



**2003**  
OSISOFT USERS CONFERENCE

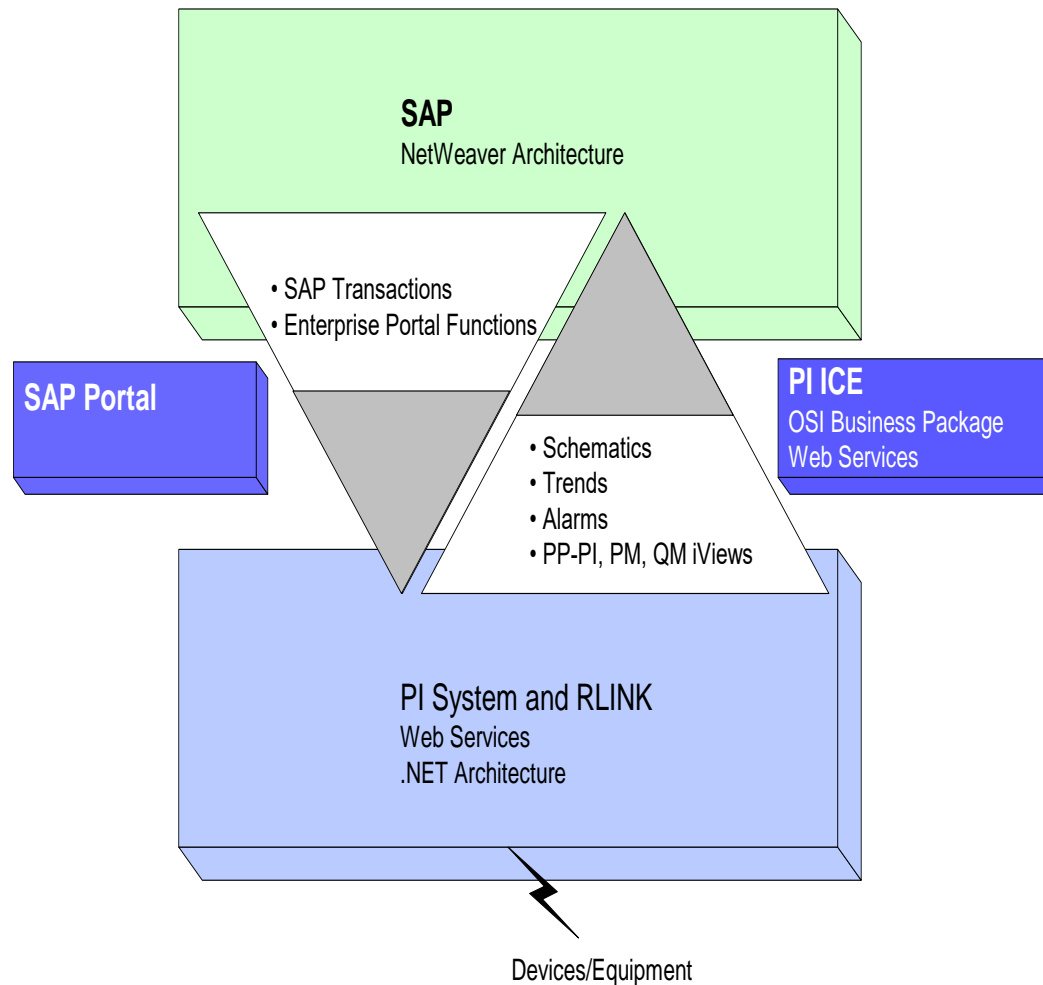
RTMPM

***SAP Integration SAP Portal,  
PP-PI, MM, PM, QM, and more!***

*Gretchen Schwenger, PhD.*



# SAP Portal and PI ICE

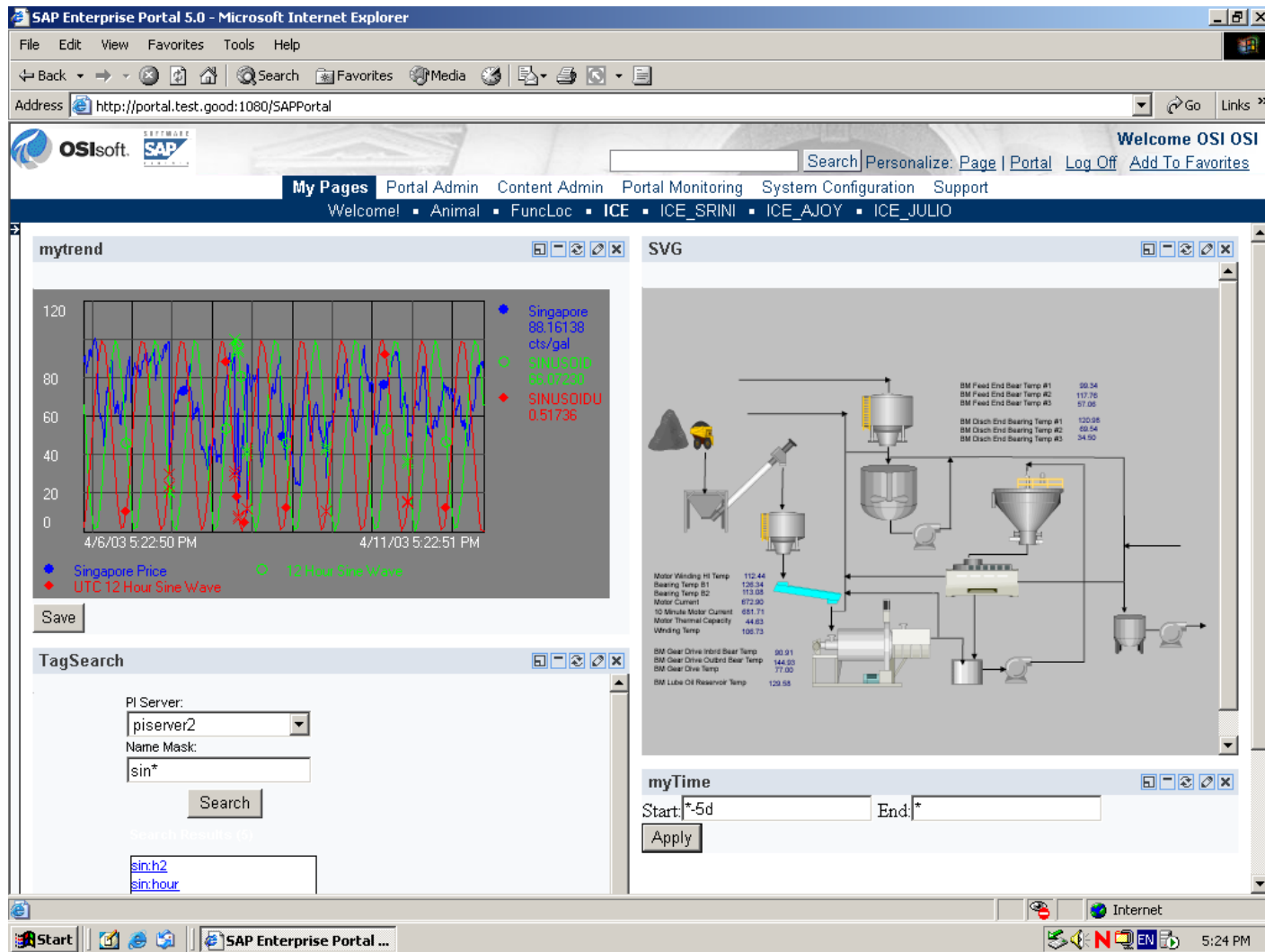


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# OSIsoft SAP Portal Business Package





# Terminology

- *SAP NetWeaver Architecture*
- *SAP Web Application Server J2EE, Active Directory, SQLServer, Java Runtime, JBuilder (Microsoft .Net, Websphere)*
- *SAP Windows GUI or HTML GUI*
- *iView*
  - *Java*
  - *.NET*
- *Single Sign On*
- *Roles*
- *Eventing*
- *Design Customization and Personalization*
- *Drag and Relate*
- *Unification*





# SAP Portal RLINK-ICE-TEA and PI-ICE

**SAP Portals Enterprise Portal 5.0 - Microsoft Internet Explorer**

File Edit View Favorites Tools Help Links

**SAP** **OSIsoft** Welcome, OSI Search Personalize: Page Portal

Vip My Pages Employee Self Service Portal Admin Content Admin KM Admin Portal Monitoring System Configuration SSC Demo Utility

Back to Operating Data **Operating Data** Home Work ID Plan&Sched Shop Floor Programs Reporting Workbench SAP

**Desulfurization Flue Gas** LogOut Publish Adhoc Trend Content Layout Settings

**PI Graphic** - <http://schwenzerlaptop/davcatalog/ice/public/icedata/flue gas desulfurization plant.svg>

**PMTagSearch**

Plant: 1101 1101 Unit: 1 Entire plant Functional Location: 15-BM-11 Go

15-BM-11  
E1010  
EX1-101  
PM1-CE1-RX1

Group Description: 15-BM-11

Equipment & Alarm Info

Group Description	Group Type	GroupNum
15-BM-11	EQUIP	11
TE-1516-A1	ALARM	11

Tag Info..

Tag ID	Tag Alias
cen00sc-te-1517-a1	
cen00sc-te-1517-a2	
cen00sc-te-1517-a3	
cen00sc-te-1516-a1	
cen00sc-te-1516-a2	

**PI Graphic** - <http://schwenzerlaptop/davcatalog/ice/public/icedata/flue gas desulfurization plant.svg>

Motor Winding HI Temp: 105.41  
Bearing Temp B1: 101.82  
Bearing Temp B2: 150.56  
Motor Current: 95.60  
10 Minute Motor Current: 649.40  
Motor Thermal Capacity: 36.85  
Winding Temp: 223.64

BM Feed End Bear Temp #1: 48.15  
BM Feed End Bear Temp #2: 58.84  
BM Feed End Bear Temp #3: 101.43  
