

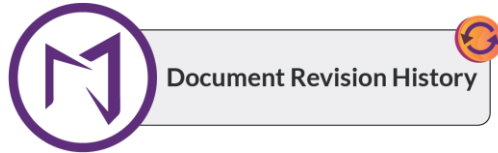


Modern Requirements **4** DevOps

Test Case Management

Version 3.0





Rev. #	Date	Details	Revised By	Approved By
Version 3.0	3rd February, 2023	<ul style="list-style-type: none"> Added support for Requirement WI Added Build Number property for Test Point, Test Run, and Test Result Added support for Capture user actions, Record Screen, and Record Screen under Result attachment property in Test Result Virtual WI 	Syed Hammad	Hira Sharif
Version 2.2	26 th August, 2022	<ul style="list-style-type: none"> Added support for multiple comments and attachments in Test Parameter under Test Result Virtual Work Item. Added Test Parameter and Iteration field for Test Step Run Virtual Work Item. 	Syed Hammad	Hira Sharif
Version 2.1	2 nd March, 2022	<ul style="list-style-type: none"> Technote Updated for Test Point WI Images Updated Virtual Work item Properties updated 	Syed Hammad	Hira Sharif
Version 2.0	17th December, 2021	<ul style="list-style-type: none"> Design/Formatting of the document has been changed 	Syed Hammad	Hira Sharif
Version 1.0	4th November, 2020	<ul style="list-style-type: none"> Document created 	Syed Hammad	Hira Sharif

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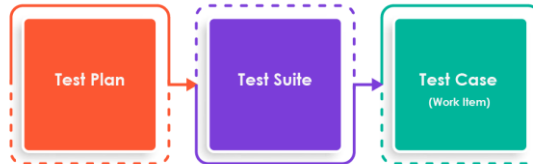
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INTRODUCTION

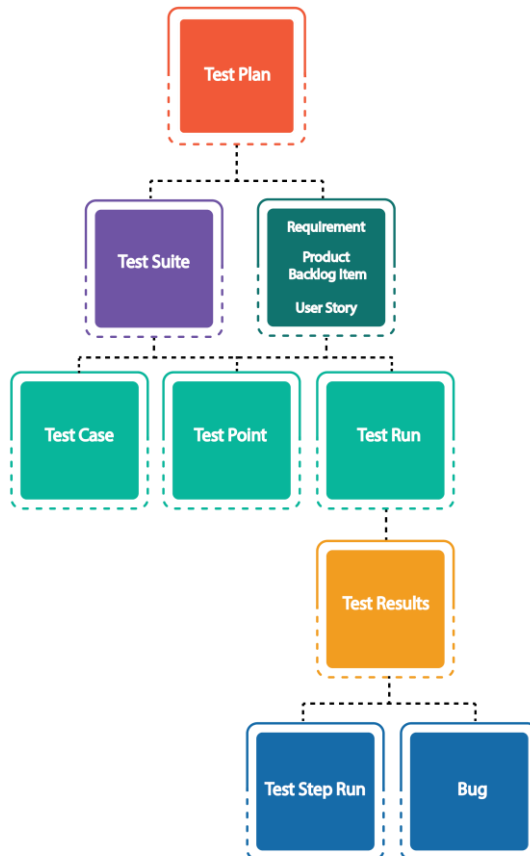
In the simplest form, the test case management software consolidates several aspects of testing into one place. This reduces the testing effort, improves resource utilization, speed, and quality of the tests.

Most often, the tools differ in their scope, ability, effectiveness, flexibility, and more. While some organizations settle on one comprehensive solution, others opt to use a combination of different tools.

The normal testing hierarchy supported **by Azure DevOps** is as following:



Whereas organizations normally have a more comprehensive **Test Case Management** as illustrated below:



The Requirement work item will be available when Requirement suite is created from the Test Hub.

Note: The Requirement work item is supported in Trace Analysis.

WHAT MODERN REQUIREMENTS4DEVOPS HAS TO OFFER?

In order to fill the gap between what test strategy companies usually follow and what Azure DevOps has to offer, **Modern Requirements4DevOps** now offers **Virtual work items**.



In **Azure DevOps**, the data for these virtual work items can be fetched from TFS using the following tabs:

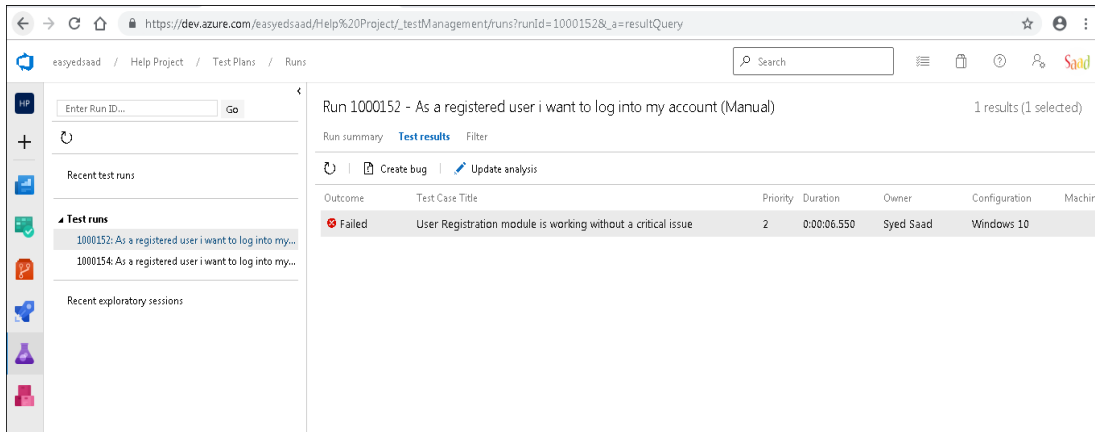
TEST POINT

Outcome	Order	Test Case Id	Configuration	Tester
Failed	2	88974	Windows 10	Syed: Muhammad - Saad

