

# 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:

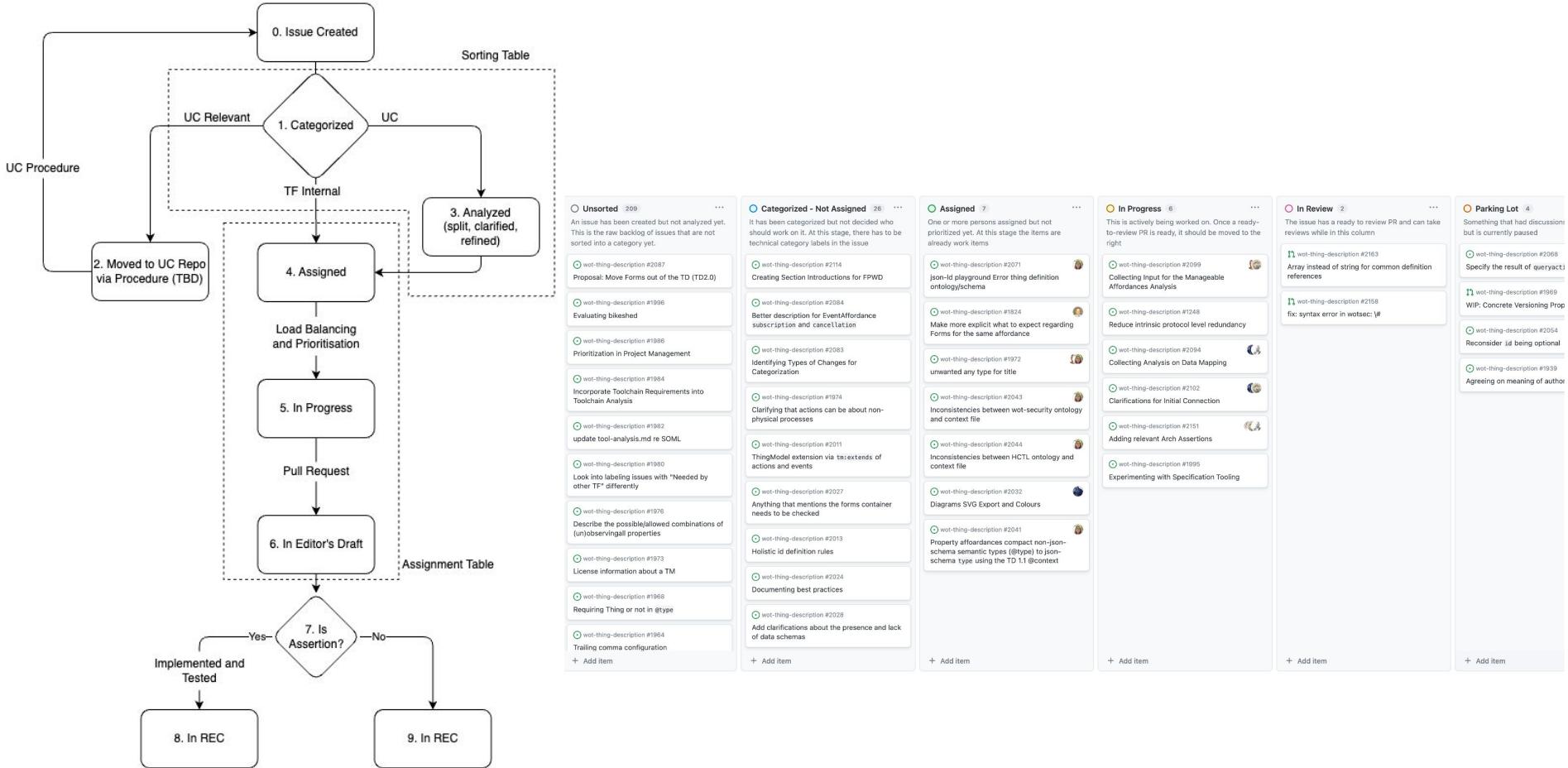
1. Charter governs the overall topics
2. We have issue that point to a need, includes discussion, preliminary consensus in some cases
3. We create PRs, includes reviews and discussions
4. We test features in plugfests, refine them going through steps 2 -> 4

# 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 :)



# 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