BM Disch End Bearing Temp #1: 104.51  
BM Disch End Bearing Temp #2: 82.56  
BM Disch End Bearing Temp #3: 120.47

BM Gear Drive Inbrd Bear Temp: 90.46  
BM Gear Drive Outbrd Bear Temp: 89.55  
BM Gear Drive Temp: 126.92  
BM Lube Oil Reservoir Temp: 68.28

**PMAlarm**

PMTagSearch

Local intranet 11:57 AM



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# PI-ICE, RLINK-ICE-TEA and SAP Portal

SAP Portals Enterprise Portal 5.0 - Microsoft Internet Explorer

Welcome, OSI

Search Personalize: Page Portal

Vip My Pages Employee Self Service Portal Admin Content Admin KM Admin Portal Monitoring System Configuration SSC Demo Utility

Back to Operating Data Operating Data Home Work ID Plan&Sched Shop Floor Programs Reporting Workbench SAP

Equipment & Alarm Info

Group Description	Group Type	GroupNum
15-BM-11	EQUIP	1
TE-1516-A1	ALARM	1

Tag Info..

Tag ID	Tag Alias
cen00sc-te-1517-a1	
cen00sc-te-1517-a2	
cen00sc-te-1517-a3	
cen00sc-te-1516-a1	
cen00sc-te-1516-a2	

Refresh Add

Trend

BM Disch End Bearing Temp #2  
BM Disch End Bearing Temp #3  
BM Disch End Bearing Temp #1

Motor Winding Ht Temp 105.41  
Bearing Temp B1 101.44  
Bearing Temp B2 150.56  
Motor Current 65.60  
10 Minute Motor Current 649.40  
Motor Thermal Capacity 37.30  
Winding Temp 223.64

BM Gear Drive Inbrd Bear Temp 90.46  
BM Gear Drive Outbrd Bear Temp 89.55  
BM Gear Drive Temp 126.52  
BM Lube Oil Reservoir Temp 88.26

PMAAlarm

PMTagSearch  
Trend

Plant All Plants Unit All Units

Functional Location 15-BM-11 Go

R3 Alarm Details

Date Time (mm/dd/yyyy)	Measurement Point	Functional Location	Notification	Short Text
09/13/2002 09:54:00	TE-1516-A1	15-BM-11		Temp Exceeded
09/12/2002 13:52:30	TE-1516-A2	15-BM-11		Temp Exceeded
09/12/2002 09:40:30	TE-1516-A2	15-BM-11		Temp Exceeded
09/11/2002 15:20:51	TE-1516-A1	15-BM-11		Temp Exceeded
09/11/2002 13:12:54	TE-1516-A2	15-BM-11		Temp Exceeded
09/11/2002 12:54:35	TE-1516-A1	15-BM-11		Temp Exceeded
09/11/2002 12:25:19	TE-1516-A1	15-BM-11		Temp Exceeded
09/11/2002 12:15:00	TE-1516-A3	15-BM-11		Temp Exceeded
09/11/2002 12:04:27	TE-1516-A3	15-BM-11		Temp Exceeded