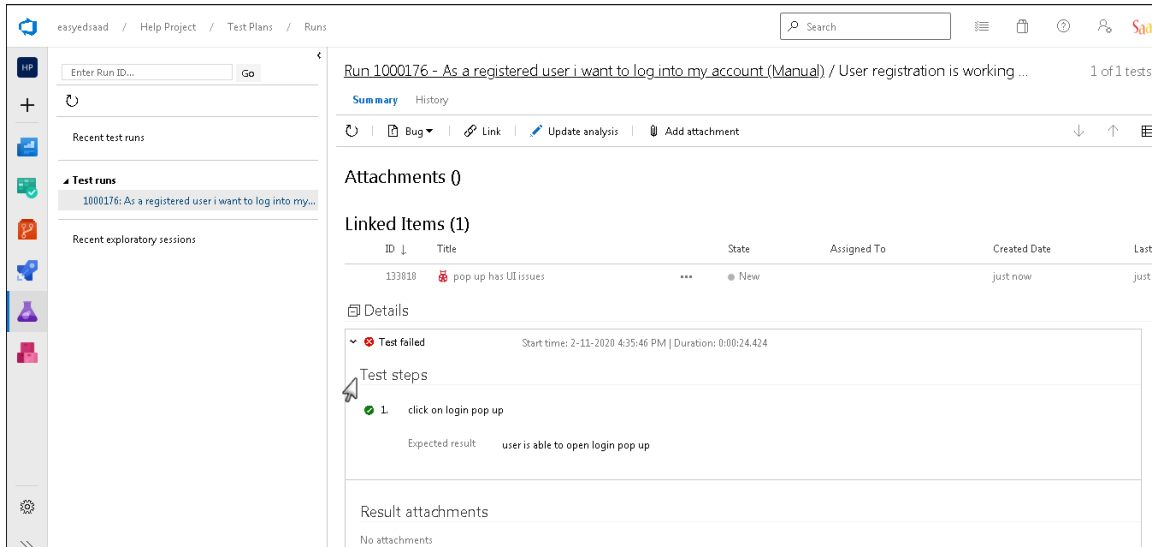
TEST RUN

State	Run Id	Title	Completed Date	Build Number
Needs investigation	1000154	As a registered user i want to log into my account (Manual)	23-10-2020 7:54:50 PM	
In progress	1000152	As a registered user i want to log into my account (Manual)	23-10-2020 7:54:27 PM	
In progress	1000150	As a registered user i want to log into my account (Manual)	23-10-2020 7:44:12 PM	
Completed	1000148	As a registered user i want to log into my account (Manual)	23-10-2020 7:42:34 PM	
In progress	1000146	As a registered user i want to log into my account (Manual)	23-10-2020 7:41:53 PM	
In progress	1000144	133172 : As a registered user i want to log into my account (Manual)	23-10-2020 6:52:37 PM	
In progress	1000142	133172 : As a registered user i want to log into my account (Manual)	23-10-2020 6:22:55 PM	
In progress	1000138	133172 : As a registered user i want to log into my account (Manual)	14-10-2020 11:19:30 PM	
In progress	1000136	133172 : As a registered user i want to log into my account (Manual)	14-10-2020 11:06:25 PM	
In progress	1000134	133172 : As a registered user i want to log into my account (Manual)	14-10-2020 11:06:02 PM	
In progress	1000132	133172 : As a registered user i want to log into my account (Manual)	14-10-2020 11:05:55 PM	
Completed	1000130	133172 : As a registered user i want to log into my account (Manual)	14-10-2020 11:05:43 PM	

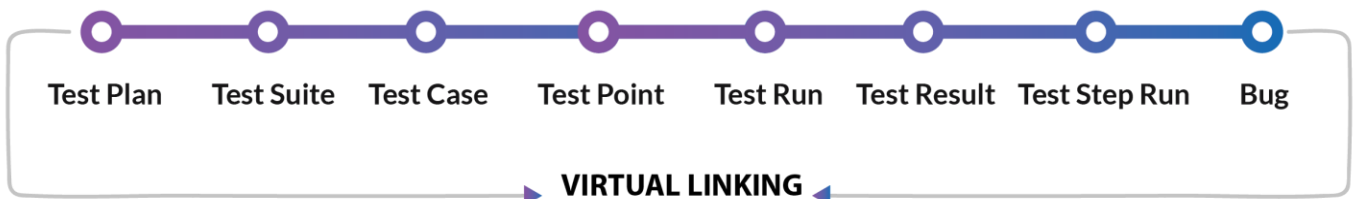
TEST RESULT



TEST STEP RUN



These **Virtual work** items are linked with existing work items using **Virtual Link**.



VIRTUAL WORK ITEMS PROPERTIES

Properties for Test Point

Outcome	Config Name	Test Case ID	Suite ID	Plan ID	Tester
	Last Updated By	Is Automated	Build Number		

Properties of Test Run

Complete Date	Start Date	Owner	Unanalyzed Test	Total Results	Pass Test	Is Automated
	Failed Tests	Not Applicable Test	Incomplete Tests	Total Test	Build Number	

Properties of Test Result

Plan ID	Suite ID	Test Case ID	Duration	Last Updated By	Outcome	Run By
Config name (Configuration)	Completed Date	Pass Test	Total Test Steps	Failed Tests	Unspecified Tests	Test Parameter
	Details	Detail Comment	Result Attachment	Build Number		

