ROADMAP VISUAL for Power BI

USER MANUAL

Document Version	Date	Audience
2.0	January 2026	Australian Public Sector Power BI Creators

AI Disclosure: Artificial Intelligence was used during the creation of this documentation and the associated codebase.

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1. Executive Summary

The Roadmap Visual is a custom Power BI visual designed to display project timelines, milestones, and work items in an interactive roadmap format. This visual is built specifically for use within the Power BI ecosystem and adheres to Microsoft certification requirements.

Security Summary

- No data transmission to external servers
- No data storage (localStorage, cookies, IndexedDB)
- Executes entirely within Power BI sandbox
- Microsoft certification compliant

2. Architecture Overview

This section provides technical details about the visual architecture, data flow, and security boundaries. Understanding this architecture is essential for IT security assessments and governance reviews.

2.1 System Architecture

The Roadmap Visual operates as a self-contained component within the Power BI rendering engine. It follows a strict input-process-output model with no external dependencies or network calls.

Architecture Diagram

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%           POWER BI SERVICE                  %
%  %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%   %
%  %       VISUAL SANDBOX (Isolated)     %   %
%  %  %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%   %   %
%  %  %    ROADMAP VISUAL           %   %   %
%  %  %  %%%%%%%%%    %%%%%%%%%%%%  %   %   %
%  %  %  % D3.js % !' % SVG/DOM  %  %   %   %
%  %  %  %%%%%%%%%    %%%%%%%%%%%%  %   %   %
%  %  %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%   %   %
%  %         !'Data via DataView        %   %
%  %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%   %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

2.2 Component Stack

The visual is built using the following technology stack, all of which are approved components within the Power BI Visuals SDK:

Component	Version	Purpose
Power BI Visuals API	5.8.0	Core visual framework
TypeScript	5.x	Type-safe development
D3.js	7.8.5	Data visualisation library

2.3 Data Flow

Data flows through the visual in a strictly controlled, read-only manner:

1. Power BI loads data from configured data sources (e.g., Azure DevOps, Excel, SQL)
2. Data is passed to the visual via the DataView API (read-only)
3. Visual processes data in-memory to calculate positions and render timeline
4. D3.js renders SVG elements to the sandboxed DOM
5. User interactions (zoom, pan, expand) are handled locally within the sandbox

Key Point: No data leaves the Power BI boundary. The visual cannot and does not make any network requests, store data persistently, or communicate with external services.

3. Security Posture

This section details the security controls implemented in the Roadmap Visual and provides evidence of compliance with Australian Government security requirements.

3.1 Data Transmission

The visual does not transmit data to any external servers or services. This has been verified through code audit:

Network API	Status
fetch() / XMLHttpRequest	Not Used
WebSocket connections	Not Used
Beacon API	Not Used
External script loading	Not Used
Analytics/telemetry	Not Used

3.2 Data Storage

The visual does not store any data persistently. All data exists only in memory during the active session:

Storage API	Status
localStorage	Not Used
sessionStorage	Not Used
IndexedDB	Not Used
Cookies	Not Used
File System Access	Not Used

3.3 DOM Security

The visual follows secure DOM manipulation practices to prevent XSS and injection attacks:

Security Control	Implementation
innerHTML usage	Prohibited - uses D3 .text() and .append()
Input sanitisation	sanitizeString() escapes all user data
eval() / Function()	Not used
Dynamic script injection	Not permitted

4. Compliance Summary

The following table provides a comprehensive compliance assessment against Microsoft Power BI certification requirements and Australian Government security standards.

4.1 Microsoft Certification Compliance

Requirement	Status	Implementation
Power BI Visuals SDK	' Compliant	powerbi-visuals-api v5.8.0
TypeScript source code	' Compliant	src/visual.ts
D3.js for rendering	' Compliant	d3 v7.8.5
Rendering Events API	' Compliant	renderingStarted/Finished/Failed
Context Menu support	' Compliant	selectionManager.showContextMenu()
Selection Manager	' Compliant	Click and multi-select support
No external network calls	' Compliant	No fetch/XHR/WebSocket
Safe DOM manipulation	' Compliant	D3 .text() and .append() only
Input sanitisation	' Compliant	sanitizeString() function
destroy() method	' Compliant	Cleanup implemented
.gitignore file	' Compliant	Included in package
tslint.json / eslint config	' Compliant	Code quality rules applied

4.2 Australian Government Security Compliance

ISM Control Area	Status	Evidence
Data sovereignty - no offshore transmission	' Compliant	No network calls
Data at rest protection	' Compliant	No persistent storage
Data in transit protection	N/A	No data transmitted
Input validation	' Compliant	All inputs sanitised
Code integrity	' Compliant	Signed package, no eval()
Third-party component management	' Compliant	Only approved SDK components
Logging and audit	' Compliant	Power BI handles audit logging

5. User Guide

This section provides instructions for using the Roadmap Visual within your Power BI reports.