R3 Alarm Values

Recorded value	Unit	Catalog	Code Group	Valuation Code
100.1585				

Local intranet

Start | Internet Explorer | SAP | PI... | Del... | PD... | SA... | pla... | db... | Psr... | D:\... | Mic... | 11:59 AM

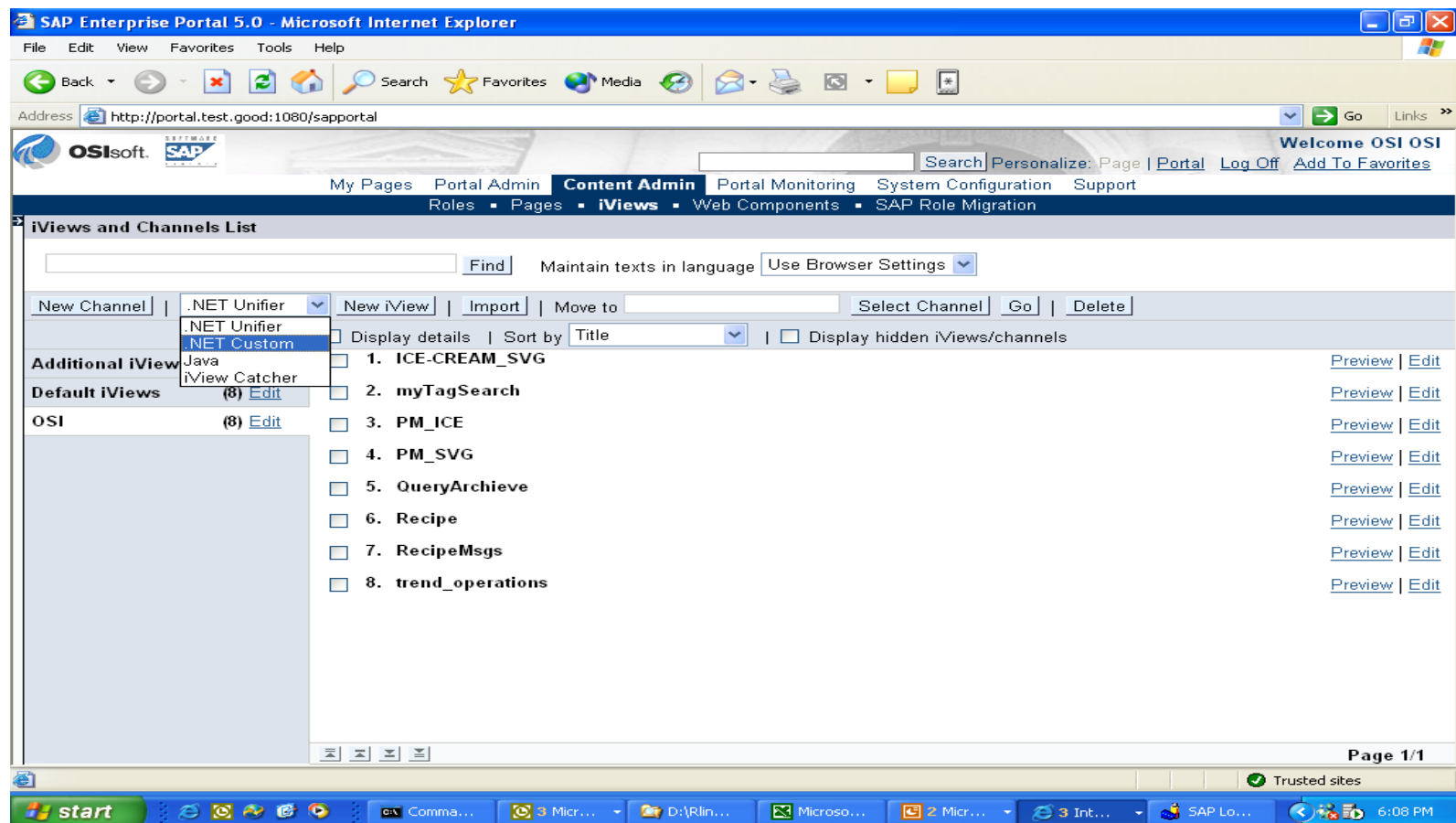


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# Types of iViews in the SAP Portal

