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**MIPI Discovery and  
Configuration (DisCo<sup>SM</sup>)  
Creation Tool**

**MIPI ALLIANCE  
DEVELOPERS  
CONFERENCE  
TAIPEI  
18 OCTOBER 2019**

# Agenda

- DisCo Background
- DisCo Creation Tool
- Demo

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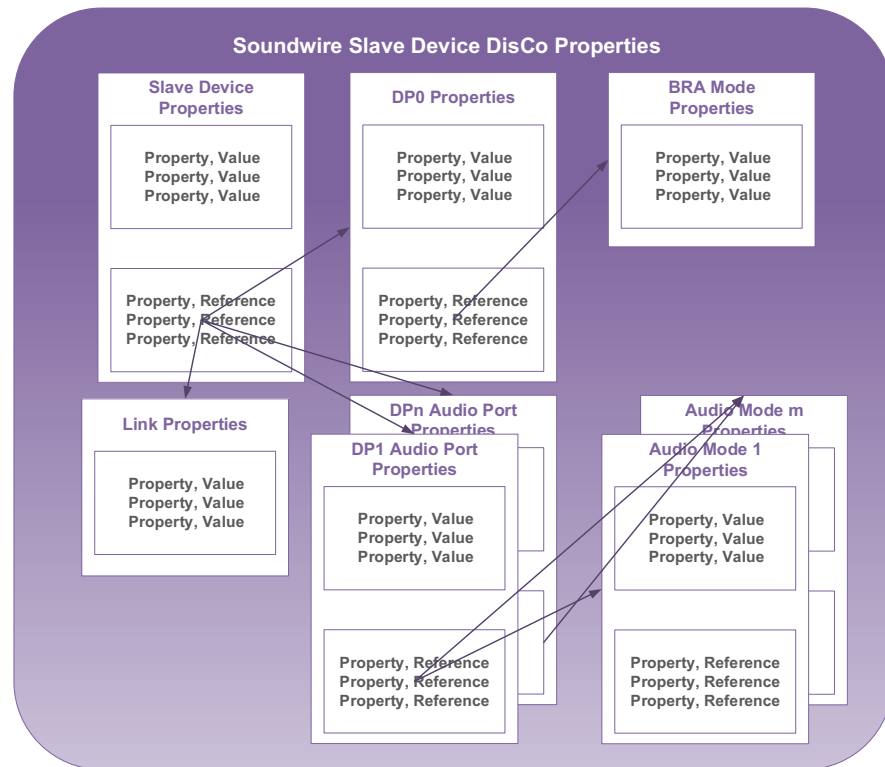
# What is DisCo (Discovery and Configuration)?

- ACPI based specifications that describe hardware
  - Defines properties that are device-specific: MIPI I3C HCI<sup>SM</sup>, MIPI Soundwire Master, etc.
- MIPI currently defines 4 DisCo specifications ([software.mipi.org](https://software.mipi.org)) - more on the way
- Information is encoded in ACPI Objects like \_DSD (Device-Specific Data) properties and includes:
  - Platform-specific information
  - Component-specific information
- DisCo properties are published by platform firmware into system memory, and consumed by software drivers in the operating system

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## DisCo Properties

- Properties are often hierarchical, many layers of sub properties
- Properties are written in Advanced Configuration and Power Interface Source Language (ASL)



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Property String	Data Type	Description
"mipi-sdw-sw-interface-revision"	Integer	This is a 32-bit value where the upper word contains the major version number of this Specification, and the lower word contains the minor version number.
"mipi-sdw-max-clock-frequency"	Integer	This value provides the maximum Bus clock in Hz for this master. This is the maximum usable Bus clock frequency for this platform.
"mipi-sdw-clock-frequencies-supported"	Package	A package containing one integer entry for each clock frequency supported. Frequencies are represented in Hz.
"mipi-sdw-supported-clock-gears"	Package	A package containing one integer entry for each supported gear, e.g. {1, 2, 3, 4, , 16}. Some Masters may only support a single gear, or powers of two.

