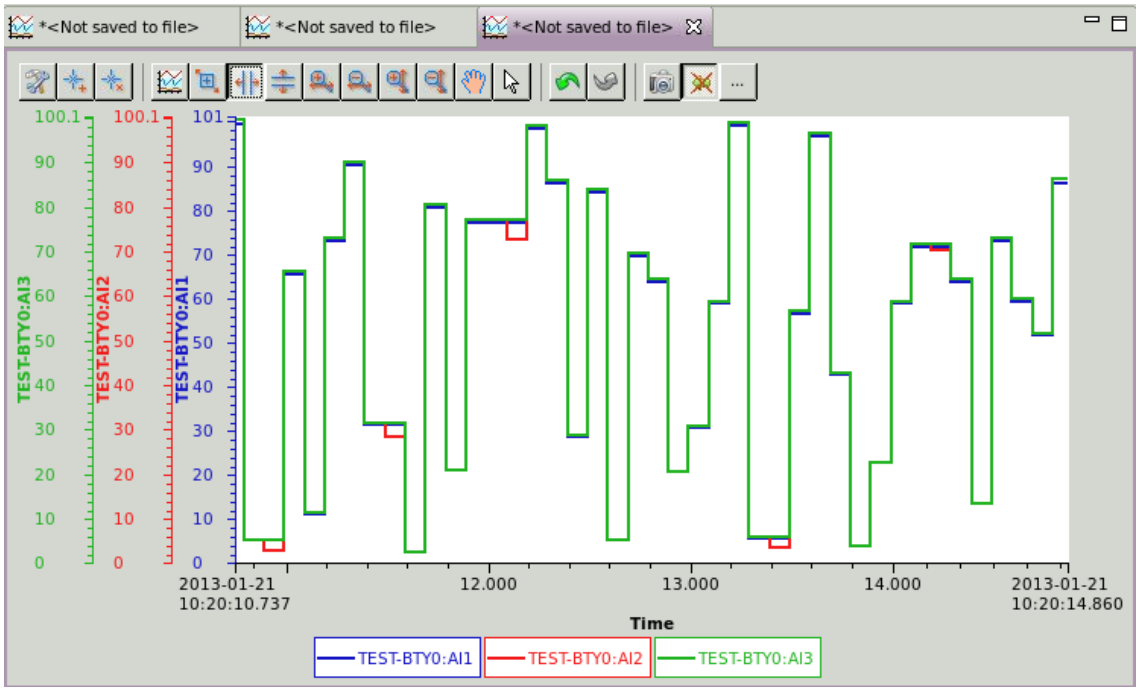
	3.4.11 WEB01 - Data Plot Web Interface
Prerequisite	1. Demo IOC running 2. Archive Configuration imported 3. Archive Engine started
Test Cases	1. Display a plot on web browser, create aplot and PV to display data
Procedure	In the previous Linux console, start the Web Interface to plot the defined configuration file in your test workspace – you should replace <user_name> with your Linux account: 1.$ firefox http://localhost:8080/webdatabrowser/d?plt=/home/ITER/<user_name>/test/m-TEST-BEAUTY/src/main/databrowser/bty0.plt 2. Close Firefox
Pass Criteria	1. The predefined plot should be displayed using the web browser: 
	3.4.12 ENG05 - Archiving Scan Mode
Prerequisite	1. Demo IOC running 2. Archive Configuration imported 3. Archive Engine started

