



SAVE & RESTORE

Status & Demonstration



Agenda

- **Introduction**
- **Discussion**
- **Demonstration**



Save and Restore: Objectives

- **SAVE:** ability to backup the current values of the control system **data points**
- **EDIT:** ability to adjust these values
- **RESTORE:** ability to set them back to the control system
- **REPORT:** ability to check the status of save/restore operations



Java DOOCS Client

- Successor of the old “Save&Restore” tool (Solaris based) **AND** it is capable to:
 - export/import configurations from old “Save&Restore” tool
 - browse the address space of any DOOCS server
 - monitor DOOCS data points (so called „DOOCS properties“)
 - Create/edit/save/open list of data points
 - search data points by various criteria (by name, type, etc.)
 - dump current values into text file
 - provides cut/copy/paste operations

- Available at Java WebStart:

<https://www-zeuthen.desy.de/pitz/apps/jaws/jdclient/jdclient.jnlp>

- And via command line (on Linux hosts):

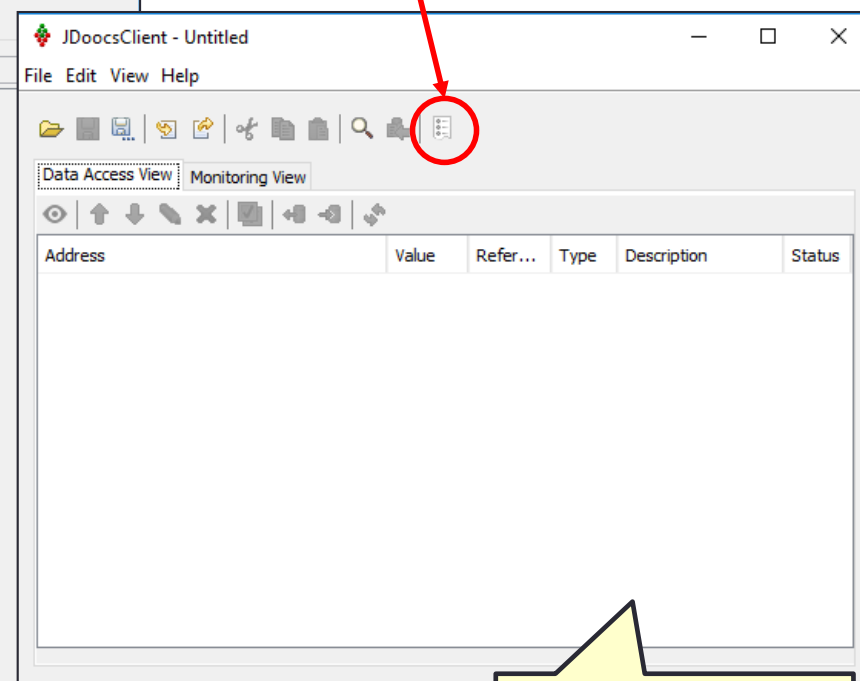
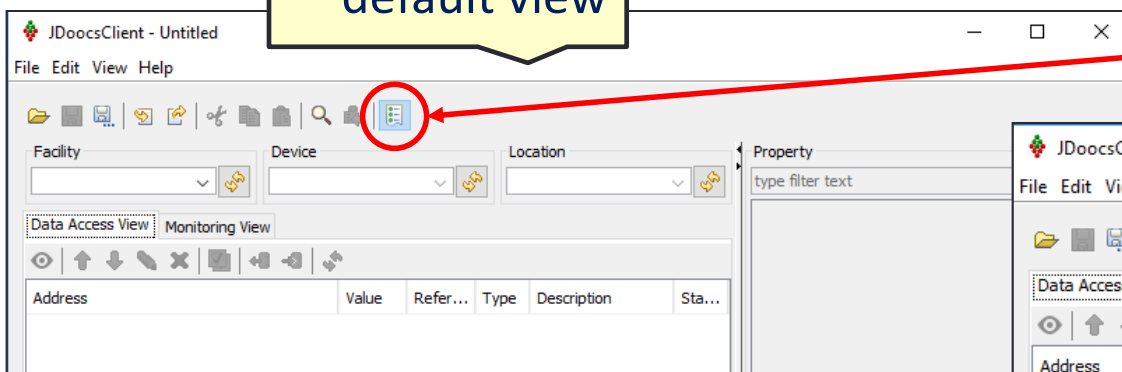
```
> jdclient
```