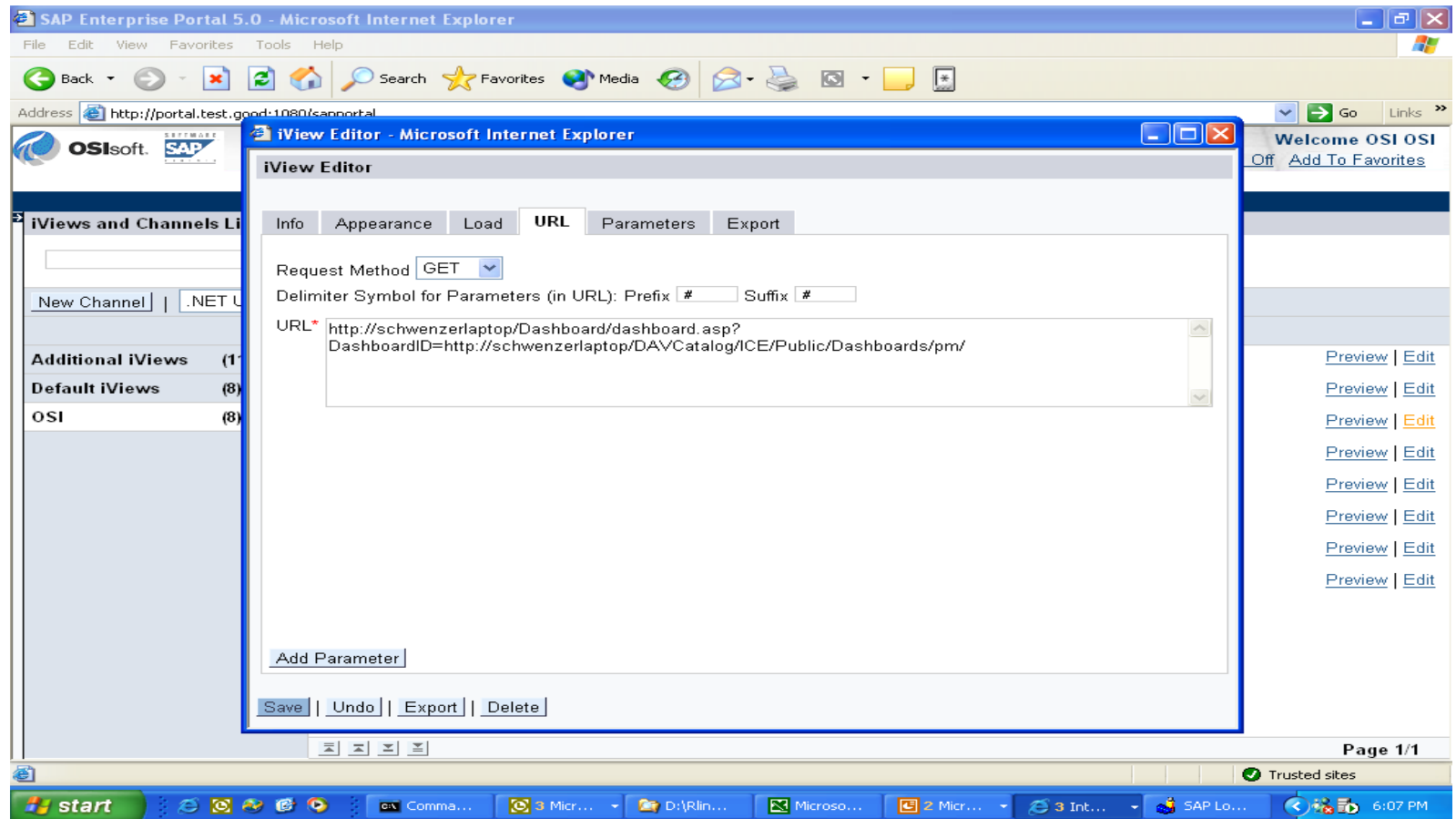


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# Integration of PI ICE as .NET Custom iView