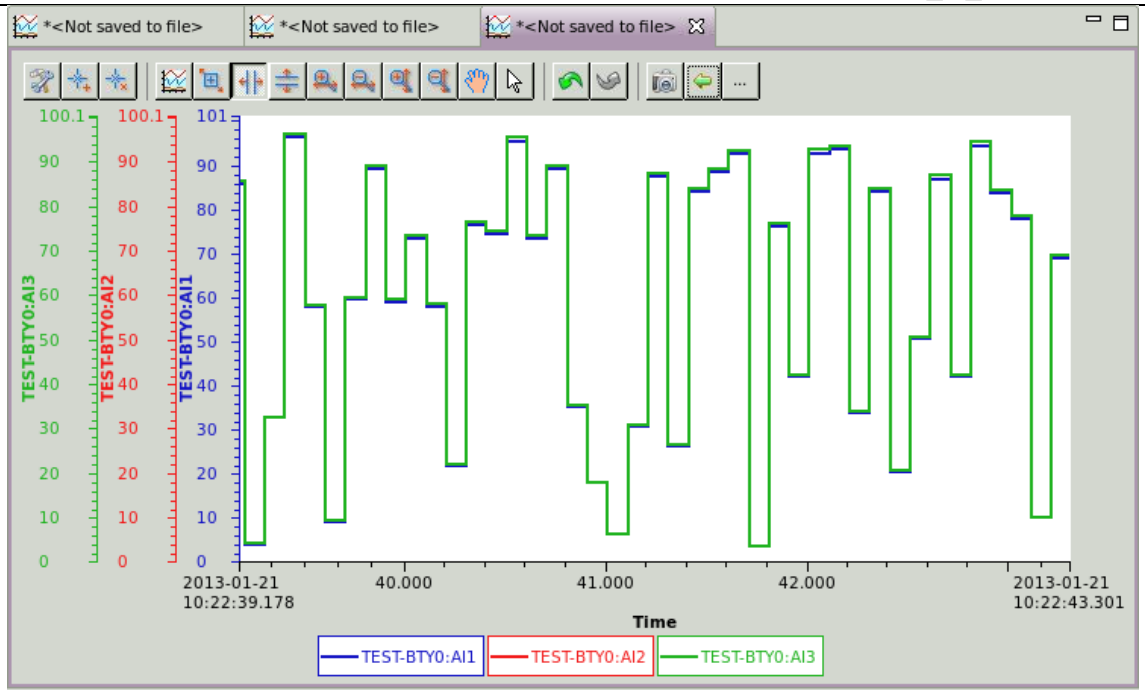
	4. $ firefox http://localhost:5812/main&
Test Cases	1. Using the Archiving Scan mode, the Archive Engine receives each update from the data source but only writes the most recent ones at periodic times. TEST-BTY0:STRING acquires the IOC date & time every second but is archived using the scan mode every 5 minutes.
Procedure	First, from the Archive Engine Group TEST-BTY0 monitoring web page: 1. Check the archiving Mechanism defined for TEST-BTY0:STRING In CSS, open a new plot: 2. Click on button Open a new Data Browser plot  in the menu bar In CSS, from the Archive Search View: 3. Drag and drop TEST-BTY0:STRING from the PVs list to the plot and check that there is a point every 5 minutes in the historic data 4. Right-click on the plot and select the option Inspect Samples. In the view, select TEST-BTY0:STRING and check that the date of the first samples retrieved from the database (RDB) with a sample every 5 minutes. Then check that the live data are samples every second.
Pass Criteria	1. the IOC date & time is archived every 5 minutes  3. Points every 5 minutes for historic data and continuous points for live data:  4. Historic samples from RDB every 5 minutes and live data every second:



3.4.13 ENG06 - Archiving Monitor with Threshold Mode

Prerequisite	1. Demo IOC running 2. Archive Configuration imported 3. Archive Engine started
Test Cases	1. Using the Archive Monitor with Threshold mode, each value received is compared by the Archive Engine to the previous one and stored only if the change is greater than the dead band: • The Archive Engine performs the dead band checks in place of the Channel Access server, As this mode is not yet integrated in SDD, it is proposed to setup it manually for test purposes for the temperature TEST-BTY0:AI3 with a threshold of 5C.
Procedure	First, from the Archive Engine Group TEST-BTY0 monitoring web page: 1. Check the current archiving Mechanism defined with SDD for TEST-BTY0:AI3 Change the configuration to include the test of Archiving Monitor with Threshold Mode, import the new configuration and restart the Archive Engine: 2. $ gedit m-TEST-BEAUTY/src/main/beauty/TEST-BTY0-beauty.xml& 3. in the Editor retrieve the PV TEST-BTY0:AI3 configuration and add a threshold of 5 to the monitor mode: `<channel > <name >TEST-BTY0:AI3</name> <period >0.1</period> <monitor >5</monitor> </channel>` Save the new xml configuration file. Then from the Linux console, import the updated configuration: 4. $ archive-configtool -engine demo -description 'Demo Test Engine' -port 5812 -import -config m-TEST-BEAUTY/src/main/beauty/TEST-BTY0-beauty.xml -replace_engine 5. From the Web Interface, enter http://localhost:5812/restart to restart the Archive Engine with the new configuration. Then select again the main page http://localhost:5812/main and check Groups -> TEST-BTY0 or click directly on the following link http://localhost:5812/group?name=TEST-BTY0 . Check the new archiving mode of the

