

Thing Description - Binding Task Force

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TPAC 2025 - WoT F2F Meeting

Agenda

- Grand Binding Templates Reorganization
 - What happened, where will each document live, any wishes/requirements?
- TD 2.0
 - Working Style
 - New features
 - Tooling
- Tomorrow: Binding Registry
 - Pilot phase
 - Notes for Existing Bindings
- What can **you** do?

Grand Binding Templates Reorganization

Web of Things (WoT) Binding Registry

W3C Draft Registry 04 November 2025



▼ More details about this document

This version:

<https://www.w3.org/TR/2025/DRY-wot-binding-registry-20251104/>

Latest published version:

<https://www.w3.org/TR/wot-binding-registry/>

Latest editor's draft:

<https://w3c.github.io/wot-binding-registry/>

History:

<https://www.w3.org/standards/history/wot-binding-registry/>

[Commit history](#)

Editor:

Ege Korkan ([Siemens AG](#))

Web of Things (WoT) Binding Templates

W3C Group Note 04 November 2025



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Editors:

Michael Koster ([Invited Expert](#))

Ege Korkan ([Siemens AG](#))

TD 2.0

- Working Style
- Hiccups
- New features
- Tooling

TD 2.0: Working Style

Why do we do the work we do?

Why did we do the work we did?

How to structure the upcoming work? Prioritize, distribute the work

Question to the room: How do you think it should be, before I show you some answers?

TD 2.0: Working Style

Some things everyone agrees on:

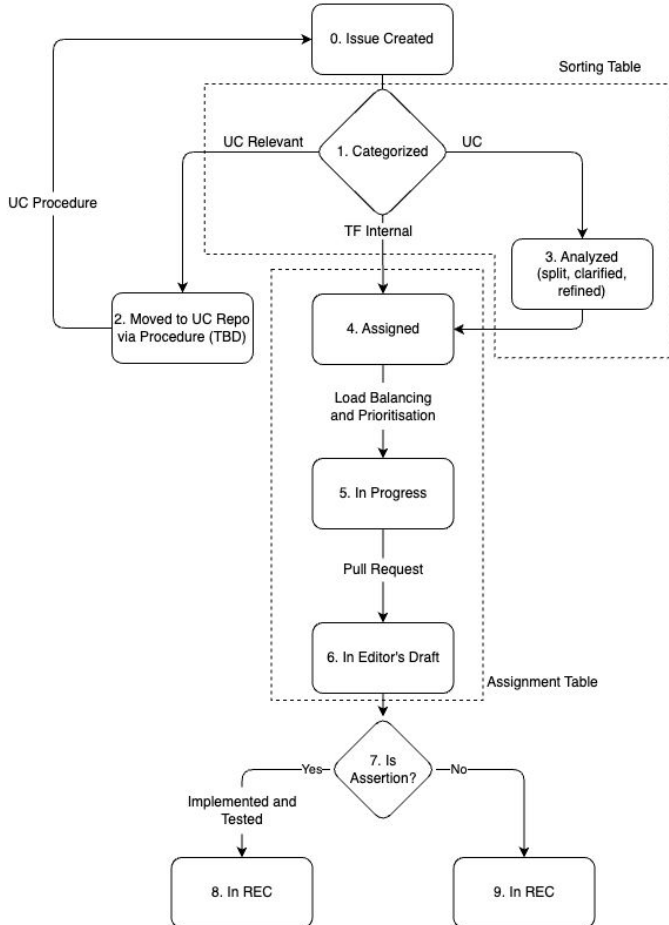
1. Charter governs the overall topics
2. We have issue that point to a need, includes discussion, preliminary consensus in some cases
3. We create PRs, includes reviews and discussions
4. We test features in plugfests, refine them going through steps 2 -> 4

TD 2.0: Working Style

Some things were not clear though:

- Which feature gets to be worked on first?
- Is there a real use case behind the issue?
- More granular timeline than the charter?

So we did a bunch of thinking, discussed, came up with ways we should do it and are doing. Not working perfectly :)



