# RESOLUTE documentation

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## 1 RESOLUTE annex overview

RESOLUTE is an AADL annex language used to validate AADL components with specific constraints. The language is supported by an analysis tool that can verify the constraints again the model. The analysis tool is implemented within OSATE, the AADL toolset reference.

## 2 Adding RESOLUTE annex to AADL components

Adding resolute to AADL components is done by using the AADL annex mechanism.

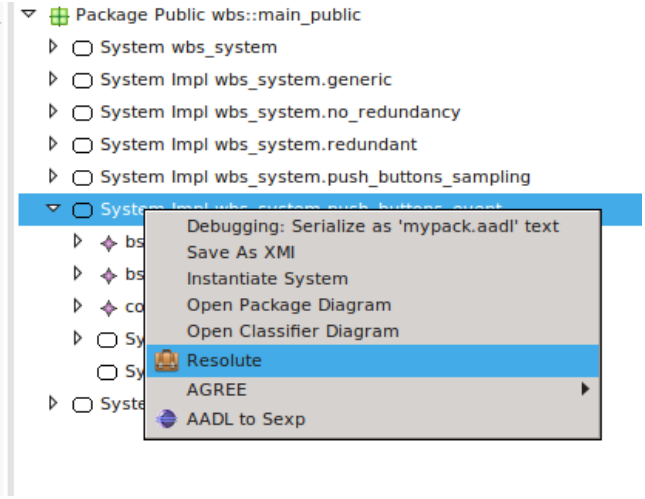


Figure 1: Invoking the tool on a system instance

# 3 Verifying a theorem

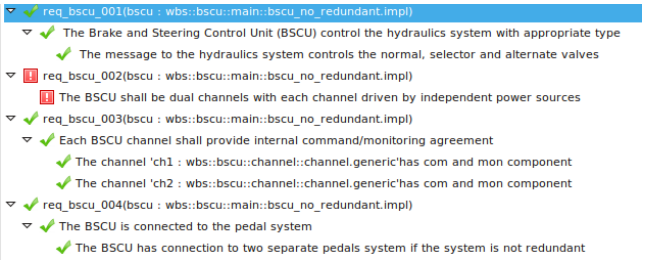


Figure 2: The Assurance Case View in OSATE

# 4 Functions list

- **has_property (namedelement, property): boolean** - the namedlement passed as argument has the property passed as the 2nd argument.
- **property (namedelement, property): value** - returns the value of the property defined on the namedelement.
- **has_parent (namedelement): boolean** - returns true if the component has a parent.
- **parent (namedelement): namedlement** - returns the parent of the namedelelement.
- **name (namedelement): string** - returns the name of the namedlement.
- **type (namedelement): namedelement** - returns the type of the component passed as argument.
- **has_type (namedlement): boolean** - returns true is the argument as an associated type. Typically, this function is used on feature to know if this is a data port, an event port, etc.
- **is_of_type (namedelement, namedelement): boolean** - check that the element passed as first argument has the type defined as the second argument or one of its type extension.
- **has_member (namedelement, string): boolean** - the namedelement passed as first argument has a member (subcomponent, feature) which name is defined by the second argument.
- ' **features (namedelement): set** - returns a set containing all the features of the namedlement.

- ' **connections (namedelement): set** - returns all the incoming or outgoing connections for the component.
- **subcomponents (namedelement): set** - returns a set containing all the subcomponents of the namedelement.
- **source (connection): namedelement** - returns the source (mostly a feature) of a connection.
- **destination (connection): namedelement** - returns the destination (most of the time, a feature) of a connection.
- **direction (namedelement): string** - returns a string that shows the direction of a namedelement.
- **is_event_port (namedelement): string** - returns true is the namedlement is an event port.
- **lower_bound (range): value** - returns the value of the lower bound of a range
- **upper_bound (range): value** - returns the value of the upper bound of a range.
- **member(value, set): boolean**
- **sum (set): value**
- **union (set, set): set**
- **intersect (set, set): set**
- **instance (namedelement): namedelement** - returns the instance component of the of declarative component passed as argument.
- **instances (namedlement): set** - returns all the instances of the declarative component passed as argument.
- **analysis**
- **receive_error**
- **contain_error**
- **propagate_error (namedelement, string): boolean**
- **error_state_reachable(namedelement, string): boolean**