# Challenges with DisCo Properties

- Properties are written “by hand” (with a text editor)
  - DisCo Property sets are documented in multiple specs
  - Vendor-specific property definitions also exist
  - Development process is prone to error
- Property values must be provided by a component vendor, or discerned by the firmware developer from a datasheet
  - Hand-coding complex hierarchies is easy to get wrong
  - Current compilers do not check `_DSD` syntax or data types

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# DisCo Creation Tool

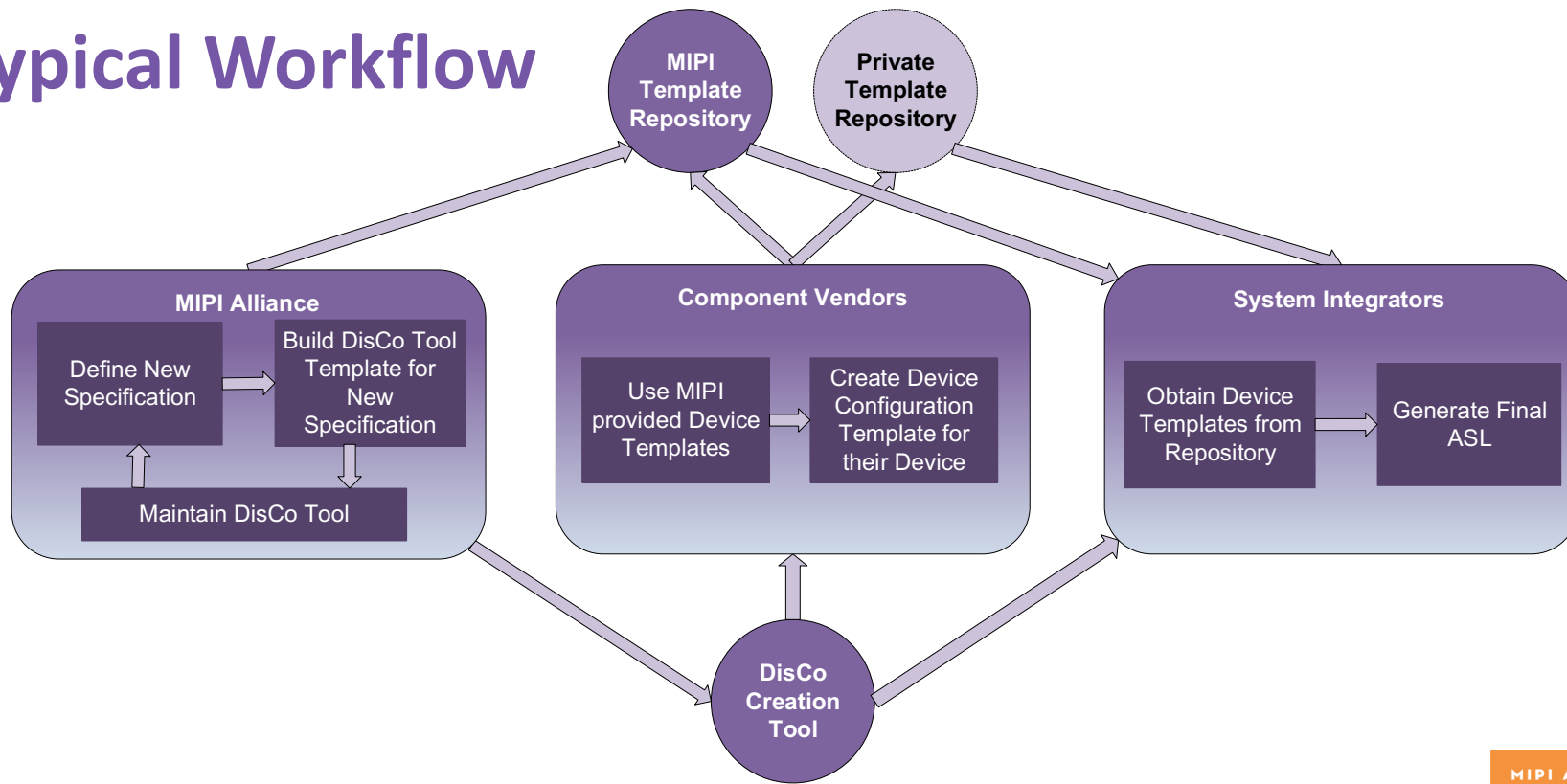
- Allows component vendors to select the properties that apply to their components, select/enter the value(s) that apply to those properties, and ensures that the input values and format conform to DisCo specifications
- Allows vendors to extend with vendor-specific properties as needed
- Provides open-source access to device property templates via repository
- Makes DisCo properties easy to manage and use
- Reduces amount of effort required to develop platform firmware images
- Reduces effort needed for platform firmware/software debug

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# Demo

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# Typical Workflow



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## Current status

- Initial code contributed by Microsoft
- New features are constantly getting added
- Tentative Public Availability: June 2020

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## ADDITIONAL RESOURCES

- DisCo Specifications: [software.mipi.org](https://software.mipi.org)

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