<p>Unsorted 209</p> <p>An issue has been created but not analyzed yet. This is the raw backlog of issues that are not sorted into a category yet.</p> <ul style="list-style-type: none"> wot-thing-description #2087 Proposal: Move Forms out of the TD (TD2.0) wot-thing-description #1996 Evaluating bikeshed wot-thing-description #1986 Prioritization in Project Management wot-thing-description #1984 Incorporate Toolchain Requirements into Toolchain Analysis wot-thing-description #1982 update tool-analysis.md re SOML wot-thing-description #1980 Look into labeling issues with "Needed by other TF" differently wot-thing-description #1976 Describe the possible/allowed combinations of (un)observational properties wot-thing-description #1973 License information about a TM wot-thing-description #1968 Requiring Thing or not in @type wot-thing-description #1964 Trailing comma configuration + Add item 	<p>Categorized - Not Assigned 26</p> <p>It has been categorized but not decided who should work on it. At this stage, there has to be technical category labels in the issue</p> <ul style="list-style-type: none"> wot-thing-description #2114 Creating Section Introductions for FPWD wot-thing-description #2094 Better description for EventAffordance subscription and cancellation wot-thing-description #2083 Identifying Types of Changes for Categorization wot-thing-description #1974 Clarifying that actions can be about non-physical processes wot-thing-description #2011 ThingModel extension via :extends of actions and events wot-thing-description #2027 Anything that mentions the forms container needs to be checked wot-thing-description #2013 Holistic id definition rules wot-thing-description #2034 Documenting best practices wot-thing-description #2028 Add clarifications about the presence and lack of data schemas + Add item 	<p>Assigned 7</p> <p>One or more persons assigned to work on it. It should be prioritized yet. At this stage the items are already work items</p> <ul style="list-style-type: none"> wot-thing-description #2071 Json-ld playground Error thing definition ontology/schema wot-thing-description #1824 Make more explicit what to expect regarding Forms for the same affordance wot-thing-description #1972 unwanted any type for title wot-thing-description #2043 Inconsistencies between wot-security ontology and context file wot-thing-description #2044 Inconsistencies between HCTL ontology and context file wot-thing-description #2032 Diagrams SVG Export and Colours wot-thing-description #2041 Property affordances compact non-JSON-schema semantic types (@type) to JSON-schema type using the TD 1.1 @context + Add item 	<p>In Progress 6</p> <p>This is actively being worked on. Once a ready-to-review PR is ready, it should be moved to the right</p> <ul style="list-style-type: none"> wot-thing-description #2099 Collecting input for the Manageable Affordances Analysis wot-thing-description #1248 Reduce intrinsic protocol level redundancy wot-thing-description #2094 Collecting Analysis on Data Mapping wot-thing-description #2102 Clarifications for Initial Connection wot-thing-description #2151 Adding relevant Arch Assertions wot-thing-description #1995 Experimenting with Specification Tooling + Add item 	<p>In Review 2</p> <p>The issue has a ready to review PR and can take reviews while in this column</p> <ul style="list-style-type: none"> wot-thing-description #2163 Array instead of string for common definition references wot-thing-description #2158 fix: syntax error in wotsec: # + Add item 	<p>Parking Lot 4</p> <p>Something that had discussion but is currently paused</p> <ul style="list-style-type: none"> wot-thing-description #2068 Specify the result of queryact() wot-thing-description #1969 WIP: Concrete Versioning Prop wot-thing-description #2054 Reconsider id being optional wot-thing-description #1939 Agreeing on meaning of author + Add item
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Thing Description Planning

In this folder, you can find resources to help with understanding how the next version of the Thing Description deliverable is planned. First, work items are listed and then a roadmap with priorities is provided per category.

Work Items

Categories

The work items are split into four categories.

- 1. [Binding Templates](#): The first category is Binding Templates, which involves specifying the mechanism but also the submission mechanism.
- 2. [Usability and Design](#): The second category focuses on work items that are more about restructuring, redesigning, and improving the usability of the specification. These could pave the way for new features.
- 3. [New Features](#): The third category is about work items that are directly linked to new features.
- 4. [Testing and Tooling](#): The fourth category is comprised of items that help the specification management and maintain consistency.

Such categories can be reflected with labels and different views in the GitHub project management panel. The task force will go through existing issues, pull requests, and discussions, and categorize them accordingly.

- **Priorities:** The items in each markdown under [td-next-work-items](#) are a flat list with no priorities set for now. Ideally, items that are dependencies to other items and those with concrete industry use cases will be prioritized.
- **Details:** The details of different work items can be found at <https://github.com/w3c/wot/blob/main/proposals/deliverable-proposals/thing-description.md>. We will consolidate such details and link them appropriately.

<https://github.com/w3c/wot-thing-description/blob/main/planning/README.md>

TD.Next Feature Aiming Work Items

For new features (keywords or behavior), a use case (or user story) should exist in the first place. While the refactoring topics are being worked on, new features should not be incorporated into the specification. Instead, the TF will analyze current solutions, gather existing use cases and discussions, and write the requirements to shape the feature. These are contained in this folder with the `analysis-` prefix.

Historical Data

historical data

Also known as time series.

Please refer to the [analysis document](#)

Manageable Affordances

manageable affordances

ems / new-features.md

(46 loc) · 3.95 KB

Streaming

Unable to select next GitHub token from pool

Note: This should be moved to an analysis document.

A streaming protocol establishes an ongoing connection supporting delivery of time-sensitive information such as audio or video. Note that this connection in general may be over either reliable (TCP) or unreliable (UDP) transports, or over a combination, and may also support encryption or content management. Streaming may also be used to support other kinds of ongoing time-sensitive data delivery.

While related to event notification mechanisms, streaming in practice is supported by a specific set of protocols such as RTSP, HLS, DASH, MSE, WebRTC, etc. This work item would add any infrastructure needed to TDs in order to support streaming protocol bindings generally, for example, by adding additional subprotocols supporting stream publication and subscription management (if needed).

In order to clearly define what infrastructure is actually needed, if any, one or more concrete streaming protocol bindings should also be attempted, such as [RTSP](#).