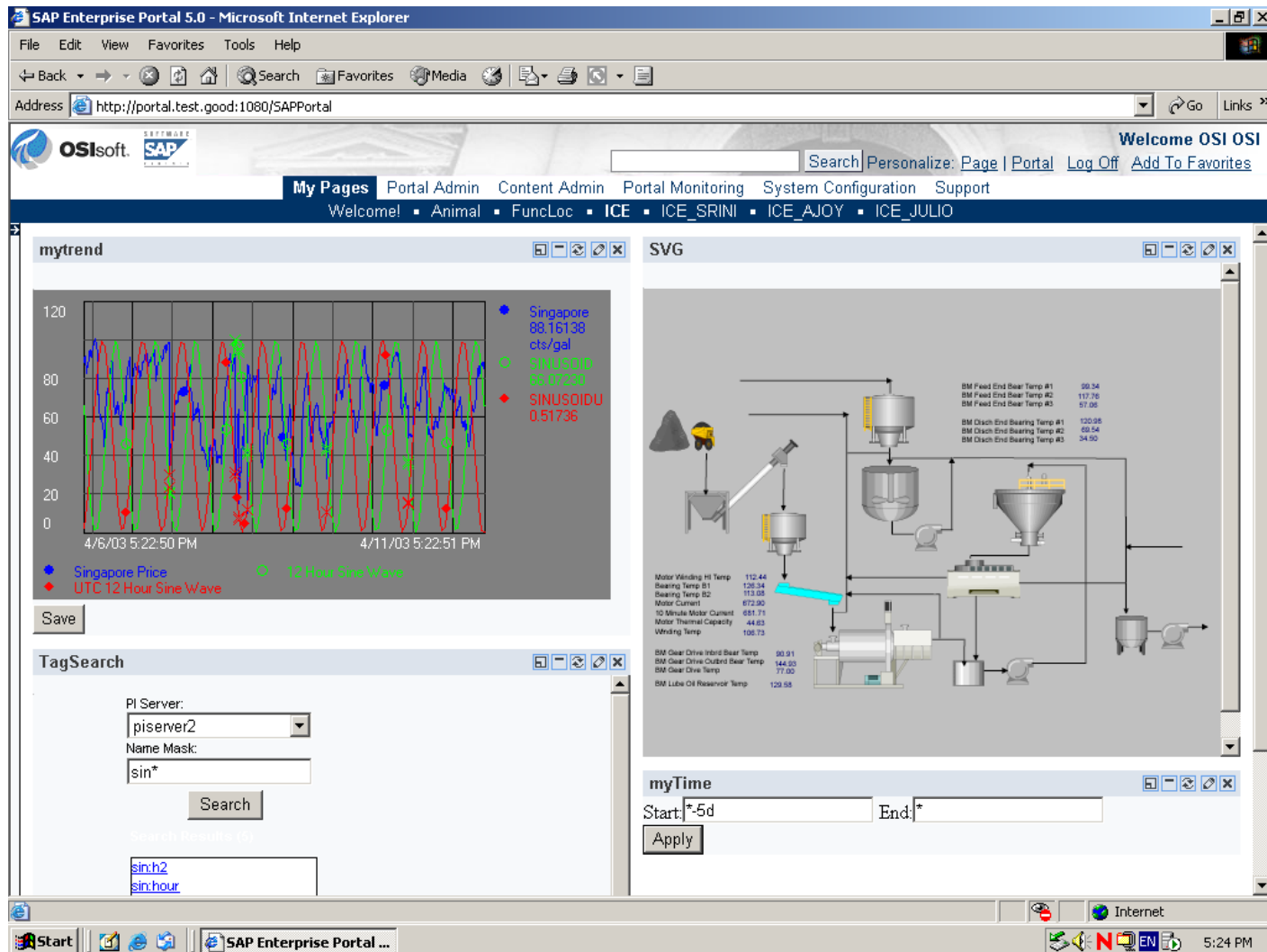


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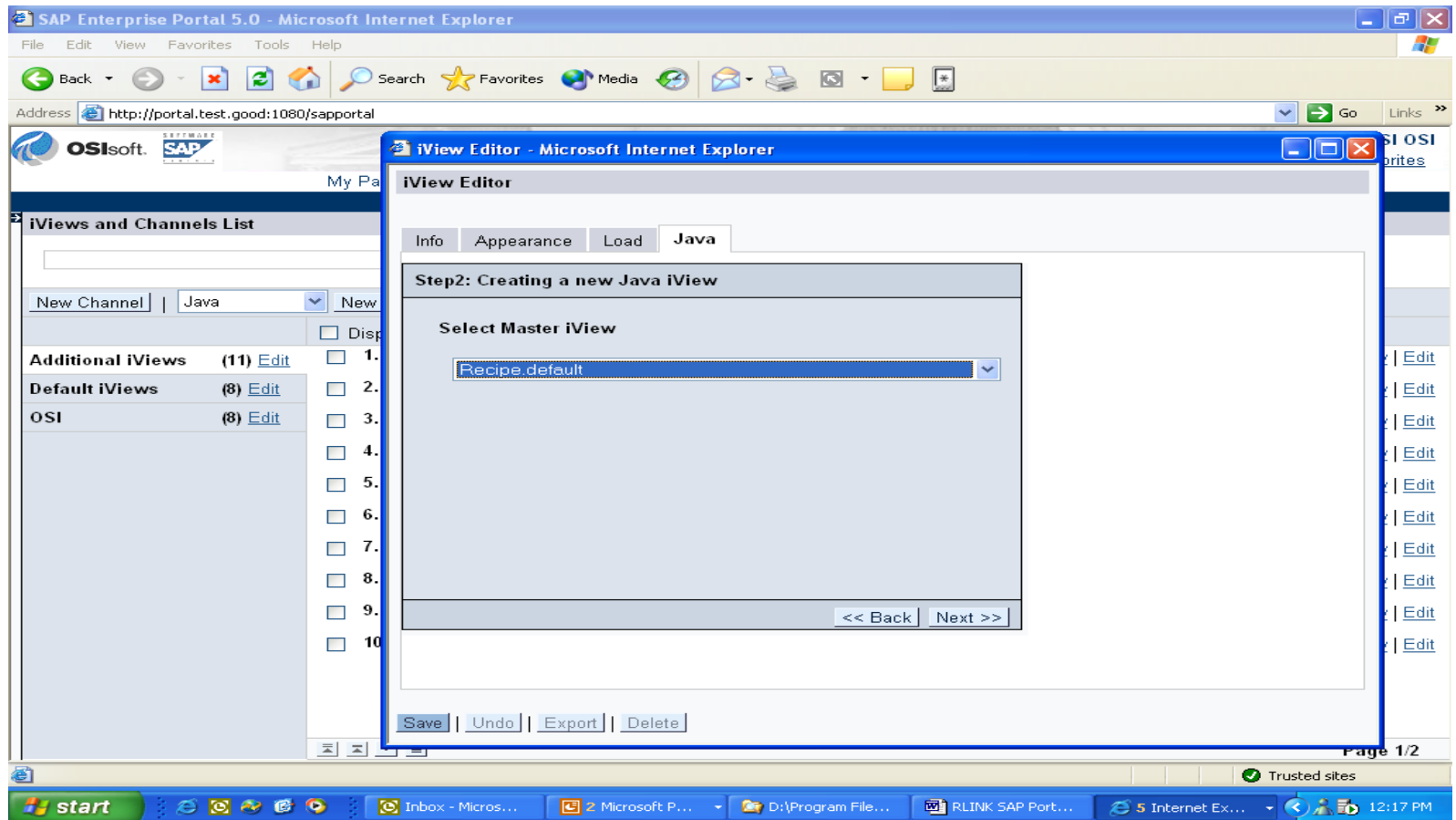


# RLINK SAP Portal Business Package





# Java iViews for Business Package



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# Page Definition for SAP Portal

**SAP Enterprise Portal 5.0 - Microsoft Internet Explorer**

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media

Address <http://portal.test.good:1080/sapportal> Go Links

**OSIsoft** **SAP** **Enterprise Portal**

Welcome OSI OSI

My Pages Portal Admin **Content Admin** Portal Monitoring System Configuration Support

Roles Pages iViews Web Components SAP Role Migration

**Page Editor**

Info **Content** Layout Export Close

Find Maintain texts in language Use Browser Settings Apply

**Channel List**

**iView List**

☐ Display details | Sort by Title | ☐ Display hidden iViews/channels | Display All

		Lock	Visible	Preview
<input checked="" type="checkbox"/> 1. ICE-CREAM_SVG		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<a href="#">Preview</a>
<input type="checkbox"/> 2. myTagSearch		<input type="checkbox"/>	<input type="checkbox"/>	<a href="#">Preview</a>
<input type="checkbox"/> 3. PM_ICE		<input type="checkbox"/>	<input type="checkbox"/>	<a href="#">Preview</a>
<input type="checkbox"/> 4. PM_SVG		<input type="checkbox"/>	<input type="checkbox"/>	<a href="#">Preview</a>
<input type="checkbox"/> 5. QueryArchive		<input type="checkbox"/>	<input type="checkbox"/>	<a href="#">Preview</a>
<input checked="" type="checkbox"/> 6. Recipe		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<a href="#">Preview</a>
<input checked="" type="checkbox"/> 7. RecipeMsgs		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<a href="#">Preview</a>
<input type="checkbox"/> 8. trend_operations		<input type="checkbox"/>	<input type="checkbox"/>	<a href="#">Preview</a>

Page 1/1

<http://portal.test.good:1080/SAPPortal/IE/media/OSIPartner/Images/>

start Inboxes - Micros... 2 Microsoft P... D:\Program File... RLINK SAP Port... 3 Internet Ex... 12:18 PM