	temperature AI3. In CSS, open a new plot: 6. Click on button Open a new Data Browser plot  in the menu bar In CSS, from the Archive Search View: 7. Drag and drop TEST-BTY0:AI1, AI2 and AI3 from the PVs list to the plot 8. Right-click on the plot and select the option Open Properties Panel. In the Time Axis tab, change the Start time to -1m and enter to validate the new time scale. If needed, zoom horizontally the beginning of the plot to check if samples from RDB are the same for AI1 and AI3, the first temperature has the threshold of 5C defined on the IOC and the latter one has the threshold controlled by the archive engine.
Pass Criteria	1. The temperature is monitored at 10Hz: TEST-BTY0:AI3 Connected on change [0.10 sec] 5. The new archiving mode for the temperature AI3 should be: TEST-BTY0:AI3 Connected on delta [0.10 sec, 5.0] 8. AI1 with the IOC threshold ADEL of 5C and AI3 with the archive engine threshold of 5C should be the same and slightly different from AI2 which has no threshold:  The live data of the 3 temperatures are identical as the data browser monitor directly the PV values without any threshold:



3.4.14 ENG07 - Archived Data Types

Prerequisite	1. Demo IOC running 2. Archive Configuration imported 3. Archive Engine started
Test Cases	1. Using CSS, plot of different archived data types are plotted such as double, integer, string or waveform.
Procedure	In CSS, open a new plot: 1. Click on button Open a new Data Browser plot  in the menu bar 2. In CSS, from the Archive Search View with Pattern “TEST-BTY0:*”, drag and drop TEST-BTY0:AI1 in the plot area. Right-click on the plot and select Inspect Samples. Select the Item TEST-BTY0:AI1 and check that the archived data type is double. 3. Open a new Data Browser plot  in the menu bar 4. In CSS, from the Archive Search View, drag and drop TEST-BTY0:LONGIN in the plot area. From the Inspect Samples View, select the Item TEST-BTY0:LONGIN and check that the archived data type is integer. 5. Open a new Data Browser plot  in the menu bar 6. In CSS, from the Archive Search View, drag and drop TEST-BTY0:MBBI in the plot area. From the Inspect Samples View, select the Item TEST-BTY0:MBBI and check that the archived data type is an enumerated string. 7. Open a new Data Browser plot  in the menu bar

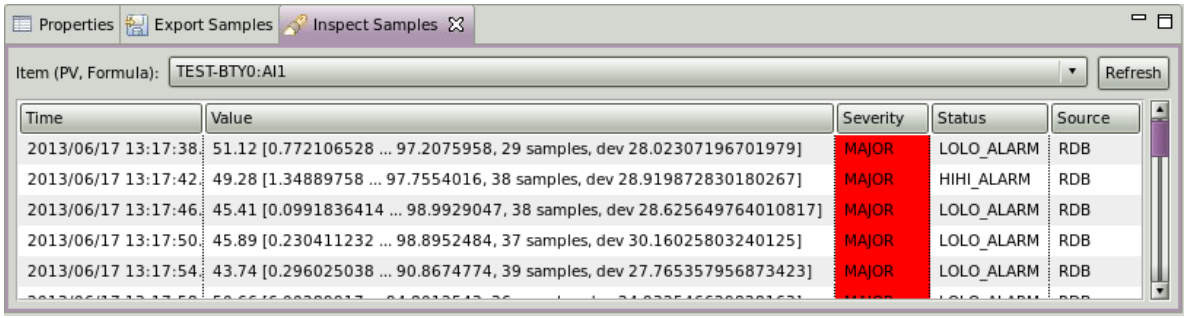
8. In CSS, from the Archive Search View, drag and drop TEST-BTY0:STRING in the plot area. From the Inspect Samples View, select the Item TEST-BTY0:STRING and check that the archived data type is a string that contains the current date and time.

