

RIGHT NOW

ACE 2014

Customizing Aras Program Management

Popular customizations for complex
projects & programs

Pointers in Online Help



A screenshot of a web browser displaying an online help page. The browser's address bar shows the URL: http://jhodge05/Innovator100SP0/Client/X-salt=std_10.0.0.5846-X/WebHelp. The page title is "Just Ask Innovator". The browser's menu bar includes "File", "Edit", "View", "Favorites", "Tools", and "Help". The browser's toolbar includes "Suggested Sites", "Google", "Aras", and various navigation icons. The page content is organized into a sidebar on the left and a main content area on the right. The sidebar contains a tree view of the help topics, with "Program Management" expanded to show "Tailoring and Customizing", which is further expanded to show "Activity and Assignment Completion". The main content area displays the breadcrumb "Home > Program Management > Tailoring and Customizing > Activity and Assignment Completion" and the title "Activity and Assignment Completion". The main content area contains a list of bullet points describing the activity completion process, including the use of the "Activity Completion Worksheet" and the "Project Plan Toolbar". The list includes details about validation and update rules, and the names of the default client and server methods. The page also includes a section titled "To customize Activity and Assignment Completion rules" with a numbered list of five steps: 1. Determine the business process for Activities and Assignments, 2. Make a plan for implementing the processes using Innovator Methods, 3. Prepare the required Methods, 4. Tailor the "Activity Completion Worksheet" as required, and 5. Test and validate the selected processes.

ASAP-and other constraints



```
/*Purpose: select a scheduled date based on a ramp function
and precedence
for fwd scheduling
earlier of ((latest of es, prop, cur, target), ls)
for bwd scheduling
later of ((earliest of ls, prop, cur, target), es)
Input: 3 dates, early, schedule, late,
plus a flag 1 = forward 0 = backward
Output: a single date.

Algorithm:
          **** L
          *
          *
          *
E ****
          S
F(S)

*/
```

```
ALTER FUNCTION [innovator].[select_sched_date2]
(
    @EARLY DATETIME,
    @PROP DATETIME,
    @CUR DATETIME,
    @TARGET DATETIME,
    @LATE DATETIME,
    @FLAG INT
)
RETURNS DATETIME
AS
BEGIN
    DECLARE @PS AS DATETIME
    IF @FLAG = 0
    BEGIN
        SET @PS = @EARLY
        IF @PROP > @PS SET @PS = @PROP
        IF @TARGET >= @PROP SET @PS = @TARGET
        IF @TARGET IS NULL AND @CUR > @PS SET @PS = @CUR
        IF @PS > @LATE SET @PS = @LATE
    END
    ELSE

```

100 %

Connected. (1/1)

JHODGE05\SQL2012 (11.0 RTM) | innovatc

Clear Schedule



```
GO
/* Name:    clear_schedule.sql
Purpose:   clears computed schedule values within a project.
Created:   28-SEP-2005 George J. Carrette
Input:    the ID of a project.
Output:   SUCCESS or FAILURE status.
*/

ALTER procedure [innovator].[clear_schedule](@PROJECT_ID CHAR(32))
AS
begin
    DECLARE @WBS_ID CHAR(32)
    DECLARE @ACTIVITIES TABLE(ID CHAR(32) COLLATE database_default primary key)
    DECLARE @SCHEDULING_TYPE VARCHAR(64)
    SET @WBS_ID = (SELECT WBS_ID FROM [PROJECT] WHERE ID = @PROJECT_ID)
    SET @SCHEDULING_TYPE = (SELECT SCHEDULING_TYPE FROM [PROJECT]
                           WHERE ID = @PROJECT_ID)
    INSERT @ACTIVITIES SELECT ID FROM SELECT_ACTIVITIES(@WBS_ID)
    UPDATE [PROJECT]
        SET DATE_START_SCHED = NULL,
            DATE_DUE_SCHED = NULL
        WHERE ID = @PROJECT_ID
    UPDATE [ACTIVITY2]
        SET DATE_ES = NULL,
            DATE_EF = NULL,
            DATE_LS = NULL,
            DATE_LF = NULL,
            DATE_START_SCHED = NULL
        WHERE ID IN (SELECT ID FROM @ACTIVITIES)
    if @SCHEDULING_TYPE = 'Milestone'
    UPDATE [ACTIVITY2]
        SET DATE_DUE_SCHED = NULL
        WHERE ID IN (SELECT ID FROM @ACTIVITIES) AND
            [ACTIVITY2].IS_MILESTONE = '0'
    ELSE
    UPDATE [ACTIVITY2]
        SET DATE_DUE_SCHED = NULL
        WHERE ID IN (SELECT ID FROM @ACTIVITIES)
    SELECT 'SUCCESS'
end
```