Properties for Test Step Run

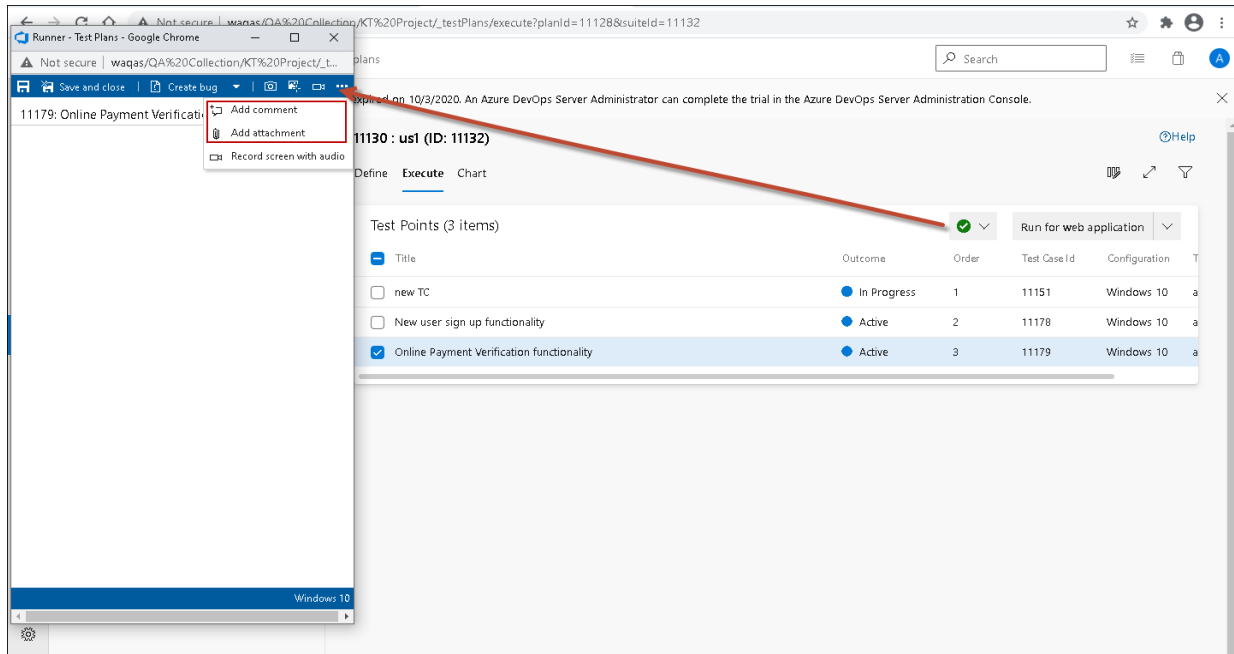
Outcome	Action	Expected Result	Completed Date	Iteration	Test Parameter
	Comment	Attachment			

Note: Click on the links to view details on [Test Parameter](#), [Details](#), [Detail Comment](#), [Result Attachment](#), [Comment and Attachment](#).

SUPPORT FOR ATTACHMENT AND COMMENTS FIELD

Attachments and Comments are now supported in Trace Analysis and Smart Report module (Trace Analysis, Test Plan Hub, Queries tab and Smart Doc)

- Comment added on run test case is mapped to **“Detail Comments”** field.
- Attachment added on run test case is mapped to **“Result Attachment”** field.



Comment and **attachment** added from test run are mapped in test results virtual work item.

Test Results(10)								
State	Link Type	ID	Title	Detail Comments	Comment	Result Attachment	Link Type	ID
open	vlink	100000	Run 60 - 11130 : us1 (Manual) / Online Payment Verification functio...	Option 1 to 4 are ...				
open	vlink	100000	Run 61 - 11130 : us1 (Manual) / Online Payment Verification functio...			Contextual Compa...		

Smart Report Configuraion:

Style Sheet:

Default

- Test Plans
 - Test Suite
 - Test Case
 - Test Runs
 - Test Results
 - Test Step Run
 - Bug

Detailed Test plan Report*

Work Item type: Test Results Link Type(s): [Any]

Section Type: Form

Numbering Hierarchy Line Spacing

Group by: None Sort by: None Ascending

	Field	Style Sheet	Label	Style Sheet	
+ x	ID	Heading-4			
+ x	Title	Heading-4			
+ x	Work Item Type	Normal	Work Item Type	Normal	Filter
+ x	Plan Id	Normal	Plan Id	Normal	50 Filter
+ x	Suite Id	Normal	Suite Id	Normal	50 Filter
+ x	Test Case Id	Normal	Test Case Id	Normal	50 Filter
+ x	Config Name	Normal	Config Name	Normal	100 Filter
+ x	Outcome	Normal	Outcome	Normal	60 Filter
+ x	Duration	Normal	Duration	Normal	100 Filter
+ x	Detail Comments	Normal	Detail Commen	Normal	160 Filter
+ x	Result Attachment	Normal	Result Attachme	Normal	150 Filter

Output:

Smart report

Report Designer

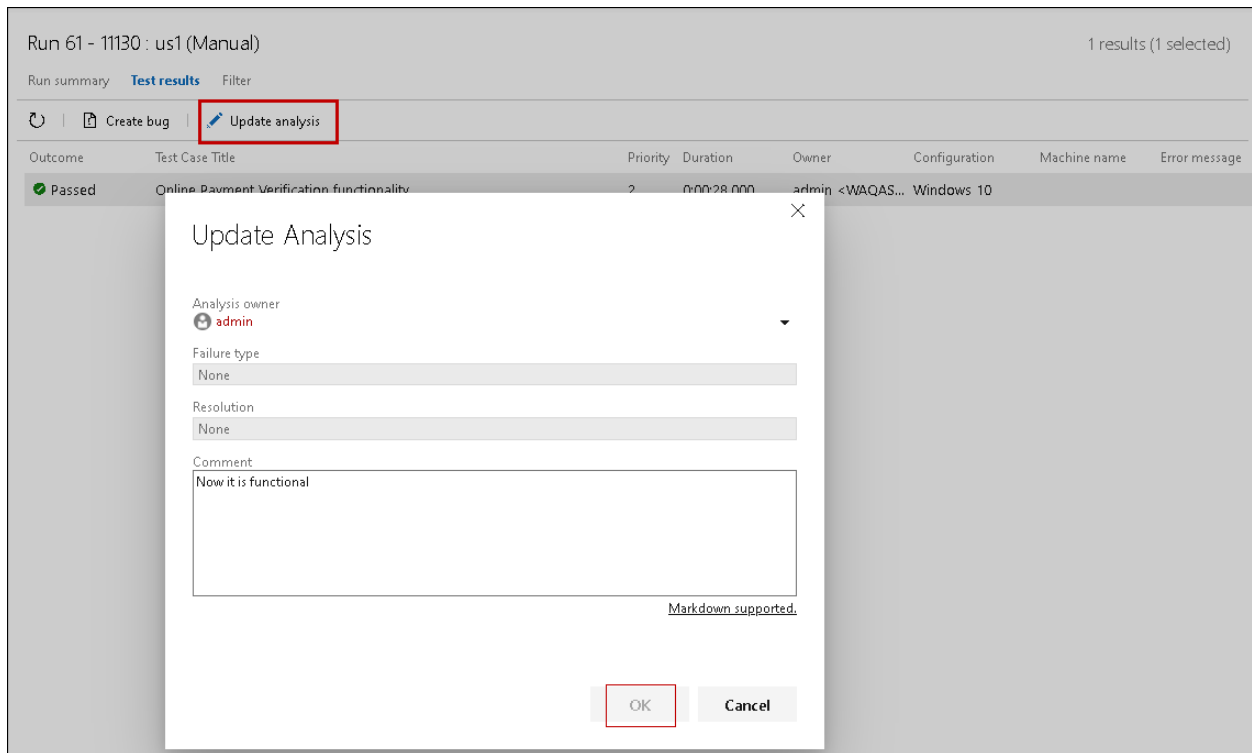
Report Parts: Detailed Test plan Report Style Sheet: Default Generate Report Save As