9. Open a new Data Browser plot  in the menu bar

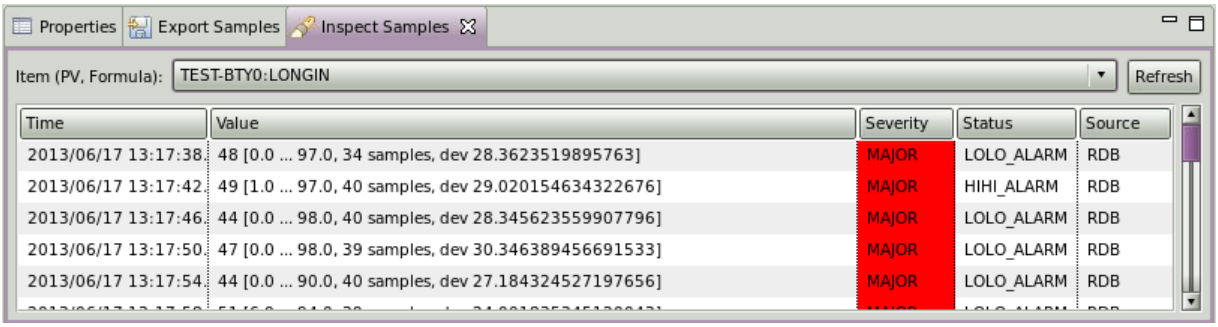
10. In CSS, from the Archive Search View, drag and drop TEST-BTY0:WAVEFORM in the plot area. From the Inspect Samples View, select the Item TEST-BTY0: WAVEFORM and check that the archived data type is an array. Then make a right-click in the plot and select the option Inspect Waveforms. Select the Item TEST-BTY0: WAVEFORM and check the waveform. You can use the horizontal scrollbar to display the next 50 elements of the array.

Pass Criteria

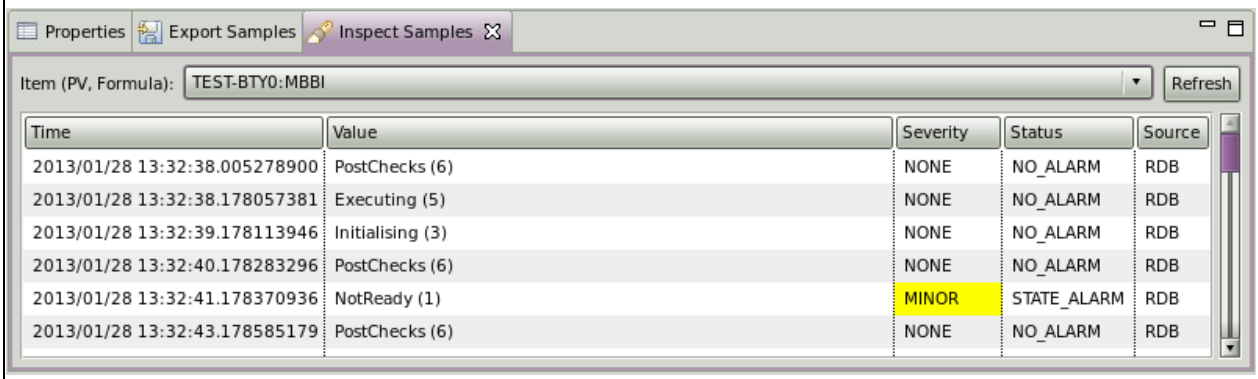
2. The archived value type should be double:



