

Evaluator

From Permissions and Obligations Expression Working Group

The task of an ODRL Evaluator is to determine which Permissions, Prohibitions, or Obligations are active and the state of the Rule.

An assignee can only exercise the action of a Permission over the specified asset (or be bound by a Prohibition or Obligation) if it is active.

The status of a Permission/Prohibition/Obligation is determined by the status of Actions, Rules (duty, remedy) and Constraints it references.

By the definition of the ODRL IM, Permissions can be Allowed or Not Allowed, Prohibitions Not Infringed or Infringed and Duties either Fulfilled or Not Fulfilled; Constraints are either Satisfied or Not Satisfied. As shown below, the Evaluator makes its determination on the basis of these values.

How these values are themselves determined is left to individual implementations. But given these values, all ODRL Evaluators should agree on which Permissions, Prohibitions, or Obligations are active and their states.

The test cases provided are drawn directly from examples in the Information Model.

EXAMPLE 12 - Permission P1 without constraints or duties:

ID	P1	Rule
E12-1	Active	Allowed

EXAMPLE 13 - Permission P1 with constraint C1:

ID	P1.C1	P1	Rule
E13-1	Satisfied	Active	Allowed
E13-2	Not Satisfied	Not Active	

- See section 2.6.1 Permission Class of the IM: "A Permission allows an action, with all refinements satisfied, to be exercised on an Asset if all constraints are satisfied and if all duties are fulfilled."
- See section 2.5.3 Constraint property with a Rule: "A Rule (such as a Permission, Prohibition, or Duty) may include the constraint property to indicate a condition on the Rule. To meet this condition, all of the the Constraints/Logical Constraints referenced by the constraint property must be satisfied."

EXAMPLE 14 - Permission P1 with an action A1 refined by Constraint R1:

ID	A1.R1	P1	Rule
E14-1	Satisfied	Active	Allowed
E14-2	Not Satisfied	Not Active	

EXAMPLE 15 - Permission P1 with an action A1 refined by a Logical Constraint LC1 with operand 'xone' and two Constraints R1 and R2:

ID	LC1.R1	LC1.R2	A1.LC1	P1	Rule
E15-1	Satisfied	Satisfied	Not Satisfied	Not Active	
E15-2	Satisfied	Not Satisfied	Satisfied	Active	Allowed
E15-3	Not Satisfied	Satisfied	Satisfied	Active	Allowed
E15-4	Not Satisfied	Not Satisfied	Not Satisfied	Not Active	

- See section 2.5.2 Logical Constraint Class: "A Logical Constraint class is used for expressions which compare two or more operands which are existing Constraints by one logical operator. If the comparison returns a logical match, then the Logical Constraint is satisfied, otherwise it is not satisfied."

EXAMPLE 16 - Permission P1 with a target AssetCollection T1 refined by Constraint R1:

ID	T1.R1	P1	Rule
E16-1	Satisfied	Active	Allowed
E16-2	Not Satisfied	Not Active	

EXAMPLE 17 - Permission P1 with an assignee PartyCollection AEE1 refined by Constraint R1:

ID	AEE1.R1	P1	Rule
E17-1	Satisfied	Active	Allowed
E17-2	Not Satisfied	Not Active	

EXAMPLE 18 - The Permission P1 is constrained by the Constraint C1:

ID	P1.C1	P1	Rule
E18-1	Satisfied	Active	Allowed
E18-2	Not Satisfied	Not Active	

EXAMPLE 19 - A Permission P1 and Prohibition Pr1 in a Policy:

ID	P1	Rule
E19-1	Active	Allowed

ID	Pr1	Rule
E19-2	Active	Not Infringed

EXAMPLE 20 - Obligation O1 with an action A1 refined by the Constraint R1:

ID	A1.R1	A1	O1	Rule
E20-1	Satisfied	Exercised	Active	Fulfilled
E20-2	Not Satisfied	---	Not Active??	Not Fulfilled

--Simon Steyskal (talk) 09:25, 26 September 2017 (UTC) that's wrong as O1 is always *active* (no constraints), but only considered to be *fulfilled* if O1's action was exercised and O1.R1 is satisfied.