1.1.3 1060-3040 : User should be able to enter credentials (Manual)
 Work Item Type: Test Run
 Completed Date: 5/5/2021 8:26:43 AM
 Owner: admin

1.1.3.1 100000-Run 1060 - 3040 : Usershould be able to enter credentials (Manual)/Test case for Login feature
 Work Item Type: Test Results

Plan Id	Suite Id	Test Case Id	Config Name	Outcome	Duration	Completed Date	Detail Comments	Result Attachment
20675	21973	3060	Windows 10	Passed	52763	5/5/2021 8:26:51 AM	This test case is passed.	Login.png.jpg

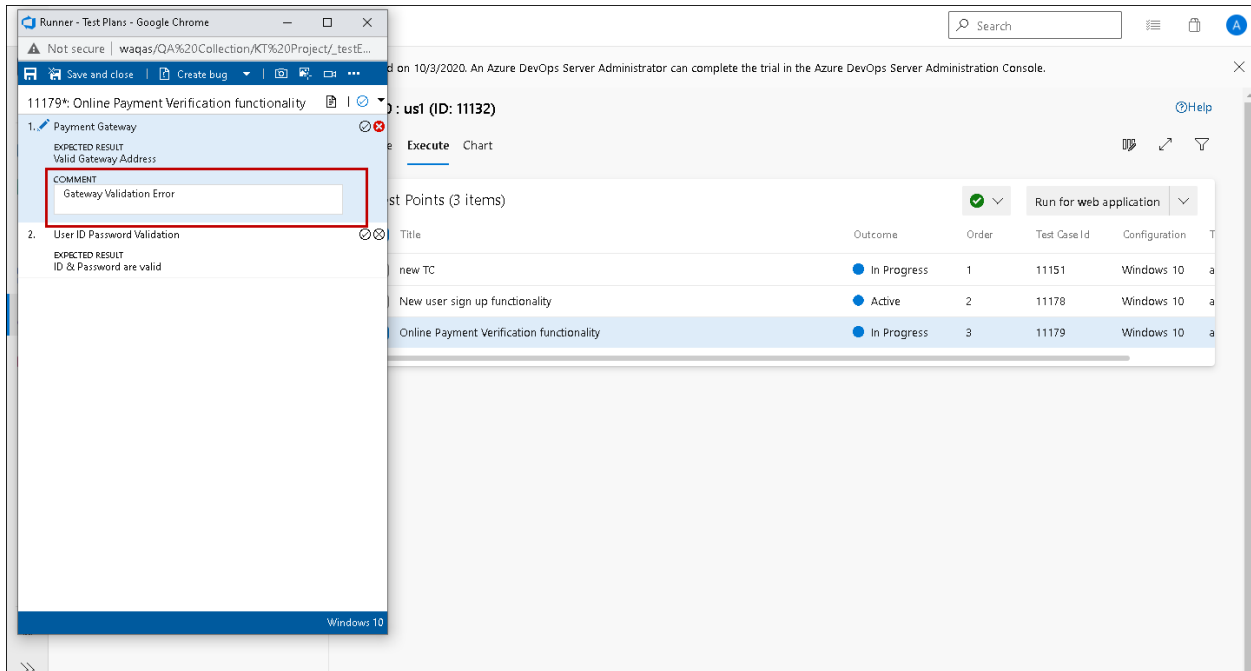
- Comments added from update analysis will be mapped to **“Comment”** field in test results.



Comment added from update analysis is added to the **“Comment”** field in Test Results.

Test Results(12)							
Link Type	ID	Title	Detail Comments	Comment	Result Attachment	Config Name	Link Type
vLink	100000	Run 60 - 11130 : us1 (Manual) / Online Payment Verification functio...	Option 1 to 4 are ...			Windows 10	
vLink	100000	Run 61 - 11130 : us1 (Manual) / Online Payment Verification functio...		Now it is functional	Contextual Compar...	Windows 10	
vLink	100000	Run 64 - 11130 : us1 (Manual) / Online Payment Verification functio...				Windows 10	
vLink	100000	Run 65 - 11130 : us1 (Manual) / Online Payment Verification functio...				Windows 10	vLink

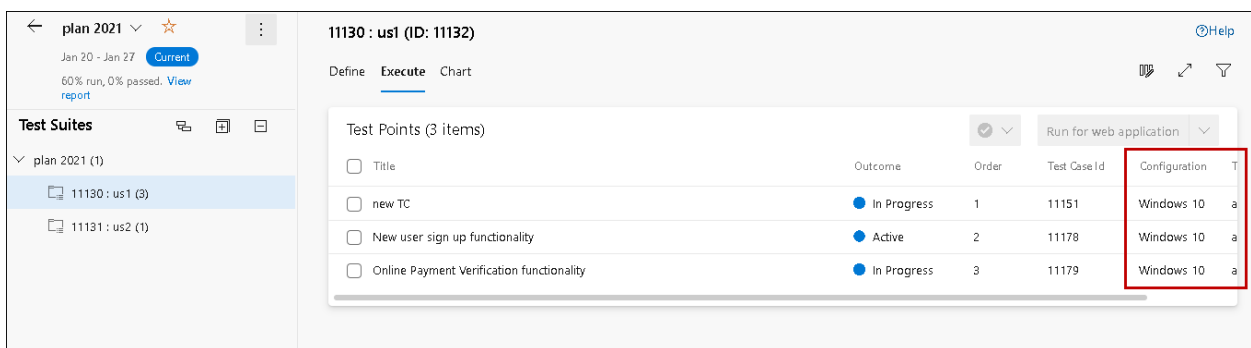
- Comments added on fail steps on run test case are mapped to the **“Comment”** field in Test Step Run.



Comment for fail step added in **“Comment”** field of Test Step Run in Trace Analysis and Smart Report.