Java DOOCS Client

default view

Switch between default and compact views



compact view

Address	Value	Reference	Type	Description	Status
PITZ.UTIL/MEMORY/TEST_PROP_2/ALARM_COM	0	0	Integer	command to lock alarm	●
PITZ.UTIL/MEMORY/TEST_PROP_2/ALIAS			String	device name	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT1	true	true	Boolean	bit	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT1.DESC	bla	bla	String	description	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT10	true	true	Boolean	bit	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT10.DESC	BerlString6	BerlString6	String	description	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT11	true	true	Boolean	bit	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT11.DESC			String	description	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT12	false	false	Boolean	bit	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT12.DESC			String	description	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT13	true	true	Boolean	bit	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT13.DESC			String	description	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT14	false	false	Boolean	bit	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT14.DESC			String	description	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT15	true	true	Boolean	bit	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT15.DESC			String	description	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT2	true	true	Boolean	bit	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT2.DESC			String	description	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT3	true	true	Boolean	bit	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT3.DESC			String	description	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT4	true	true	Boolean	bit	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT4.DESC			String	description	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT5	true	true	Boolean	bit	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT5.DESC	Hello Marc	Hello Marc	String	description	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT6	true	true	Boolean	bit	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT6.DESC			String	description	●
PITZ.UTIL/MEMORY/TEST_PROP_2/BIT7	false	false	Boolean	bit	●

Total: 102

started with "input.file" argument



jdclient: save/open configuration

The screenshot shows the JDooocsClient application window with the following table:

Address	Value	Reference	Type	Description	Status
PITZ.UTIL/DTBASE/VARIABLES/VALUE_28	0.0		Float		●
PITZ.UTIL/MEMORY/TEST_PROP_0/INT4	16777215	16777215	Integer		●
PITZ.UTIL/MEMORY/TEST_PROP_0/FL3	6.0	0.0	Float		●

A callout box points to the status column, containing the text: **read | write statuses** with a small icon of a traffic light (red, yellow, green).

Total: 3

Each data point contains:

- **current value** - monitored
- **reference value** – saved/loaded

Save operation: persists list of the data points into XML configuration file (with the “reference” values only)

Open operation: loads the list of the data points from the configuration files.



jdclient: edit

Edit operation:

- updates selected **current value** (overwrites it on the server)
- changes **reference value** (by save operation, updates them in the configuration file)

The screenshot shows the JDooCSClient application window titled "JDooCSClient - smac_gun_test.xml *". The interface includes a menu bar (File, Edit, View, Help), a toolbar, and two tabs: "Data Access View" and "Monitoring View". A red circle highlights the "Edit" icon in the toolbar. A dialog box titled "Edit 'PITZ.UTIL/MEMORY/TEST_PROP_0/FL3' property" is open, displaying the following fields:

Name	Type
FL3	Float
Description	
Value	6.0
Reference	0.0
Hostname	picus2.ifh.de

Buttons for "OK" and "Cancel" are visible at the bottom of the dialog. The background window shows a table with columns "Address" and "Status". The status column contains green circles, and the selected row is highlighted in blue. The status bar at the bottom of the window reads "Total: 3 | Selected: 1 | Host: picus2.ifh.de".



jdclient: save values

Set current to reference:

- copies selected **current values** to the **reference values** (and then, by save operation, updates them in the configuration file)

The screenshot shows the JDooocsClient application window titled "JDooocsClient - smac_gun_test.xml *". The interface includes a menu bar (File, Edit, View, Help) and a toolbar with various icons. Below the toolbar, there are two tabs: "Data Access View" and "Monitoring View". The "Monitoring View" is active, displaying a table with columns: Address, Value, Reference, Description, and Status. The table contains three rows of data. The third row is selected, and a red circle highlights a button in the toolbar labeled "Set selected DOOCS values to the references".