5.1 Data Requirements

The visual requires specific data fields to render correctly. Map your data source columns to these fields in the Power BI field well:

Required Fields

Field	Type	Description
WorkItemId	Number	Unique identifier for each item
Title	Text	Display name of the work item
StartDate	Date	When the item begins
TargetDate	Date	When the item is due

Optional Fields

Field	Type	Description
WorkItemType	Text	Epic, Feature, Milestone, etc.
State	Text	Current status (New, Active, Closed)
ParentWorkItemId	Number	Links child items to parent Epics
AreaPath	Text	For swimlane grouping
IterationPath	Text	Sprint/iteration for grouping
AssignedTo	Text	Person responsible for the item
Priority	Number	1-4 priority ranking
Tags	Text	Comma-separated tags for filtering

5.2 Navigation Controls

Action	How To
Pan timeline	Click and drag on the timeline area
Zoom in/out	Ctrl + scroll wheel, or use zoom buttons
Expand/collapse Epic	Click on an Epic row to show/hide child items

Expand/collapse swimlane	**Click on a swimlane header**
Edit title/subtitle	**Click on the title or subtitle text to edit inline**
Print/Export PDF	**Use browser print dialog (Ctrl+P)**

5.3 Zoom Levels

The visual uses discrete zoom levels for optimal navigation:

Level	View	Day Width	Best For
0.5x	Year overview	5px	Annual planning
1x	Month view	16px	Quarterly roadmaps
2x	Week view	28px	Sprint planning
3x+	Day view	40px	Detailed scheduling

5.4 Settings Configuration

Access settings via the Settings button (gear icon) in the visual toolbar. Available options include:

- Swimlane grouping: Area Path, Iteration Path, Assigned To, State, Priority, Tags
- Colour customisation: Epic, Feature, and Milestone colours
- Bar display: Choose which fields appear on timeline bars
- Row and bar heights: Adjust sizing for dense or spacious layouts
- Dependencies: Toggle dependency lines on/off

6. Azure DevOps OData Integration

This section provides detailed guidance for connecting the Roadmap Visual to Azure DevOps Analytics via OData.

6.1 OData Field Reference

Visual Field	OData Entity	OData Field Name	Notes
Work Item ID	WorkItems	WorkItemId	Primary key
Title	WorkItems	Title	Display name

Work Item Type	WorkItems	WorkItemType	Filter: Epic, Feature, Milestone
State	WorkItems	State	New, Active, Resolved, Closed
Start Date	WorkItems	StartDate	May be null
Target Date	WorkItems	TargetDate	May be null
Parent ID	WorkItems	ParentWorkItemId	Links hierarchy
Area Path	Area	AreaPath	Use $expand=Area
Iteration Path	Iteration	IterationPath	Use $expand=Iteration
Assigned To	User	UserName	Use $expand=AssignedTo
Priority	WorkItems	Priority	Integer 1-4
Tags	WorkItems	Tags	Comma-separated string

6.2 Sample OData Query URLs

Basic Query (Required Fields Only):

```
https://analytics.dev.azure.com/{org}/{project}/_odata/v4.0-preview/WorkItems?
  $select=WorkItemId,Title,WorkItemType,State,StartDate,TargetDate
  &$filter=WorkItemType in ('Epic','Feature','Milestone')
```

Full Query (All Fields):

```
https://analytics.dev.azure.com/{org}/{project}/_odata/v4.0-preview/WorkItems?
  $select=WorkItemId,Title,WorkItemType,State,StartDate,TargetDate,ParentWorkItemId,P
  &$filter=WorkItemType in ('Epic','Feature','Milestone')
  &$expand=Area($select=AreaPath),Iteration($select=IterationPath),AssignedTo($select
```

With Date Filtering:

```
https://analytics.dev.azure.com/{org}/{project}/_odata/v4.0-preview/WorkItems?
  $select=WorkItemId,Title,WorkItemType,State,StartDate,TargetDate,ParentWorkItemId
  &$filter=WorkItemType in ('Epic','Feature','Milestone')
    and TargetDate ge 2024-01-01
    and TargetDate le 2024-12-31
  &$expand=Area($select=AreaPath)
```

6.3 Connection Steps

1. In Power BI Desktop, click Get Data !’ OData Feed
2. Enter the OData URL (see examples above), replacing {org} and {project} with your values
3. Select Organizational Account and authenticate with your Azure DevOps credentials
4. In Power Query Editor, transform data if needed:

- Expand nested columns (Area, Iteration, AssignedTo)
- Rename columns to match visual data roles
- Set correct data types (dates, numbers)

5. Drag fields to the visual's data roles in the Fields pane

7. Support and Maintenance

7.1 Troubleshooting

Issue	Resolution
Visual shows empty state	Ensure all required fields are mapped in the field well
Items not appearing on time...	Check that StartDate and TargetDate are valid dates, not null
Parent-child relationships ...	Verify ParentWorkItemId values match existing WorkItemIds
Performance issues with lar...	Filter data to show fewer items, or increase row height
Swimlanes not grouping corr...	Ensure the grouping field has consistent values (no nulls)
OData connection issues	Verify organization and project names in URL; check Azure ...

7.2 Version History

Version	Date	Changes
2.0.0	17 Janu...	Microsoft certification compliance, security hardening, architecture docu...
1.0.0	17 Janu...	Initial release with core roadmap functionality

8. Security Attestation

This section provides a formal attestation for governance and security review purposes.

Developer Attestation

I attest that the Roadmap Visual for Power BI:

1. Does not transmit data to any external servers or services
2. Does not store data persistently (no localStorage, cookies, IndexedDB)
3. Executes entirely within the Power BI visual sandbox boundary
4. Uses only approved Power BI Visuals SDK components
5. Implements input sanitisation to prevent XSS attacks
6. Does not include tracking, analytics, or telemetry capabilities

Signature:	___________________________________
Name:	___________________________________
Position:	___________________________________
Date:	___________________________________

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