Test Results(12)					Test Step Run(13)			
	Detail Comments	Comment	Result Attachment	Config Name	Link Type	ID	Title	Comment
h functio...	Option 1 to 4 are ...			Windows 10				
h functio...		Now it is functional	Contextual Compar...	Windows 10				
h functio...				Windows 10				
h functio...				Windows 10	vLink	2	Run 65 - 11130 : us1 (Manual)	Gateway validation error
					vLink	3	Run 65 - 11130 : us1 (Manual)	

- Configuration is mapped to **“Config Name”** field in Test Results

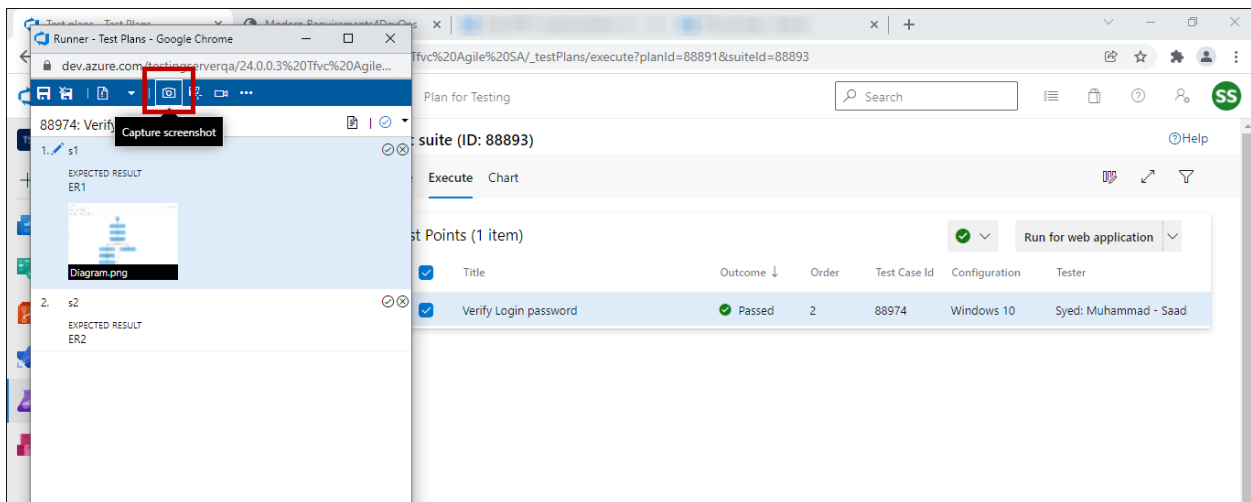


Configuration can be seen mapped below in test results.

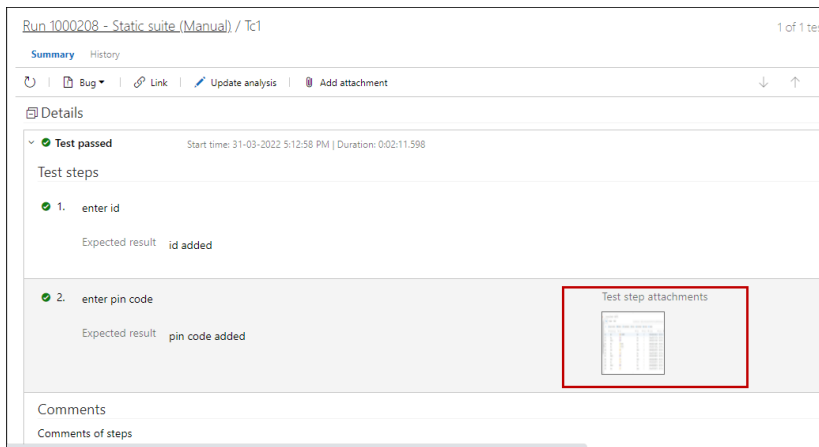
Test Results(12)								
Type	ID	Title	Detail Comments	Comment	Result Attachment	Config Name	Link Type	ID
	100000	Run 60 - 11130 : us1 (Manual) / Online Payment Verification functio...	Option 1 to 4 are ...			Windows 10		
	100000	Run 61 - 11130 : us1 (Manual) / Online Payment Verification functio...		Now it is functional	Contextual Compar...	Windows 10		
	100000	Run 64 - 11130 : us1 (Manual) / Online Payment Verification functio...				Windows 10		
	100000	Run 65 - 11130 : us1 (Manual) / Online Payment Verification functio...				Windows 10	vLink	2
							vLink	3

- **Captured screenshot** from Test Run are mapped as an attachment in Test Step Run virtual work item.

User can take screenshot from the **Capture screenshot** option as shown in the image below.




The captured screenshot can be seen in ADO **mapped as an attachment**. Users can download the captured screenshot by clicking on it.