4. The archived value type should be integer:

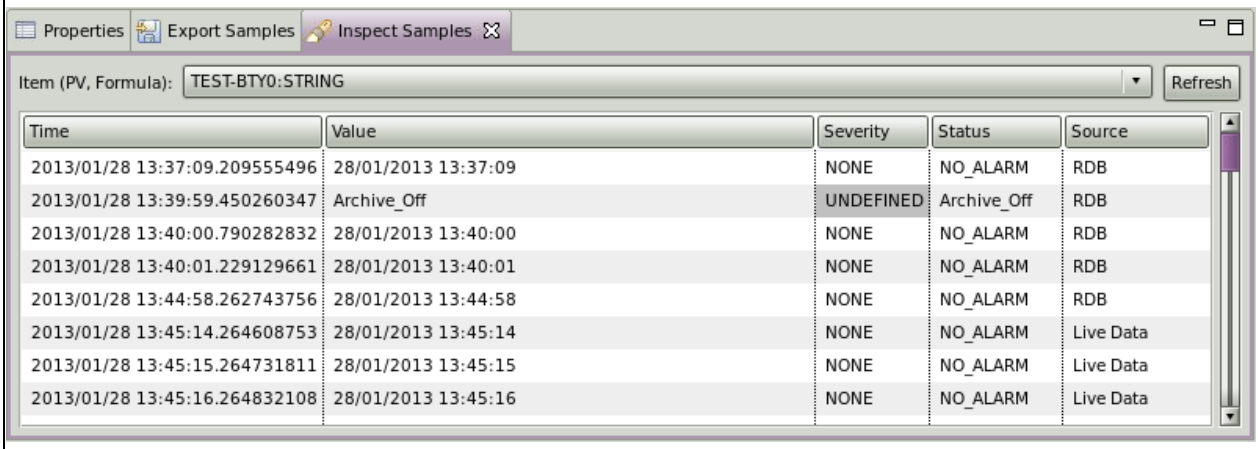


6. The archived value type should be a string:



From the following enumeration:

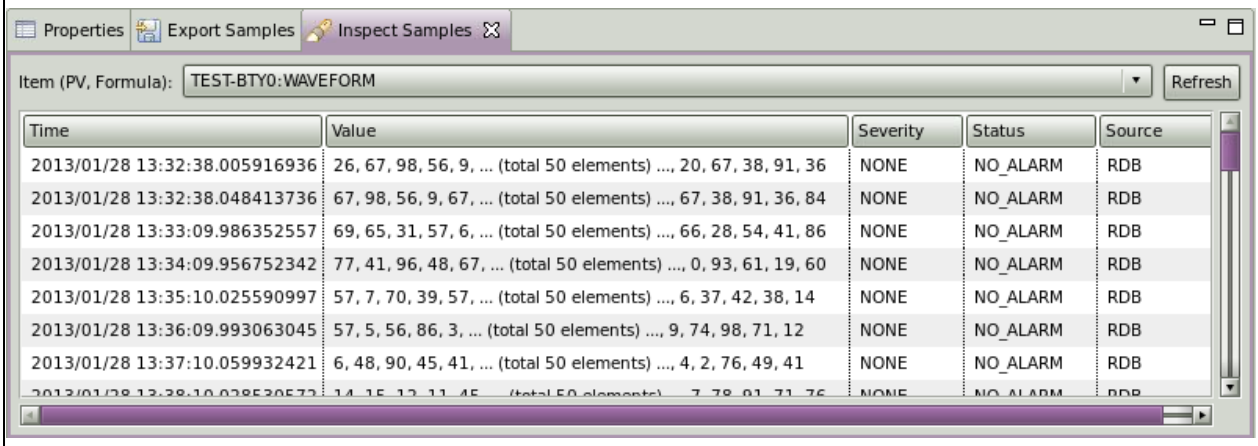
8. The archived value type should be a string yyyy/mm/dd hh:mm:ss archived every 5 minutes:



Time	Value	Severity	Status	Source
2013/01/28 13:37:09.209555496	28/01/2013 13:37:09	NONE	NO_ALARM	RDB
2013/01/28 13:39:59.450260347	Archive_Off	UNDEFINED	Archive_Off	RDB
2013/01/28 13:40:00.790282832	28/01/2013 13:40:00	NONE	NO_ALARM	RDB
2013/01/28 13:40:01.229129661	28/01/2013 13:40:01	NONE	NO_ALARM	RDB
2013/01/28 13:44:58.262743756	28/01/2013 13:44:58	NONE	NO_ALARM	RDB
2013/01/28 13:45:14.264608753	28/01/2013 13:45:14	NONE	NO_ALARM	Live Data
2013/01/28 13:45:15.264731811	28/01/2013 13:45:15	NONE	NO_ALARM	Live Data
2013/01/28 13:45:16.264832108	28/01/2013 13:45:16	NONE	NO_ALARM	Live Data