10 %

Connected. (1/1) | jhodge05\sql2008 (10.50 RTM) | innova

Spot Substitutions for Roles

A screenshot of a Windows Internet Explorer browser window. The address bar shows a URL: http://jhodge05/?isTearOff=true&noTabs=true&isNew=false&isEditMode=true&databaseName=DEMO10&vie. The browser's menu bar includes File, Edit, Views, Search, Actions, Reports, Tools, and Help. Below the menu bar is a toolbar with various icons. The main content area displays JavaScript code for an event handler named PM_act2Asmnt_OnSelectRow. The code is as follows:

```
1 if (!parent.isEditMode) return;
2 var enableCommand = true;
3 var doReset = false;
4 var isOnChangeEvent;
5 try{isOnChangeEvent = (propertyName !== undefined);} catch(ex){isOnChangeEvent = false;}
6 var ids = gridApplet.getSelectedItemsIds(";").split(";");
7 if (ids.length==0)
8 {
9   doReset = true;
10  enableCommand = false;
11 }
12 else if (ids.length==1)
13 {
14   var id = ids[0];
15   var asmnt = item.selectSingleNode("Relationships/Item[@id='"+relationshipID+"'"]");
16   var role = "";
17   if (asmnt) role = top.aras.getItemProperty(asmnt, "role");
18   if (role)
19   {
20     enableCommand = false;
21     if (isOnChangeEvent)
22     {
23       removeRelatedItem();
24     }
25   }
26   else
27   {
28     doReset = true;
29     enableCommand = true;
30   }
```

The status bar at the bottom of the browser window shows "Ready" on the left and "Aras Innovator" on the right.

Reports in Project Tree order



```
GO
ALTER FUNCTION [innovator].[select_project_list2] (@PROJECT_ID as char(32))
RETURNS @PROJECT_LIST TABLE (N INTEGER, L INTEGER, AN INTEGER, row_type CHAR(1), ID CHAR(32) primary key, name char(128), prev_item char(32), parent AS
AS
begin
DECLARE @WBS_ID CHAR(32)
DECLARE @ACTIVITIES TABLE (ID CHAR(32) primary key)
DECLARE @WBS TABLE (ID CHAR(32) primary key)
DECLARE @STACK TABLE (L INTEGER primary key, ID CHAR(32))
DECLARE @NEXT CHAR(32)
DECLARE @FIRST_CHILD char(32)
DECLARE @N INTEGER
DECLARE @AN INTEGER
DECLARE @L INTEGER
/*test in MP051130 with
Template 6 =F48EB06DEA80406AAB38BEB7702B1D3D
Wasabi = 8C7BED4341A24946A689EF0554B47CE0
test in MyInnovator with
Motorola Rollout = '8D9F7C3FC68C451882B04F8135B51FCA'
*/
-- get wbs_id
set @wbs_id = (select wbs_id from project where id=@project_id)
if @wbs_id is null Set @wbs_id=@project_id
-- get activities
INSERT @ACTIVITIES
SELECT * FROM SELECT_ACTIVITIES(@WBS_ID)
-- get wbs
INSERT @WBS
SELECT ID FROM SELECT_WBS_ELEMENTS(@WBS_ID)
-- get unordered list of wbs and activities
insert @PROJECT_LIST
SELECT null, null, null, 'W' AS type, WBS_ELEMENT.id, WBS_ELEMENT.name, /*ISNULL(WBS_ELEMENT.prev_item,(SELECT s.prev_item from SUB_WBS s where
FROM WBS_ELEMENT PARENT INNER JOIN
SUB_WBS ON PARENT.id = SUB_WBS.source_id RIGHT OUTER JOIN
WBS_ELEMENT ON SUB_WBS.related_id = WBS_ELEMENT.id
WHERE (wbs_element.id in (select * from @WBS))
UNION ALL
SELECT null, null, null, 'A' AS type, ACTIVITY2.id, ACTIVITY2.name, ACTIVITY2.prev_item, WBS_ELEMENT.id AS parent_id
FROM ACTIVITY2 INNER JOIN
WBS_ACTIVITY2 ON ACTIVITY2.id = WBS_ACTIVITY2.related_id INNER JOIN
WBS_ELEMENT ON WBS_ACTIVITY2.source_id = WBS_ELEMENT.id
WHERE (activity2.id in (select * from @ACTIVITY2))
```