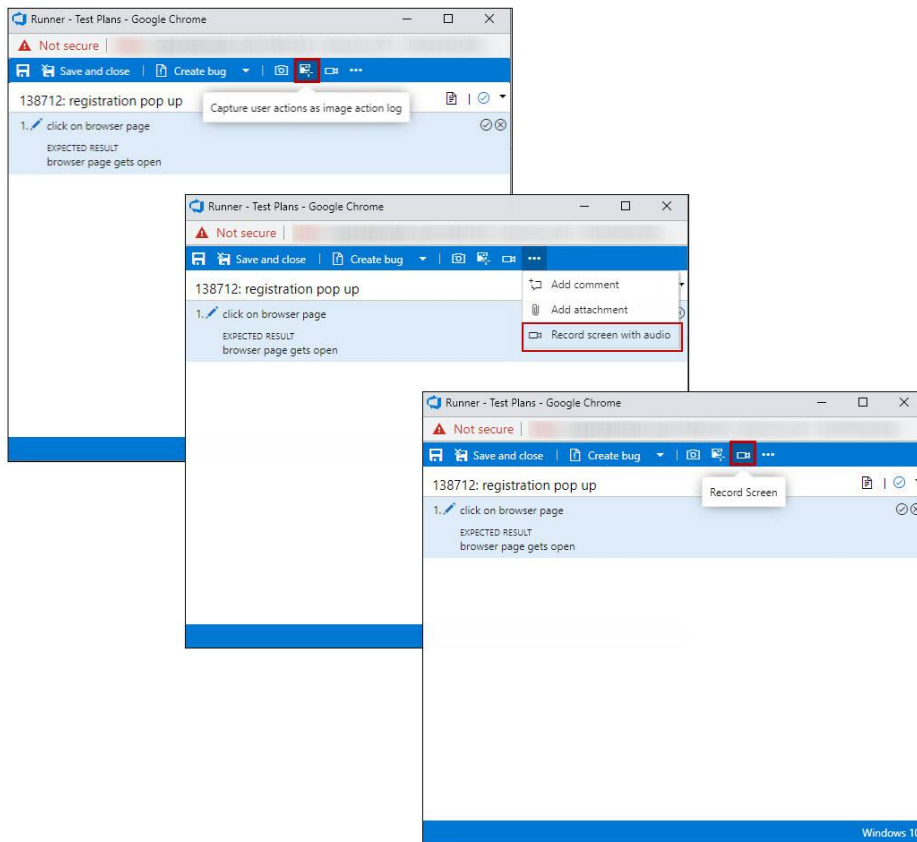


The captured screenshot can be seen **as an attachment in the Smart Report**. Users can download the attachment by clicking on it.

Smart report

#	Work Item Type	Title	Outcome	Action	Expected Result	Attachment
1.1.3.1.1.	Test Step Run	Run 1000008 - test plan (Manual)	Unspecified	step 1	exp 1	

The options **Capture user actions**, **Record Screen**, and **Record screen with audio** are supported in the Test Result virtual work item. Once a user adds these attachments from ADO, they will be visible in the Smart Report/Trace Analysis section of the Test Result work item under the "Result attachment" property.



Smart report

Report Designer

Report Parts: Detailed Test plan Style Sheet: Default Generate Report Save As

1.1.3 24-22 : Login Requirement (Manual)
 Work Item Type: Test Run
 Completed Date: 27-Jan-2023 06:33:25 AM (UTC)
 Owner: [redacted]

1.1.3.1 100000-Run 24 - 22 : Login Requirement (Manual) / Verify that a new user is able to register on MR Credentials when providing the approval on work items first time (not registered user)
 Work Item Type: Test Results

Plan Id	Suite Id	Test Case Id	Config Name	Outcome	Duration	Completed Date	Run By
65905	65907	65908	Windows 10	Failed	0:00:24.494	27-Jan-2023 06:28:04 AM (UTC)	[redacted]

Detail Comments:
 Failed due to authentication error
 Result Attachment
[Authentication 009 Up.png](#)
[ActionLog-2023-01-27T06-33-09_498Z.html](#)
[ActionLog-2023-01-27T06-33-15_626Z.html](#)
[SystemInformation-2023-01-27T06-34-10_576Z.json](#)

For multiple iterations, **Comments** and **Attachments** added in each iteration is shown. On run test case, if there are multiple iterations, user can add comments in each iteration which can be seen by adding “**Details**” field from column options in Trace analysis and through “**Report Designer**” in Smart Report.

ADO:

ADO interface showing test case details for '140161: Verify that Copied link working fine if pasted on different browsers'. The context menu is open, highlighting 'Add comment' and 'Add attachment' options. The test steps are visible on the left, and a table of test results is shown on the right.

Order	ID	Title	Configuration	Tester
1	140161	Verify that Copied link working fine if ...	Windows 10	Norina Kanwal

Comments and attachments added against each iteration can be seen in the “**Summary**” section.

Run 265 - 139964 : Requirement (Manual) / Verify that Copied link working fine if pasted on different browsers.

Summary History

Test steps

- Click on + icon from folder explorer @page 1
 Parameters: page Second
 Expected result: Create request window should open.
- Fill all fields on create request window and click on Send button @field
 Parameters: field Two
 Expected result: Review should be created.

Comments
 Fields didn't add.

Iteration attachments

Name	Size
general_flow.png	120K

Trace Analysis:

Comments and Attachments added by the user against each of the iterations will be visible in the Traceability Matrix.

Plan Id	Suite Id	Test Case Id	Config Name	Outcome	Duration	Completed Date	Run By
vLink	100000	Run 265 - 139964 : Requirement (M...	open	Iteration 1 Failed, Duration: 0:00:00.041, Start Time: 01-Aug-22 12:38 PM (UTC+5) Comments: Fields added successfully.			
				Iteration 2 Failed, Duration: 0:00:00.053, Start Time: 01-Aug-22 12:38 PM (UTC+5) Comments: Fields didn't add. Attachments: general_flow.png			
vLink	100000	Run 248 - 139964 : Requirement (M...	open	Iteration 1 Unspecified, Duration: 0:00:00.000, Start Time: 28-Jul-22 12:19 PM (UTC+5)			
				Iteration 2 Passed, Duration: 0:00:00.002, Start Time: 28-Jul-22 12:19 PM (UTC+5) Comments: done iteration 2			
vLink	100000	Run 263 - 139964 : Requirement (M...	open				

Smart Report:

By adding “Details” field from the column options, **comments** and **attachments** for each iteration can be seen in “Report Designer” in Smart Report.

Report Parts: Detailed Test plan Details field | Style Sheet: Default | Generate Report

1.1.8.1 100000-Run 265 - 139964 : Requirement (Manual) / Verify that Copied link working fine if pasted on different browsers.
Work Item Type: Test Results

Plan Id	Suite Id	Test Case Id	Config Name	Outcome	Duration	Completed Date	Run By
140162	140165	140161	Windows 10	Failed	0:08:54.377	01-Aug-22 5:47 PM (UTC+5)	Syed Saad

Details:

Iteration	Outcome	Start Date	Duration	Comment	Attachment
1	Failed	8/1/2022 12:38:44 PM	0:00:00.041	Fields added successfully.	
2	Failed	8/1/2022 12:38:44 PM	0:00:00.053	Fields didn't add.	general_flow.png

TEST PARAMETER

Parameter added in Test case steps can be seen by adding “**Test Parameter**” field from column options in Trace analysis and through “**Report Designer**” in Smart Report.

ADO:

Run 265 - 139964 : Requirement (Manual) / Verify that Copied link working fine if pasted on different browsers.

Summary History

🔄 | 🐛 Bug | ✎ Update analysis | 📎 Add attachment

📄 Details

❌ Iteration 1 failed Start time: 8/1/2022 5:38:44 PM | Duration: 0:06:50.446

Test steps

1. Click on + icon from folder explorer @page 1

Parameters	page	First
------------	------	-------

Expected result Create request window should open.