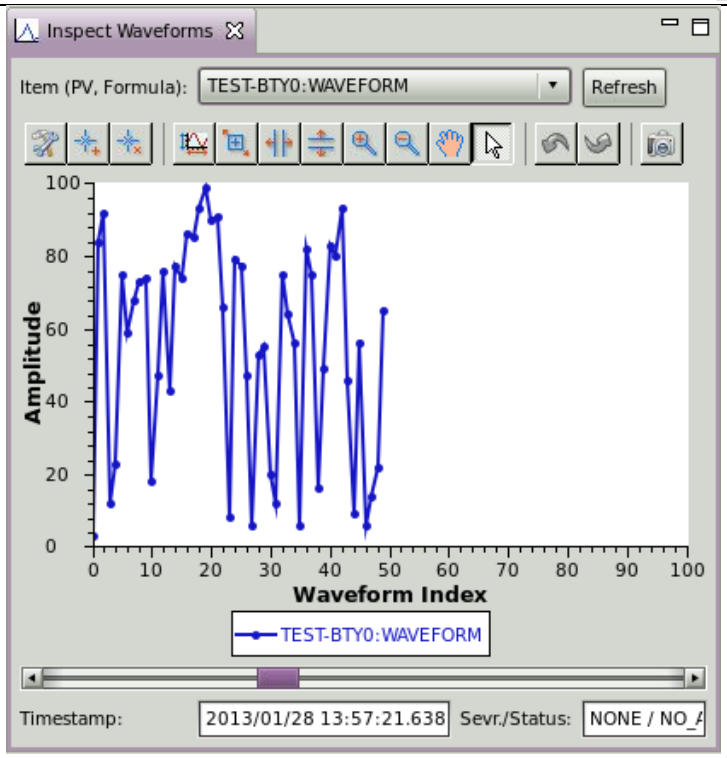
Note: when the archive engine was restarted, a message “Archive_Off” was written in the database.

10. The archived data should be an array of maximum 50 elements:



Time	Value	Severity	Status	Source
2013/01/28 13:32:38.005916936	26, 67, 98, 56, 9, ... (total 50 elements) ..., 20, 67, 38, 91, 36	NONE	NO_ALARM	RDB
2013/01/28 13:32:38.048413736	67, 98, 56, 9, 67, ... (total 50 elements) ..., 67, 38, 91, 36, 84	NONE	NO_ALARM	RDB
2013/01/28 13:33:09.986352557	69, 65, 31, 57, 6, ... (total 50 elements) ..., 66, 28, 54, 41, 86	NONE	NO_ALARM	RDB
2013/01/28 13:34:09.956752342	77, 41, 96, 48, 67, ... (total 50 elements) ..., 0, 93, 61, 19, 60	NONE	NO_ALARM	RDB
2013/01/28 13:35:10.025590997	57, 7, 70, 39, 57, ... (total 50 elements) ..., 6, 37, 42, 38, 14	NONE	NO_ALARM	RDB
2013/01/28 13:36:09.993063045	57, 5, 56, 86, 3, ... (total 50 elements) ..., 9, 74, 98, 71, 12	NONE	NO_ALARM	RDB
2013/01/28 13:37:10.059932421	6, 48, 90, 45, 41, ... (total 50 elements) ..., 4, 2, 76, 49, 41	NONE	NO_ALARM	RDB

The waveform should look like that:



3.4.15 PRF01 - 6KSamples/s archived

Prerequisite	An important disk space is required as 2 x 300 PVs at 10HZ are archived at 0.1sec by 2 archive engines.
	1. Performance IOCs downloaded from SVN
	From a new Linux console, start the EPICS IOC Performance Databases:
	2. $ cd ~/test/m-TEST-BEAUTY
	$ softIoc src/main/epics/SharedTemplateApp/Db/rndmIOC-all-start.cmd
	From a new Linux console, Start the 2 Archives Engines:
	3. $ cd ~/test/m-TEST-BEAUTY
	$ src/main/beauty/rndmArchive-X-3K-start.cmd
	$ src/main/beauty/rndmArchive-Y-3K-start.cmd

Test Cases	1. Using Archive Engine Monitoring web interface, check there is no overrun after some hours or days.
Procedure	In a Linux console, open the web interface of the Archive Engine X: 1. $ firefox http://localhost:4912/main & and check the status of the archived PV by clicking on the links Groups -> Archive Engine X – IOC A and B 2. In the Web Browser, open a new tab and entre the URL of the second Archive Engine Y http://localhost:4914/main & and check the status of the archived PV by clicking on the links Groups -> Archive Engine Y – IOC C and D
Pass	1-2. On a virtual machine after “some” hours, there will be overruns:

Criteria	<table><tr><th>Received Values</th><th>Queue Len.</th><th>Queue Avg.</th><th>Queue Max.</th><th>Capacity</th><th>Overruns</th></tr><tr><td>648746</td><td>58</td><td>299.8</td><td>600</td><td>600</td><td>310969</td></tr><tr><td>648746</td><td>457</td><td>600.0</td><td>600</td><td>600</td><td>387463</td></tr><tr><td>648746</td><td>600</td><td>356.7</td><td>600</td><td>600</td><td>538024</td></tr></table>
	In order to know when the first overrun occurs, the log files should be checked:
	`$ cat ~/.css/archive-engine-Archive_Engine_X/console.log | grep 'overruns'`
	`2013-01-10 17:09:43.708 WARNING [Thread 32]`
	`org.csstudio.archive.engine.ThrottledLogger (log) - TEST-F001:rndmAx1: 216 overruns`
	`$ cat ~/.css/archive-engine-Archive_Engine_Y/console.log | grep 'overruns'`
	`2013-01-10 17:09:43.714 WARNING [Thread 30]`
	`org.csstudio.archive.engine.ThrottledLogger (log) - TEST-F001:rndmCx1: 134 overruns`
	As the 2 Archive Engines X & Y were started at 14:06:
	<table><tr><td>**Start Time**</td><td>2013/01/10 14:06:29</td></tr></table>
	This means in this case that the first overruns occurs after 3 hours and so the rate of 6KSamples/sec was not achieved.

	3.4.16 LOG01 – LOG: Look for any SEVERE message
Prerequisite	1. None
Test Cases	1. No SEVERE alert in the CSS log files
Procedure	In a Linux console, check the log of CSS general services: 1. $ grep -r 'SEVERE' /var/opt/codac/css/ Now check the log of the services started manually for the demo applications: 2. $ grep -r 'SEVERE' ~/.css/
Pass Criteria	1 - 2. No SEVERE messages except for: `~/.css/css/console.log:<date> SEVERE [Thread 1] org.csstudio.logging.PluginLogListener (logging) - Invalid preference page path: XML Syntax`

To terminate the tests, stop all the IOCs and the 3 demo Archive Engines. Close css and firefox:

1. $ epics> exit

From the archive engine web monitoring interface:

2-1. http://localhost:5812/stop

2-2. http://localhost:4912/stop

2-3. http://localhost:4914/stop

3. Close CSS using the menu File -> Exit. Do not save the plt configuration files.

4. $ archive-configtool -engine demo -delete_config

```
Deleted engine config 'demo'
```

5. Close firefox

3.5 Component Test Log

	3.5.1 CFG01 - Archive Configuration Import	[PASS / FAIL]
[Bug ID]	[Bug title to briefly describe the anomaly]	
Remarks		
	3.5.2 CFG02 - Archive Configuration Export	[PASS / FAIL]
[Bug ID]	[Bug title to briefly describe the anomaly]	
Remarks		
	3.5.3 ENG01 - Archive Engine Startup	[PASS / FAIL]
[Bug ID]	[Bug title to briefly describe the anomaly]	
Remarks		
	3.5.4 ENG02 - Archive Engine Monitoring	[PASS / FAIL]
[Bug ID]	[Bug title to briefly describe the anomaly]	
Remarks		
	3.5.5 ENG03 - Event Driven Archiving	[PASS / FAIL]
[Bug ID]	[Bug title to briefly describe the anomaly]	
Remarks		
	3.5.6 ENG04 - Archiving Monitor Mode	[PASS / FAIL]
[Bug ID]	[Bug title to briefly describe the anomaly]	
Remarks		