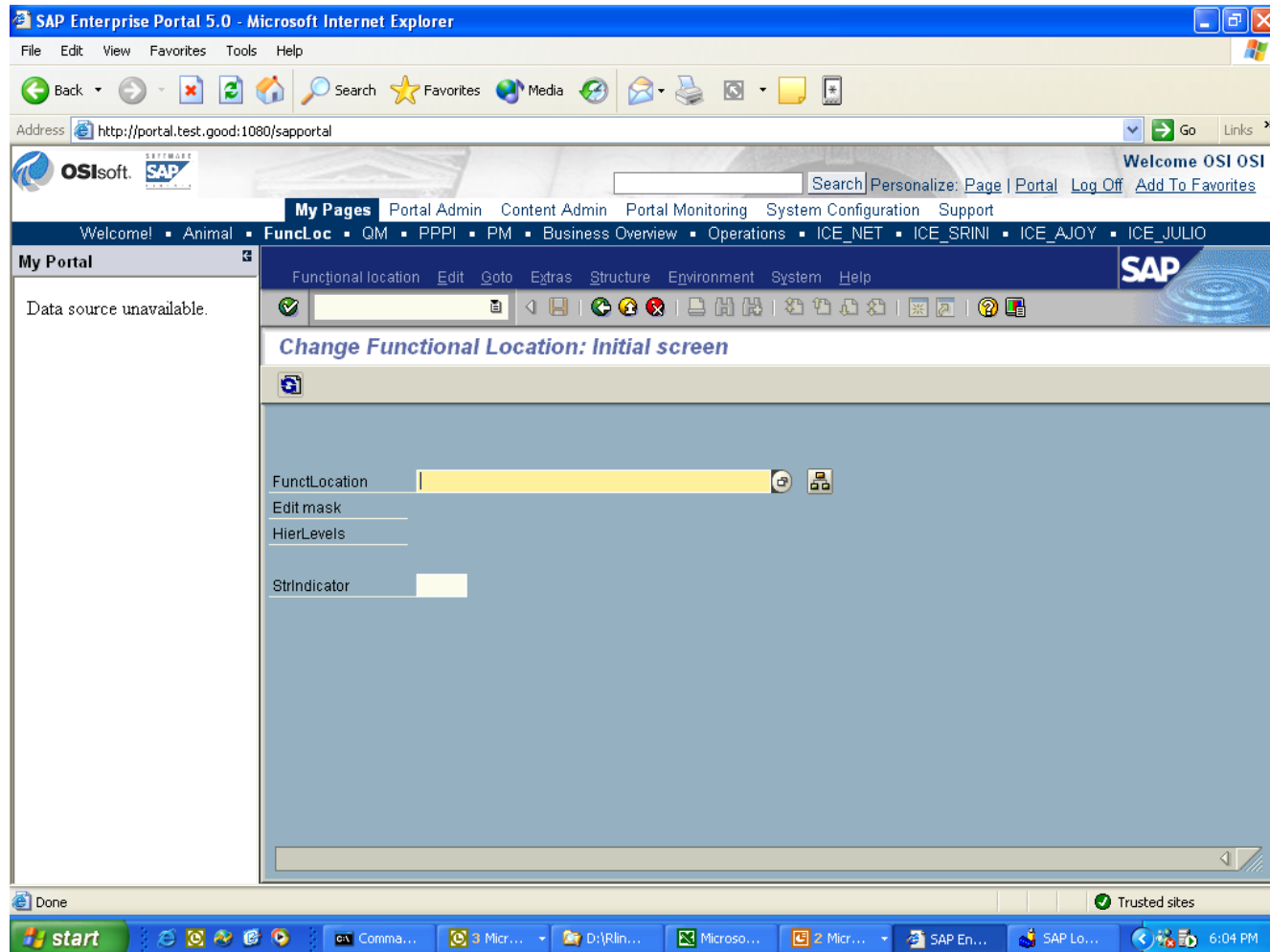


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# iPanel and SAP Transaction





# **RLINK Business Package for SAP Portal**

# **PI ICE and RLINK-ICE- TEA as .NET iView in SAP Portal**

- *Integrates with other iViews*
- *SAP eventing with other iViews*
- *Look and Feel similar to other iViews*
- *Drag and Relate to iPanel*
- *Need to create new iView or each Trend, SVG etc. properties are stored with iView*
- *May be limited by administration to customization of content*

- *Flexible customization of the screen by the end user*
- *Drag and drop of values between web parts*
- *Dynamically change content*
- *Copy and paste to iPanel*



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# Business Package

# xAPP

- *Certification*
- *Downloadable from SAP site*
- *Selling license to ICE and RLINK*
- *Customer incorporates into many applications*
- *We fix scope and definition*
- *Defined application*
- *Approved application by SAP*
- *Fixed scope resolved with SAP*
- *Marketing announcements by SAP*
- *SAP uses to sell seats to portal*



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# Advantages

- *Certified by SAP*
- *Vendor Supported*
- *High performance thru-put with OSI web services*
- *Scales*
- *Knowledge of integration between SAP and OSIsoft encapsulated*





# RLINK-ICE-TEA (To Enterprise Applications) Relational Data Access

The image displays two overlapping web browser windows from the early 2000s. The background window is titled "TableProperty Configuration - Microsoft Internet Explorer" and shows a form for configuring a table. The foreground window is titled "Myqueries - Microsoft Internet Explorer" and shows a query configuration interface.

**TableProperty Configuration - Microsoft Internet Explorer**

Table:

Go | << | < | > | >> |

Title:

DataBase server:

DataBase:

OleDb Provider:

Refresh Interval:

Records per page:

☐ Table border

**Myqueries - Microsoft Internet Explorer**

Queries

Table

SQL/Stored Procedure (eg., select \* from table for xml auto,xmldata)

Parameter defined SQL/Stored Procedure (eg., select \* from table where fieldname = #P1 for xml auto,xmldata)

☒ Use Parameter

Export Query Show Column

Column names

>

Selected column names

Clear Save Alias Execute

SQL7Table



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# Two Methods to Filter Your Data Request

Myqueries - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://schwenzerlaptop/Dashboard/dashboard.asp?DashboardID=http://schwenzerlaptop/DAVCatalog/ICE/Public/Dashboards/Myqueries/

Myqueries LogOut | Publish | Adhoc Trend | Content | Layout | Settings

Queries

Table

1100

Filter Load Default

plant	plant_description
0001	QM Plant
1100	Berlin
1101	1101
1200	BATCH PI
1300	BATCH PID

|<< < > >>|

SQL7Table

Go |<< < > >>|

Myqueries - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://schwenzerlaptop/Dashboard/dashboard.asp?DashboardID=http://schwenzerlaptop/DAVCatalog/ICE/Public/Dashboards/Myqueries/

Myqueries LogOut | Publish | Adhoc Trend | Content | Layout | Settings

Queries

Table

1100

plant	plant_description
1100	Berlin

Go |<< < > >>|

SQL7Table

Go |<< < > >>|



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# Query Library

Maximo - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media Print Links

Address http://schwenzerlaptop/Dashboard/dashboard.asp?DashboardID=http://schwenzerlaptop/DAVCatalog/ICE/Public/Dashboards/Maximo/ Go

Maximo Maximo2 Maximor2

Queries

Queries  
Maximor WorkOrders

Query Description:  
Maximo WorkOrder

Column Query:  
select \* from workorder for xml auto,xmldata

Data Query:  
select \* from workorder  
where eqnum=#P2 for xml auto,xmldata

CreatedBy:  
GRETCHEN

CreateDate: 12/10/2002 13:29:13 ModifiedDate:

Clear Add Edit

December 2002

id	description	Sun	Mon	Tue	We
1	default query				
2	default query	24	25	26	2
3	default query	1	2	3	
		8	9	10	1
		15	16	17	1
		22	23	24	2
		29	30	31	

Maximor WorkOrders

SQL Stored Procedure (eg, select \* from table for xml auto,xmldata)  
select \* from workorder for xml auto,xmldata

done

Start Pu... Q... Co... D:... P... Co...