Signing and Canonicalization

Note: This should be moved to an analysis document.

Signing

Unable to select next GitHub token from pool

Mechanisms for signing TDs documents were under discussion in the last charter but were not mature enough to include. Adding support for TD canonicalization and signing would be helpful to ensure that TDs are not intercepted and modified by third parties. Verifying a signature requires identity management, i.e. the verifier needs to know or have trusted access to the public key of the signer. Directories need to be extended to verify signatures and generate new chained signatures as needed.

<https://github.com/w3c/wot-thing-description/blob/main/planning/work-items/new-features.md>

First an analysis is done

Manageable Affordances Analysis

manageable affordances

Traditional "interaction affordances" in WoT (Properties, Actions, Events) describe what a Thing can do or expose. Manageable Affordances, on the other hand, address scenarios where these interactions are not just one-off calls but require ongoing management and/or monitoring, and/or have dependencies on other interactions. In practice, they require a more complex interaction model which is rather a state machine "or an application protocol" than a simple request/response. An instance of manageable affordances are Manageable Actions that span multiple protocol transactions. Such actions are not simply invoked but need to be managed over time by the Thing and the Consumer. These are covered in the WoT Thing Description 1.1 via the initiation (`invokeaction`), monitoring (`queryaction`), and cancellation (`cancelaction`) of ongoing actions. However, the following points are not supported:

- Sent and received payloads associated to the operations
- Management of dynamically generated identification
- Describing queues of actions
- Describing alarms that involve multiple affordances (see BACnet Binding Alarms)

These limitations are also influencing the Profiles.

Additionally, there have been proposals by the WG members that need to be taken into account and evaluated:

- <https://github.com/w3c/wot-thing-description/tree/main/proposals/hypermedia-control>
- <https://github.com/w3c/wot-thing-description/tree/main/proposals/hypermedia-control-2>
- <https://github.com/w3c/wot-thing-description/tree/main/proposals/hypermedia-control-3>

Related Issues:

<https://github.com/w3c/wot-thing-description/blob/main/planning/work-items/analysis/analysis-manageable-affordances.md>

Then a concrete proposal

Common Definitions

common definitions

Purpose of this folder

This folder contains a sandbox-like environment to work on the feature before it is integrated into the editor's draft. Some tooling, tests with examples, proposal text are found here.

TODOs

- Move the "Process Stakeholder" definitions somewhere:
 - Submitter: Entity who has submitted the user story, is interested in it, and thus wants this story to be successful.
 - Specification Writers: People from the TF who want to (or can) work on writing the specification text and corresponding resources.
 - Implementation Volunteers: People who want to implement this and contribute the results to the implementation report. The submitter is strongly encouraged to provide an implementation result.
 - Impacted: Entities who will be impacted by this user story. Impact type can be "implementation overhead", "security", "privacy", "accessibility", etc., and should be prefixed with – if it is a negative change, e.g., there is less implementation overhead but more privacy issues. Some lists to look at: <https://w3c.github.io/wot-usecases/#stakeholders>, <https://w3c.github.io/wot-security/#wot-threat-model-stakeholders>.

User Stories

1. Connection Oriented Protocols

- **Who:** Deployer of devices with connection oriented protocols
- **What:** Reusable Connection descriptions in a TD
- **Why:** Better describe connection oriented protocols such as MQTT and WebSockets (Problem nb. 4 below)
- **Sentence:** **As** a deployer of devices with connection oriented protocols, **I need** reusable connection descriptions in a TD, **so that I can** better describe connection oriented protocols such as MQTT and WebSockets (Problem nb. 4 below)

<https://github.com/w3c/wot-thing-description/tree/main/proposals/common-definitions>

TD 2.0: Working Style

Let's get opinions

SK: The progress should be quicker

KA: Timeline proposal for the individual work items

MN: What is the focus area of individuals of the TF. So they pull the issues as they come along.

TD 2.0: Hiccups

The work got interrupted a couple of times:

- wot-resources: we were not versioning the resources like schema, ontology
 - <https://github.com/w3c/wot-thing-description/pull/1969> is tabled for now
- erratas were not managed
 - Resulted in <https://github.com/w3c/wot/blob/main/policies/errata-management.md>
- Still open questions like what is the role of an editor

Together with the planning discussions, we seem to have done a lot of WG-level stuff as the only REC-track active TF.

TD 2.0: New Features

- Common Definitions
 - shown in plugfest summary
 - Currently in proposal stage
- Manageable Affordances
 - Long lasting async actions, events with multiple acknowledgements
 - Currently in analysis stage
- Data mapping
 - How to deal with value wrappers (e.g. ECHONET), Modbus registers with multiple values
 - Currently in early analysis stage (collecting user stories)

TD 2.0: Tooling

Change to Mahda's presentation

Binding Registry

- Pilot phase
- Notes for Existing Bindings

What can you do?

- Driving new features:
 - Be a champion
 - Create an analysis by gathering existing work
 - Build consensus within the task force and reach a proposal
 - Integrate into the specification
- Help with tooling: LinkML based information modeling
- Bring new use cases from the community