Changing ACW Grid functionality



```
http://jhodge05/?isTearOff=true&noTabs=true&isNew=false&isEditMode=true&databaseName=DEMO10&vie - Windows Internet Explorer
File Edit Views Search Actions Reports Tools Help
Name PM_onACWload Comment Specifies visible tabs in ACW on the form load. Execution Allowed To World
Client-side JavaScript
1 document.applyChanges2All = false;//to update activity on this form only
2 var rtNames = new Array("Activity2 Assignment", "Activity2 Task", "Activity2 Deliverable", "Activity2 Comments", "Time Record");
3 var rtsWithConfigurableGrids = new Object();//key is relship name, value is conf grid name
4 rtsWithConfigurableGrids["Activity2 Assignment"] = "PM_ACW_Activity2Assmnt";
5 rtsWithConfigurableGrids["Activity2 Task"] = "PM_ACW_Tasks";
6
7 var itm = document.item;
8
9 var actItemTypeId = top.aras.getItemTypeForClient("Activity2", "name").node;
10 if (!actItemTypeId) return;
11
12 //+++ Get Configurable Grids ids, Activity2 Assignments, Activity2 Task ids
13 var aml2send;
14 var tmpDom = top.aras.createXMLDocument();
15 var r;
16
17 aml2send = "<Item type='Activity2' action='get' select='id' id='"+itm.getAttribute("id")+"'><Relationships>";
18 aml2send += "<Item type='Activity2 Assignment' action='get' select='id'/>";
19 aml2send += "<Item type='Activity2 Task' action='get' select='id'/>";
20 aml2send += "</Relationships></Item>";
21
22 r = top.aras.applyItem(aml2send);
23 if (r && r.indexOf("<Item>")>-1)
24 {
25   tmpDom.loadXML(r);
26   //do not display Activity2 Task tab
27   if (!tmpDom.documentElement.selectSingleNode("<Relationships/Item[@type='"+rtNames[1]+'"]")) rtNames.splice(1, 1);
28   //do not display Activity2 Assignment tab
29   if (!tmpDom.documentElement.selectSingleNode("<Relationships/Item[@type='"+rtNames[0]+'"]")) rtNames.splice(0, 1);
30 }
```


Federating Existing TimeCard data



http://jhodge05/ - Grid - SAS Time Record - Windows Internet Explorer

File Edit Views Search Actions Reports Tools Help

Name Merge Path Method

SAS Time Record

Query

```
<Item type="Activity2" id="{id}" action="sas_time_record_onget_2" />
```

Grid Column Grid Events

Actions No Related Hide Search Criteria Page Size:

sort_order	Visible	Label	Width	Align	Xpath	Property	Starts Nested ...	Data Type
128	<input checked="" type="checkbox"/>	WorkCenter	100	Left	.	workcenter	<input type="checkbox"/>	Federated
256	<input checked="" type="checkbox"/>	WrkCtr Ho...	100	Center	.	wc_hours	<input type="checkbox"/>	Federated
384	<input checked="" type="checkbox"/>	WrkCtr Est	100	Center	.	wc_est	<input type="checkbox"/>	Federated
512	<input checked="" type="checkbox"/>	CdrI	100	Center	Relationships/Item[@type="Activity2 Workcenter...	cdri	<input checked="" type="checkbox"/>	Federated
640	<input checked="" type="checkbox"/>	CdrI Hours	100	Left	.	cdri_hours	<input type="checkbox"/>	Federated
768	<input checked="" type="checkbox"/>	Date	100	Right	Relationships/Item[@type="Activity2 SAS Time R...	date	<input checked="" type="checkbox"/>	Federated
896	<input checked="" type="checkbox"/>	Employee	100	Left	.	assignee	<input type="checkbox"/>	Federated
1024	<input checked="" type="checkbox"/>	Hours	100	Center	.	hours	<input type="checkbox"/>	Federated