	3.5.7 DSP01 - Data Plot	[PASS / FAIL]
[Bug ID]	[Bug title to briefly describe the anomaly]	
Remarks		
	3.5.8 DSP02 - Historical Data Plot	[PASS / FAIL]
[Bug ID]	[Bug title to briefly describe the anomaly]	
Remarks		
	3.5.9 DSP03 – Plot Toolbar	[PASS / FAIL]
[Bug ID]	[Bug title to briefly describe the anomaly]	
Remarks		
	3.5.10 DSP04 – Properties Panel	[PASS / FAIL]
[Bug ID]	[Bug title to briefly describe the anomaly]	
Remarks		
	3.5.11 WEB01 – Data Plot Web Interface	[PASS / FAIL]
[Bug ID]	[Bug title to briefly describe the anomaly]	
Remarks		
	3.5.12 ENG05 - Archiving Scan Mode	[PASS / FAIL]
[Bug ID]	[Bug title to briefly describe the anomaly]	
Remarks		

	3.5.13 ENG06 - Archiving Monitor with Threshold Mode	[PASS / FAIL]
[Bug ID]	[Bug title to briefly describe the anomaly]	
Remarks		
	3.5.14 ENG07 - Archived Data Types	[PASS / FAIL]
[Bug ID]	[Bug title to briefly describe the anomaly]	
Remarks		
	3.5.15 PRF01 - 6KSamples/s archived	[PASS / FAIL]
[Bug ID]	[Bug title to briefly describe the anomaly]	
Remarks		

Software Test Plan Checklist

For Assessment of:	
Agency Name	
Project Name	
Document Name	
Date	

Criteria	Yes / No / NA
DOCUMENT STANDARDS COMPLIANCE	
1 Have standards/guidelines been identified to define the work product?	
2 Does the work product format conform to the specified standard/guideline (Template)?	
3 Has the project submitted any request for deviations or waivers to the defined work product?	
4 Have the following areas been addressed completely:	
4a Approval authority?	
4b Revision approval?	
4c Revision control?	
TECHNICAL REFERENCE	
5 Is there evidence that the work product was reviewed by all stakeholders?	
6 Have acceptance criteria been established for the work product?	
7 Does the work product have a clearly defined purpose and scope?	
8 Are references to policies, directives, procedures, standards, and terminology provided?	
9 Does the work product identify any and all constraints/limitations?	
S/W TEST PLAN CONTENTS	
10 Does the S/W Test Plan address the following required information:	
10a Test levels?	
10b Test types (e.g., unit testing, software integration testing, systems integration testing, end-to-end testing, acceptance testing, regression testing)?	
10c Test classes?	
10d General test conditions?	
10e Test progression?	
10f Data recording, reduction, and analysis?	
10g Test coverage (breadth and depth) or other methods for ensuring sufficiency of testing?	
10h Planned tests, including items and their identifiers?	
10i Test schedules, Requirements traceability (or verification matrix)?	

Criteria	Yes / No / NA
10j Qualification testing environment, site, personnel, and participating organizations?	
11 Does the S/W Test Plan identify the environmental exposure as well as requirements for comprehensive, functional, aliveness, end-to-end, and mission simulation testing?	
12 Does the S/W Test Plan provide a System Overview that describes the unique complexities of the system?	
13 Does the S/W Test Plan address user guide, operations / maintenance validation?	
16 Does the S/W Test Plan identify any elements that will not be tested according to the test plan (e.g., externally developed software)?	
17 Does the S/W Test Plan address software architecture in terms of which software components will be based on heritage and which will be mostly or entirely new developments?	
18 Does the S/W Test Plan identify any software reuse? If so, is the extent of reuse or the anticipated modification described?	
S/W TEST ENVIRONMENT	
19 Does the S/W Test Plan include a figure of each system test environment? If so, does it reflect the system hardware approach, simulators, and special development?	
20 Does the S/W Test Plan identify specific test hardware and simulators for each external interface?	
TEST TOOLS	
21 Does the S/W Test Plan address test execution tools?	
TEST PROBLEM REPORTING & CORRECTIVE ACTION	
22 Does the S/W Test Plan provide a description of the problem reporting system to be used by the test team to report problems and/or recommended changes cited during the test activities?	
TEST PROGRESS PLANNING & TRACKING	
23 Does the S/W Test Plan describe the routine test progress reporting approach?	
24 Does the S/W Test Plan describe the Build Test verification methodology? If so, does the description address build verification test level objectives, environment, roles & responsibilities, entry/exit criteria, general guidelines, build test planning, build test scenario development, build test procedure preparation & dry run, build test execution, reporting, and archiving?	