Address	Value	Reference	Description	Status
PITZ.UTIL/DTBASE/VARIABLES/VALUE_28	0.0		Float	●
PITZ.UTIL/MEMORY/TEST_PROP_0/INT4	16777215	16777215	Integer	●
PITZ.UTIL/MEMORY/TEST_PROP_0/FL3	6.0	0.0	Float	●

Total: 3 | Selected: 1 | Host: picus2.ifh.de



jdclient: restore values

Set reference to current:

- copies selected **reference values** to the **current values** (overwrites them on the server)

JDooCsClient - smac_gun_test.xml *

File Edit View Help

Data Access View Monitoring View

Address	Value	Reference	Type	Status
PITZ.UTIL/DTBASE/VARIABLES/VALUE_28	0.0		Float	●
PITZ.UTIL/MEMORY/TEST_PROP_0/INT4	16777215	16777215	Integer	●
PITZ.UTIL/MEMORY/TEST_PROP_0/FL3	6.0	0.0	Float	●

JDooCsClient

⚠ Current property values would be overwritten by the reference values !
WARNING: this will cause the loss of original values on the server.

Do you want to proceed?

Proceed Cancel

Total: 3 | Selected: 1 | Host: picus2.ifh.de



jdclient: search

JDoocsClient - Untitled *

File Edit View Help

Data Access View Monitoring View Search DOOCS properties

Address	Value
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT1	true
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT2	true
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT3	true
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT4	true
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT5	true
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT6	true
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT7	false
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT8	true
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT9	false
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT1	true
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT2	true
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT3	true
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT4	true
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT5	true
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT6	true
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT7	false
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT8	true
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT9	false

Total: 18

Search DOOCS properties

Enter your search criteria, then press "Search" button ...

Address patterns (separated by comma)

Facility(s):

Device(s):

Location(s): *PROP_1, *PROP_3

Property(s): BIT?
(* = any string, ? = any character)

Host name patterns (separated by comma)

(* = any string, ? = any character)

Options

Regular expression

Data type(s)

SelectAll DeselectAll Select primitives

Boolean boolean[] byte[]

DF1[] DIFFF DIIII

DNAME16[] DNAME32[] DNAME64[]

Double double[] DSPECTRUM

DSTRING16 DTDS DTDS[]

DTDSFLOAT DTDSINT DTEXT

DTS_USTR[] DTTII DUSTR

DUSTR[] DXML DXY

DXY[] Float float[]

int[] Integer long[]

NullType Short short[]

String

Search Cancel



jdclient: dump

JDoocsClient - Untitled *

File Edit View Help

Data Access View Monitoring View **Dump DOOCS properties to file**

Dump properties to file

Dump 18 properties to file ...

\\win.desy.de\home\mdavid\My Documents\test_save_restore_dump.txt

Description Type Value

OK Cancel

Address	Value	Reference
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT1	true	
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT2	true	
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT3	true	
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT4	true	
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT5	true	
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT6	true	
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT7	false	
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT8	true	
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT9	false	
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT1	true	Boolean bit
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT2	true	Boolean bit
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT3	true	Boolean bit
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT4	true	Boolean bit
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT5	true	Boolean bit
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT6	true	Boolean bit
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT7	false	Boolean bit