Ready Items 1-8 of 8. Page 1 of 1

aras INNOVATOR

Navigating Schedule Calculation



```
GO
/***** Object: StoredProcedure [innovator].[Update_critical_path_schedule]    Script Date: 3/25/2014 11:44
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
/*Purpose: computes project schedules using the Critical Path Method.*/
ALTER PROCEDURE [innovator].[Update_critical_path_schedule](@PROJECT_ID CHAR(32),
    @TZ_NAME NVARCHAR(50) = NULL)
AS
BEGIN
    DECLARE @WBS_ID CHAR(32)
    DECLARE @PROJECT_START_DAY INT
    DECLARE @PROJECT_DURATION INT
    DECLARE @SCHEDULING_TYPE VARCHAR(64)
    DECLARE @ACTIVITIES TABLE
    (
        ID CHAR(32) COLLATE database_default PRIMARY KEY,
        E_S INT,
        E_F INT,
        L_S INT,
        L_F INT
    )
    DECLARE @FORWARDP AS INT
    DECLARE @PROJECT_START_SCHED DATETIME
    DECLARE @PROJECT_DUE_SCHED DATETIME

    SELECT @WBS_ID = WBS_ID,
        @SCHEDULING_TYPE = scheduling_type
    FROM [PROJECT]
    WHERE id = @PROJECT_ID

    IF @SCHEDULING_TYPE = 'Forward'
        SET @FORWARDP = 1
    ELSE IF @SCHEDULING_TYPE = 'Backward'
        SET @FORWARDP = 0
    ELSE
        BEGIN
            RAISERROR ( 'project.id=%s scheduling_type=%s must b
```

```
/* Name: select_critical_path_schedule.sql
Purpose: computes project activities schedule values using
the Critical Path Method.
Created: 27-SEP-2005 George J. Carrette
Input: the root WBS_ID of a project.
Output: a table of activities and the schedule values in days offset
starting at 0.
Algorithm: (3) compute the set of activities.
(4) compute activities early start/finish.
(5) compute project early finish.
(6) compute activities late start/finish.
(7) select return value.

Description:
The critical path is a set of activities for which early and late dates coincide.
Semantically they represent the sequence of activities determining the shortest possible time to complete the

Errors: If there is a circular dependency or other problem then the
return table will have some NULL values in it.
*/
ALTER FUNCTION [innovator].[SELECT_CRITICAL_PATH_SCHEDULE](@WBS_ID CHAR(32))
    RETURNS @ACTIVITIES_EL TABLE(ID CHAR(32) COLLATE database_default PRIMARY KEY,
        E_S INTEGER,E_F INTEGER,L_S INTEGER,L_F INTEGER)
AS
BEGIN
    DECLARE @ACTIVITIES TABLE(ID CHAR(32) COLLATE database_default PRIMARY KEY);
    DECLARE @ACTIVITIES_IN_WORK TABLE(ID CHAR(32) COLLATE database_default PRIMARY KEY);
    DECLARE @ACTIVITIES_E TABLE(ID CHAR(32) COLLATE database_default primary key,S INTEGER,F INTEGER);
    DECLARE @PREDECESSORS TABLE (id CHAR(32) COLLATE database_default PRIMARY KEY,
        source_id CHAR(32) COLLATE database_default,
        related_id CHAR(32) COLLATE database_default,
        UNIQUE (source_id, related_id),
        UNIQUE (related_id, source_id));

    DECLARE @myRowCount AS INTEGER;

    /* create a list of activities of the project */
    INSERT @ACTIVITIES
    SELECT ID
    FROM SELECT_ACTIVITIES(@WBS_ID);
    SET @myRowCount = @ACTIVITYCOUNT;
```