2. Fill all fields on create request window and click on Send button @field

Parameters	field	One
------------	-------	-----

Expected result Review should be created.

Trace Analysis:

By selecting the “**Test Parameter**” field from column options, user can see “**Parameters**” column in Traceability Matrix.

Test Step Run(12)					
Link Type	ID	Title	State	Test Parameters	Iteration
vLink	1	Run 265 - 139964 : Requirement (M...	open	page = First	1
vLink	2	Run 265 - 139964 : Requirement (M...	open	field = One	1
vLink	1	Run 265 - 139964 : Requirement (M...	open	page = Second	2
vLink	2	Run 265 - 139964 : Requirement (M...	open	field = Two	2

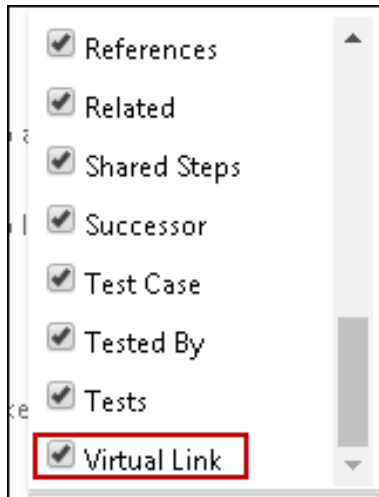
Smart Report:

By selecting the “Test Parameter” field from column options, user can see “Parameters” column in Smart Report.

#	Work Item Type	ID	Title	Outcome	Action	Expected Result	Completed Date	Parameters
1.1.8.1.1.	Test Step Run	1	Run 265 - 139964 : Requirement (Manual)	Unspecified	Click on + icon from folder explorer @page 1	Create request window should open.	01-Aug-22 5:38 PM (UTC+5)	page = First
1.1.8.1.2.	Test Step Run	2	Run 265 - 139964 : Requirement (Manual)	Unspecified	Fill all fields on create request window and click on Send button @field	Review should be created.	01-Aug-22 5:38 PM (UTC+5)	field = One
1.1.8.1.3.	Test Step Run	1	Run 265 - 139964 : Requirement (Manual)	Unspecified	Click on + icon from folder explorer @page 1	Create request window should open.	01-Aug-22 5:38 PM (UTC+5)	page = Second
1.1.8.1.4.	Test Step Run	2	Run 265 - 139964 : Requirement (Manual)	Unspecified	Fill all fields on create request window and click on Send button @field	Review should be created.	01-Aug-22 5:38 PM (UTC+5)	field = Two

LINKING OF VIRTUAL WORK ITEMS

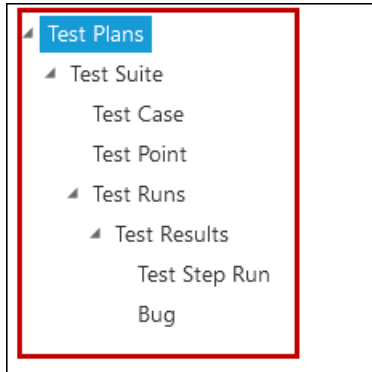
In Smart Report, the virtual linking is automatically applied. However, in Trace Analysis you need to manually select the Virtual Link option to link the Virtual work items as shown in the image below:



HIERARCHY

The hierarchy below can be created and shown in **Smart Report** as well as while working in **Traceability module**:

Test Plan vs Test Suite vs Test Case/Test Point vs Test Run vs Test Result vs Test Step Run vs Bugs



Same hierarchy can be created while showing the work in **Trace Analysis**

PATHS TO GENERATE OUTPUT

Following are the different paths you can define to generate the output:

- Test plan vs Test suite
- Test suite vs Test case
- Test plan vs Test suite vs Test case
- Test run
- Test run vs Test result
- Test run vs Test result vs Test step run
- Test run vs Test result vs Bugs
- Test run vs Test result vs Test step run vs Bugs
- Test run vs Test result vs Bugs vs Test step run
- Test suite vs Test case vs Test run vs Test result vs Test step run
- Test plan vs Test suite vs Test run vs Test result vs Bugs
- Test suite vs Test case vs Test run vs Test result vs Test step run vs Bugs
- Test plan vs Test suite vs Test run vs Test result vs Test step run vs Bugs
- Test suite vs Test case vs Test run vs Test result vs Bugs vs Test step run
- Test plan vs Test suite vs Test run vs Test result vs Bugs vs Test step run
- Test plan vs Test suite vs Test case vs Test run vs Test result vs Test step run vs Bugs
- Test Plan vs Test Suite vs Test Point vs Test Run vs Test Result vs Test Step Run vs Bugs
- Test Plan vs Test Suite vs Test Case vs Test Point vs Test Run vs Test Result vs Test Step Run vs Bugs
- Test Plan vs Test Suite vs Test Point vs Test Case vs Test Run vs Test Result vs Test Step Run vs Bugs
- Test Plan vs Test Suite vs Test Point
- Test Plan vs Requirement/PBI/User Story vs Test Case vs Test Run vs Test Result vs Test Step Run Vs Bugs

USABILITY OF THE VIRTUAL WORK ITEMS

These work items can be used in the following modules/sections:

SMART REPORT

Virtual work items can be used in **Smart Report** available under the **Queries tab, Test Hub** and **Smart Docs**.