PITZ.UTIL/MEMORY/TEST_PROP_1/BIT1	"bit"	Boolean	true
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT2	"bit"	Boolean	true
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT3	"bit"	Boolean	true
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT4	"bit"	Boolean	true
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT5	"bit"	Boolean	true
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT6	"bit"	Boolean	true
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT7	"bit"	Boolean	false
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT8	"bit"	Boolean	true
PITZ.UTIL/MEMORY/TEST_PROP_1/BIT9	"bit"	Boolean	false
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT1	"bit"	Boolean	true
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT2	"bit"	Boolean	true
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT3	"bit"	Boolean	true
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT4	"bit"	Boolean	true
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT5	"bit"	Boolean	true
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT6	"bit"	Boolean	true
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT7	"bit"	Boolean	false
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT8	"bit"	Boolean	true
PITZ.UTIL/MEMORY/TEST_PROP_3/BIT9	"bit"	Boolean	false



jdclient: dump

JDocsClient - Untitled *

File Edit View Help

Data Access View Monitoring View

Import DOOCS Save&Restore File

Look in: Documents

Recent Items

Desktop

Documents

This PC

Network

File name: test_save_restore.sr

Files of type: DOOCS Save&Restore File

Status

test_save_restore.sr

```
//Save_& Restore//
<Logbook: >
;
Tue Jan 15 21:00:28 CET 2019
;
PITZ.UTIL MEMORY TEST_PROP_2 BIT1 4 true ;
PITZ.UTIL MEMORY TEST_PROP_2 BIT10 4 true ;
PITZ.UTIL MEMORY TEST_PROP_2 BIT11 4 true ;
PITZ.UTIL MEMORY TEST_PROP_2 BIT12 4 true ;
PITZ.UTIL MEMORY TEST_PROP_2 BIT13 4 true ;
PITZ.UTIL MEMORY TEST_PROP_2 BIT14 4 true ;
PITZ.UTIL MEMORY TEST_PROP_2 BIT15 4 true ;
PITZ.UTIL MEMORY TEST_PROP_2 BIT2 4 true ;
PITZ.UTIL MEMORY TEST_PROP_2 BIT3 4 true ;
PITZ.UTIL MEMORY TEST_PROP_2 BIT4 4 true ;
PITZ.UTIL MEMORY TEST_PROP_2 BIT5 4 true ;
PITZ.UTIL MEMORY TEST_PROP_2 BIT6 4 true ;
PITZ.UTIL MEMORY TEST_PROP_2 BIT7 4 true ;
PITZ.UTIL MEMORY TEST_PROP_2 BIT8 4 true ;
PITZ.UTIL MEMORY TEST_PROP_2 BIT9 4 true ;
```

Total: 15



Discussion: Save and Restore

- **SAVE:** ability to persist the current values of the control system **data points**
- **EDIT:** ability to edit these values
- Supports **DOOCS data points** (properties) only
- Supports **primitive** data types only (boolean, int, float, string, etc.)



Discussion: Save and Restore

- **RESTORE:** ability to apply them to the current values
- **REPORT:** ability to check the status of restore operation
- **w/o retrying procedure** (e.g. in case of failure, try to retry a command)
- **w/o ordering**
- **w/o condition handling** (e.g. do not set A property until B is equal to some value)
- **w/o validation procedure** (e.g. check whether value is **really** applied)
- **w/o delayed validation** (e.g. waiting until readback value reached setpoint value)
- **w/o reporting**



Discussion: Save and Restore

Possible solutions:

- **Extend/improve JDoocsClient** with some (relative simple to implement) features like ordering, reporting... ?
- **Use “Sequencer” from DESY HH ?**
- **Design and develop completely new tool (w/o GUI) from scratch, based on (build) automation tools** like Gradle, maven, Jenkins etc.?
- **Scripting environment? Templates? In Groovy, Kotlin, Jpython, etc.. ?**

We need to understand and describe:

- **requirements specifications**
- **use cases**



Demonstration JDoocsClient

Create list of properties

- By browsing the DOOCS address namespace
- By “search”
- Import from old save&restore file
- With “copy and paste”



Demonstration JDoocsClient

- 1. Save current values as reference values**
- 2. Open saved configuration**
- 3. Restore values from reference values**
- 4. Compare current and reference values**
- 5. Start jdclient with “input.file” argument**