Navigating Rollup Calculation



```
~
/*Purpose: Computes each [Activity2] status FROM its state,
date_due_sched with formuli FROM joining
[Preference],[PM_ProjectColorMap],[PM_ProjectColorPeriod].
Then rolls up status and duration info up to the
[Wbs Element] and [Project] levels.
Input: the ID of a project.
Output: SUCCESS or FAILURE status.*/
ALTER PROCEDURE [innovator].[Activity_status_rollup](@PROJECT_ID CHAR(32),
@TZ_NAME NVARCHAR(50) = NULL)
AS
BEGIN
EXEC [innovator].[Business_calendar_co
@TZ_NAME

DECLARE @WBS_ID CHAR(32)
DECLARE @ACTIVITIES TABLE
(
[ID] CHAR(32) COLLATE database_de
)
DECLARE @WBS_ELEMENTS TABLE
(
[ID] CHAR(32) COLLATE database
[LEVEL] INT,
[ORD] INT
)
DECLARE @ROLLUP_STATUS VARCHAR(64)
DECLARE @rollup_percent_compl INT

SET @WBS_ID = (SELECT WBS_ID
FROM [PROJECT]
WHERE ID = @PROJECT_ID)

INSERT @WBS_ELEMENTS
SELECT ID,
LEVEL,
ORD
FROM [Select_wbs_elements](@WBS_ID)

INSERT @ACTIVITIES
SELECT ID
FROM [Select_activities](@WBS_ID)

ALTER function [innovator].[select_wbs_element_pure_rollup_values](@WBS_ID CHAR(32))
RETURNS @RESULT TABLE(ROLLUP_DURATION_SUM INTEGER,
ROLLUP_DURATION_COMPL_SUM FLOAT,
ROLLUP_DATE_SCHED_START DATETIME,
ROLLUP_DATE_SCHED_DUE DATETIME,
rollup_work_est INTEGER,
/*Using alias data type DATA_TYPE_44B7A53F168D414ABC98371A1912D166
because type of ACTIVITY2.ROLLUP_ACTUAL_WORK is basic type for property rollup_actual_work.*/
rollup_actual_work DATA_TYPE_44B7A53F168D414ABC98371A1912D166,
deliv_required CHAR(1) COLLATE database_default,
rollup_date_start_act DATETIME,
rollup_percent_compl INTEGER,
rollup_earned_value INTEGER, -- -- +++ IR-012014 ----
rollup_planned_value INTEGER
)
AS
begin
DECLARE @ROLLUP_DURATION_SUM INTEGER
DECLARE @ROLLUP_DURATION_COMPL_SUM FLOAT
DECLARE @ROLLUP_DATE_SCHED_START DATETIME
DECLARE @ROLLUP_DATE_SCHED_DUE DATETIME
DECLARE @rollup_work_est INTEGER
--Using alias data type DATA_TYPE_44B7A53F168D414ABC98371A1912D166 because type of ACTIVITY2.ROLLUP_ACTUAL_WORK is b
DECLARE @rollup_actual_work DATA_TYPE_44B7A53F168D414ABC98371A1912D166
DECLARE @deliv_required CHAR(1)
DECLARE @rollup_date_start_act DATETIME
DECLARE @rollup_percent_compl INTEGER
DECLARE @rollup_planned_value INTEGER

DECLARE @WBS_ELEMENTS TABLE(
rollup_duration_sum INTEGER,
rollup_duration_compl_sum FLOAT,
ROLLUP_DATE_SCHED_START DATETIME,
ROLLUP_DATE_SCHED_DUE DATETIME,
rollup_work_est INTEGER,
-- Using alias data type for ACTIVITY2.ROLLUP_ACTUAL_WORK because assumes that data type of WBS_ELEMENT.ROLLUP_AC
rollup_actual_work DATA_TYPE_44B7A53F168D414ABC98371A1912D166,
deliv_required CHAR(1) COLLATE database_default,
rollup_date_start_act DATETIME,
rollup_percent_compl INTEGER,
rollup_earned_value INTEGER, -- -- +++ IR-012014 ----
```

Checklist for editing SQL Items



1. Start by saving original SQL for diffing and restoring
2. Consider renaming objects that are edited
3. Edit in SSMS
4. Comment your edits as you make them
5. Create SQL Items to document your changes in Packages
6. Use execution = Manual where immediate fails for any reason
7. Document miscellaneous changes as Block, execution = Manual

Commenting code to help yourself and others



```
-- ++++ customization for SAS ++++
-- first create temp table to hold the data for callout spreadsheet
CREATE TABLE #act2_erp_data
(
    wo nvarchar(64)
    ,wrkctr nvarchar(64)
    ,cdr1 nvarchar(64)
    ,so nvarchar(64)
    ,sol nvarchar(64)
    ,sod nvarchar(64) -- we might want to store key in Innovator
    ,rollup_actual_work decimal(5,2)
    ,sod_required integer -- was earned_value
    ,sod_shipped integer -- was planned_value
    ,sas_actual_cost integer
    ,sas_average_cost integer
)
-- create variables to pass to linked sp
declare @company varchar(64)
set @company=(select sas_unit from project where id=@project_id)
declare @so nvarchar(64)
set @so=(select som_salesorderid from sas_sales_order so inner join p
declare @wo_values nvarchar(max)
```

Other Popular Customizations



- Rollup – Activating Activities
- Rollup – Custom Status Rules
- Rollup – Custom Earned Value
- Specialized resource reports
- Custom availability reports

Q & A

RIGHT NOW

ACE 2014