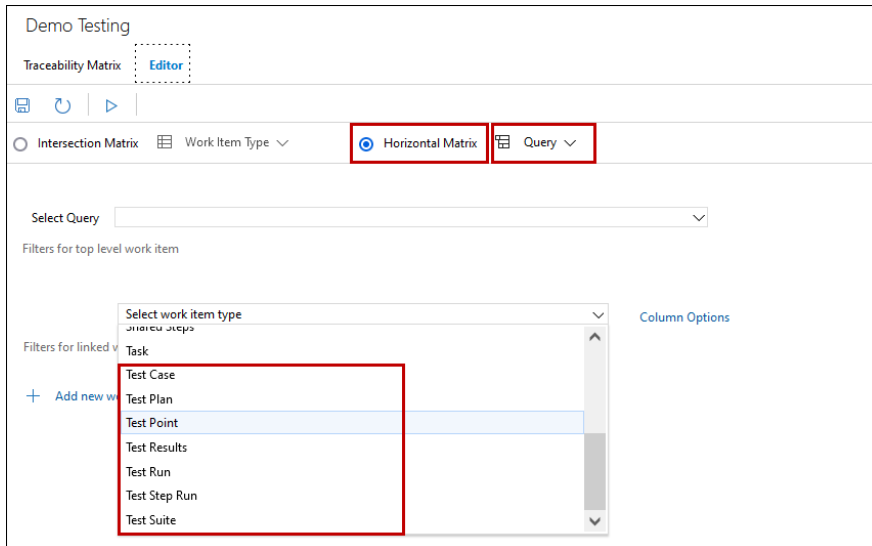
The screenshot displays the 'Detailed Test plan' configuration interface. On the left, a 'Style Sheet' dropdown is set to 'Default'. Below it, a tree view shows 'Test Plans' expanded to 'Test Results', with 'Test Step Run' and 'Bug' listed. The main area features a 'Work Item type' dropdown menu currently set to 'Test Plan'. The dropdown list includes: [Any], Code Review Request, Code Review Response, Epic, Feedback Request, Feedback Response, Issue, Shared Parameter, Shared Steps, Task, Test Case, Test Plan, **Test Point** (highlighted with a red box), Test Results, Test Run, Test Step Run, and Test Suite. An orange arrow points from the text 'Virtual Work Items' to the 'Test Point' option. The background shows a table with columns for 'Label' and 'Style Sheet', and a 'Filter' button.

TRACE ANALYSIS

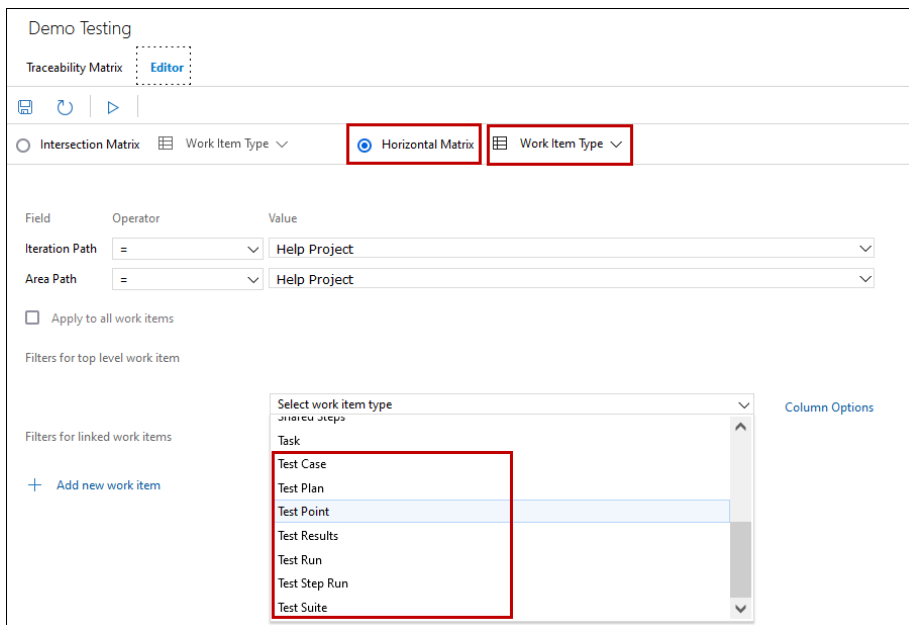
In the **Traceability** module, these virtual items can be used to create a **horizontal matrix** using:

- **Work item type**
- **Query type**

USING VIRTUAL WORK ITEMS TO CREATE A HORIZONTAL MATRIX USING QUERY TYPE



USING VIRTUAL WORK ITEMS TO CREATE A HORIZONTAL MATRIX USING WORK ITEM TYPE



CREATING TEST PLAN / TEST SUITE FROM TEST HUB IN AZURE DEVOPS

The screenshot displays the Modern Requirements4DevOps interface. On the left, a sidebar shows a test plan named 'Test-Plan-01' with a sub-suite 'Test-Plan-01'. A context menu is open over a test suite, with 'Smart Report' highlighted. The main area shows a test case titled '133172: As a registered user i want to log into my account (ID: 133175)'. Below the title, there are tabs for 'Define', 'Execute', and 'Chart'. A table lists two test cases:

Test Cases (2 items)					New Test Case
<input type="checkbox"/>	Title	Order	Test Case Id	Assigned To	State
<input type="checkbox"/>	User Registration module is working without a critical issue	1	133153	Syed Saad	Design
<input type="checkbox"/>	User registration is working well for Continental US and Hawaii addresses	2	133170	Syed Saad	Design

LIMITATIONS

SMART REPORT | QUERIES TAB :

- The linking of virtual work items is supported only when the report is generated from the **toolbar**.
- In Smart Report (Queries Tab), all the sections should be hierarchical except for the ones that do not have any subordinates and, for these, the hierarchy would be false.

Style Sheet: Default

Detailed Test plan

Work Item type: [Any] | Link Type(s): [Any]

Section Type: Form

Numbering | Hierarchy | Line Spacing

Group by: None | Sort by: None | Ascending

	Field	Style Sheet	Label	Style Sheet
+ x	ID	Heading-5		
+ x	Title	Heading-5		
+ x	Work Item Type	Normal	Work Item Type	Normal

+ Add new clause

- If you have work items other than Test Plan, Test Suite and Test Case, you cannot generate a test case API. If other work items are also a part of the query then the smart report will be generated on its normal functionality.

SMART REPORT | SMART DOCS MODULE :

- While using Smart Report in Smart Docs, the default section should have work item type “Any” or root work item type.

Style Sheet: Default

Test Coverage

Work Item type: [Any] | Section Type: Form

ID Hyperlink | Configure Link Type | Numbering | Hierarchy | Line Spacing

Group by: None | Sort by: None | Ascending

	Field	Style Sheet	Label	Style Sheet
+ x	ID		ID	
+ x	Title		Title	
+ x	Work Item Type		Work Item Type	

+ Add new clause

- The Report will only be generated on adding **Test Plan / Test Suite / Test Case** work items from **Insert Work Item** option. These work items are to be created from **Test Plan Hub**.