Maximo - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media Print Links

Address http://schwenzerlaptop/Dashboard/dashboard.asp?DashboardID=http://schwenzerlaptop/DAVCatalog/ICE/Public/Dashboards/Maximo/ Go

Maximo Maximo2 Maximor2

LogOut | Publish | Adhoc Trend | Content | Layout | Settings

Queries

Queries  
Maximor WorkOrders

Query Description:  
Maximo WorkOrder

Column Query:  
select \* from workorder for xml auto,xmldata

Data Query:  
select \* from workorder  
where eqnum=#P2 for xml auto,xmldata

CreatedBy:  
GRETCHEN Schwenzer

CreateDate: 12/10/2002 13:34:03 ModifiedDate: 12/10/2002 13:34:18

Clear Add Edit Delete Export

id	description	author	createdate
1	default query	GRETCHEN	12/09/2002 16:00:03
2	default query	GRETCHEN	12/10/2002 11:53:19
3	Maximo WorkOrder	GRETCHEN Schwenzer	12/10/2002 13:34:03

Maximor WorkOrders

SQL Stored Procedure (eg, select \* from table for xml auto,xmldata)  
select \* from workorder for xml auto,xmldata

done

Start Pu... Q... Co... D:... P... Co... Re... M...

Local intranet 1:34 PM



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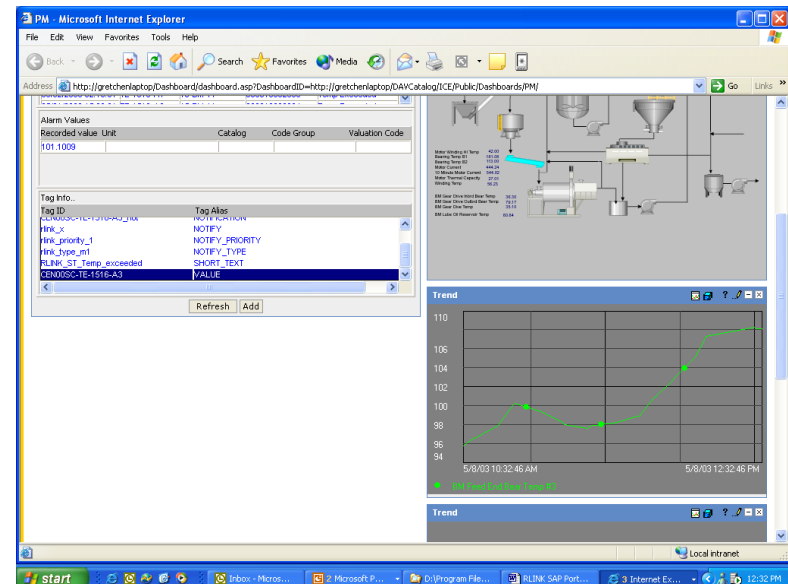
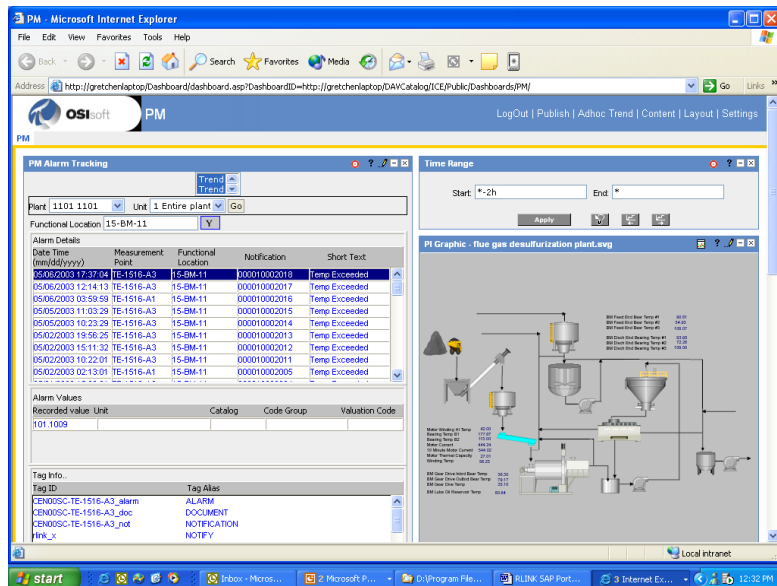


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# PM Alarm WebPart and iView



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# PM Functional Location Search Web Part and iView

The screenshot shows a web browser window titled "PM - Microsoft Internet Explorer" displaying the OSIsoft PM (Predictive Maintenance) interface. The address bar shows the URL: <http://gretchenlaptop/Dashboard/dashboard.asp?DashboardID=http://gretchenlaptop/DAVCatalog/ICE/Public/Dashboards/PM/>.

The main content area is divided into two sections:

- PMTagSearch:** This section allows users to search for functional locations. It includes a "Plant" dropdown set to "1101 1101", a "Unit" dropdown set to "All Units", and a "Go" button. Below this, the "Functional Location" is set to "15-BM-11". A list of results is shown, including "E1010", "EX1-101", "PM1-CE1-RX1", and "PLUMP1". The "Group" is set to "TE-1516-A1". Below the list, there are sections for "Equipment & Alarm Info" and "Tag Info...".
- Trend:** This section displays a line graph showing the trend of "BM Feed End Bear Temp #1" over time. The x-axis represents time from 5/8/03 10:39:25 AM to 5/8/03 12:39:25 PM. The y-axis represents temperature, ranging from 70 to 95. The graph shows a steady increase in temperature over the period.

At the bottom of the interface, there is a "PI Graphic - flue gas desulfurization plant.svg" section, which displays a schematic diagram of the flue gas desulfurization plant. The diagram includes various components like tanks, pipes, and a conveyor belt, with data points for "BM Feed End Bear Temp #1" and "BM Feed End Bear Temp #2".

The Windows taskbar at the bottom shows the "start" button, several open applications (Inbox - Micros..., 2 Microsoft P..., D:\Program File..., RLINK SAP Port..., 3 Internet Ex...), and the system clock showing 12:39 PM.