--Michael Steidl (talk) 09:56, 26 September 2017 (UTC) Ben and Simon that raises a basic question: an "Is this Rule Active" evaluation has to evaluate all constraints of the Rule, but does it have to include also the refinements of action or - if existing - of target or assignee or not? E.g. rows E22-3, E21-3 and -5 below show that the Not-Satisfied refinement of the Duty-action has no impact on the Active-state of the Duty D1. While E20-2 shows an impact of refinements on the state of the Duty. See the alternative below:

ID	A1.R1	A1	O1	Rule
E20-1	Satisfied	Exercised	Active	Fulfilled
E20-2	Not Satisfied	Not Exercised	Active	Not Fulfilled

- See section 2.6.3 Duty Class: "A Duty is the obligation to exercise an action, with all refinements satisfied. A Duty is fulfilled if all constraints are satisfied and if its action, with all refinements satisfied, has been exercised. If its action has not been exercised, then all consequences must be fulfilled to fulfill the Duty. (Note: only Duties referenced by duty or obligation properties may use consequence properties.) "

EXAMPLE 21 - Obligation O1 with a consequence Duty Cq1 whose action A1 is refined by Constraint R1:

ID	O1	O1 (eval 1)	Cq1.A1.R1	Cq1	Cq1	O1 (eval 2)	Rule
E21-1	Active	Fulfilled		Not Active			Fulfilled
E21-2	Active	Not Fulfilled	Satisfied	Active	Not Fulfilled	Not Fulfilled	Not Fulfilled
E21-3	Active	Not Fulfilled	Not Satisfied	Active	Not Fulfilled	Not Fulfilled	Not Fulfilled
E21-4	Active	Fulfilled	Satisfied	Active	Fulfilled	Fulfilled	Fulfilled
E21-5	Active	Fulfilled	Not Satisfied	Active	Not Fulfilled	Not Fulfilled	Not Fulfilled

- Rows E21-2 - E21-5 are based on a Not-Fulfilled O1 after an evaluation without considering consequences, therefore in the following evaluation the consequences must be included into the evaluation.
- See section 2.6.6 Consequence property with a Permission/Obligation Duty: "A duty of a Permission, and obligation of a Policy, may include a consequence Duty of not fulfilling that duty or obligation. In this case, all consequence Duties must also be fulfilled ..."

EXAMPLE 22 - Permission P1 with duty D1. D1 has a constraint C1 and its action A1 is refined by Constraint R1:

ID	D1.C1	D1.A1.R1	P1.D1	P1.D1	P1	Rule
E22-1	Satisfied	Satisfied	Active	Fulfilled	Active	Allowed
E22-2	Satisfied	Satisfied	Active	Not Fulfilled	Not Active	
E22-3	Satisfied	Not Satisfied	Active	Not Fulfilled	Not Active	
E22-4	Not Satisfied		Not Active		Active	Allowed

EXAMPLE 23 - Permission P1 has a duty D1. D1 has a consequence Cq1:

ID	P1.D1	P1.D1	D1.Cq1	D1.Cq1	P1	Rule
E23-1	Active	Fulfilled	Not Active		Active	Allowed
E23-2	Active	Not Fulfilled	Active	Fulfilled	Not Active ??	Not Allowed
E23-3	Active	Not Fulfilled	Active	Not Fulfilled	Not Active ??	Not Allowed
E23-4	Active	Fulfilled	Active	Fulfilled	Active	Allowed
E23-5	Active	Fulfilled	Active	Not Fulfilled	Not Active ??	Not Allowed

- Rows E23-2 - E23-5 are based on a Not-Fulfilled D1 after an evaluation without considering consequences, therefore in the following evaluation the consequences must be included into the evaluation.

EXAMPLE 24 - Prohibition Pr1 with a remedy Rm1:

ID	Pr1.Rm1	Pr1.Rm1	Pr1	Rule
E24-1	Not Active		Active	Not Infringed
E24-2	Active	Fulfilled	Not Active??	Not Infringed
E24-3	Active	Not Fulfilled	Active	Infringed

- Rows E24-2 and E24-3 are based on exercising the action of the Prohibition, therefore Rm1 is Active.
- See section 2.6.2 Prohibition Class: "A Prohibition disallows an action, with all refinements satisfied, to be exercised on an Asset if all constraints are satisfied. If the Prohibition has been infringed by the action being exercised, then all of the remedies MUST be fulfilled to set the state of the Prohibition to not infringed."
- See section 2.6.7 Remedy property with a Prohibition: "The remedy property expresses an agreed Duty that must be fulfilled in case that a Prohibition has been infringed by being exercised. If the Prohibition action is exercised, then all remedy Duties must be fulfilled to address the violation of the Prohibition."

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