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# Recipe Web Part and iView

**Recipe - Microsoft Internet Explorer**

Address: <http://gretchenlaptop/Dashboard/dashboard.asp?DashboardID=http://gretchenlaptop/DAVCatalog/ICE/Public/Dashboards/Recipe/>

Recipe

LogOut | Publish | Adhoc Trend | Content | Layout | Settings

**Recipe**

Plant: 1100 Berlin ResourceNetwork: T-VIN00

Go Clear Refresh

**RECIPE**

recipe_id	material_id	process_order
1000000000000001523	T-HV300	000070001232
1000000000000001524	T-HV300	000070001233
1000000000000001525	T-HV300	000070001234
1000000000000001526	T-HV300	000070001235
1000000000000001527	T-HV300	000070001236

**RECIPE DETAIL**

resource_network	plan_start_time	plan_finish_time
T-VIN00	08/28/2002 00:00:00	08/28/2002 00:10:00

**OPERATION**

operation	status	start_time	end_time
1000	2	05/05/2003 13:48:21	05/05/2003 13:52:21
2000	2	05/05/2003 13:56:24	05/05/2003 14:00:24

**MATERIAL LIST**

phase_id	material_id	short_text	item
1010	T-HV200	ICE MIX	0005
1010	T-IC-R2006	TREATED WATER	0001
1010	T-IC-R2007	CHOCOLATE SYRUP	0004
2010	T-HV300	SCHOCO ICE MIX	

**PHASE**

phase_id	resource_id	phase_alias	phase_description
1010	T-V100	MIX_CHOCOLATE	weighing, filling, Mixing
2010	T-V200	FREEZE	Freeze and Storage

**PHASE STATUS**

phase_id	status	timestamp
1010	1	05/05/2003 13:48:21
1010	2	05/05/2003 13:52:21
2010	1	05/05/2003 13:56:24
2010	2	05/05/2003 14:00:24

**TLINES**

**PI TAGS**

tagid	tagalias
IC_T-IC-R2006	quantity_tag_id
IC_RC2006_batch_id	batch_tag_id

Add

**Recipe - Microsoft Internet Explorer**

Address: <http://gretchenlaptop/Dashboard/dashboard.asp?DashboardID=http://gretchenlaptop/DAVCatalog/ICE/Public/Dashboards/Recipe/>

**Recipe**

LogOut | Publish | Adhoc Trend | Content | Layout | Settings

**Recipe**

Plant: 1100 Berlin ResourceNetwork: T-VIN00

Go Clear Refresh

**RECIPE**

recipe_id	material_id	process_order
1000000000000001523	T-HV300	000070001232
1000000000000001524	T-HV300	000070001233
1000000000000001525	T-HV300	000070001234
1000000000000001526	T-HV300	000070001235
1000000000000001527	T-HV300	000070001236

**RECIPE DETAIL**

resource_network	plan_start_time	plan_finish_time
T-VIN00	08/28/2002 00:00:00	08/28/2002 00:10:00

**OPERATION**

operation	status	start_time	end_time
1000	2	05/05/2003 13:48:21	05/05/2003 13:52:21
2000	2	05/05/2003 13:56:24	05/05/2003 14:00:24

**MATERIAL LIST**

phase_id	material_id	short_text	item
1010	T-HV200	ICE MIX	0005
1010	T-IC-R2006	TREATED WATER	0001
1010	T-IC-R2007	CHOCOLATE SYRUP	0004
2010	T-HV300	SCHOCO ICE MIX	

**PHASE**

phase_id	resource_id	phase_alias	phase_description
1010	T-V100	MIX_CHOCOLATE	weighing, filling, Mixing
2010	T-V200	FREEZE	Freeze and Storage

**PHASE STATUS**

phase_id	status	timestamp
1010	1	05/05/2003 13:48:21
1010	2	05/05/2003 13:52:21
2010	1	05/05/2003 13:56:24
2010	2	05/05/2003 14:00:24

**TLINES**

**PI TAGS**

tagid	tagalias
IC_T-IC-R2006	quantity_tag_id
IC_RC2006_batch_id	batch_tag_id

Add



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# Messages Sent to SAP Web Part and iView

**Recipe and Messages - Microsoft Internet Explorer**

Address: <http://gretchenlaptop/Dashboard/dashboard.asp?DashboardID=http://gretchenlaptop/DAVCatalog/ICE/Public/Dashboards/Recipe%20and%20Messages/>

LogOut | Publish | Adhoc Trend | Content | Layout | Settings

### Recipe messages

Plant: 1100 Berlin Resource Network: T-VIN00

Go Clear Refresh

recipe_id	material_id	process_order
1000000000000001521	T-HV300	000070001230
1000000000000001522	T-HV300	000070001231
1000000000000001523	T-HV300	000070001232
1000000000000001524	T-HV300	000070001233
1000000000000001525	T-HV300	000070001234

### MESH

msid	category	date	time	rcode	status
1460	PI_PHST	20030505	135054	0	S
1461	PI_PHST	20030505	135607	0	S
1462	PI_CONS	20030505	135607	0	S
1463	PI_CONS	20030505	135607	0	S
1464	PI_CONS	20030505	135607	0	S

### MSEL

msid	characteristic	value	rcode
1462	PPPI_BATCH	gretchen	0
1462	PPPI_EVENT_DATE	20030505	0
1462	PPPI_EVENT_TIME	135221	0
1462	PPPI_MATERIAL	T-HV200	0

### Recipe

Plant: 0001 QM Plant Resource Network:

Go Clear Refresh

recipe_id	material_id	process_order
-----------	-------------	---------------

### PI Graphic - osi\_icecream\_2.svg

Process diagram showing a flow of material through various tanks and pipes. The diagram includes a large orange tank on the left, a series of smaller orange tanks in the middle, and a large orange tank on the right. The flow is indicated by arrows and valves. A legend on the left shows a color scale from 0 to 100.

### Trend

Trend chart showing data over time.



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# *Additional Portal Work*

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- *Additional Web Parts and iViews*
- *Certification planned for early 4<sup>th</sup> Quarter*
- *Unification and Drag and Relate*





# Other Developments

- *PM*
  - *Alarms detected by digital state change*
  - *List of Functional locations etc SAP 4.7*
- *QM*
  - *Lab results retrieved from SAP*
- *PP-PI*
  - *Price Data*
  - *Inventory Data*

