
MODULE *Configuration*

INSTANCE *Naturals*

INSTANCE *FiniteSets*

INSTANCE *Sequences*

INSTANCE *TLC*

An empty constant
CONSTANT *Nil*

Status constants
CONSTANTS
 InProgress,
 Complete,
 Failed

State \triangleq
 {*InProgress*,
 Complete,
 Failed}

Target is the set of all targets and their possible paths and values.

Example:

Target \triangleq
 [*target1* \mapsto
 [*persistent* \mapsto FALSE, *values* \mapsto [
 path1 \mapsto {“*value1*”, “*value2*”},
 path2 \mapsto {“*value2*”, “*value3*”}]],
 target2 \mapsto
 [*persistent* \mapsto TRUE, *values* \mapsto [
 path2 \mapsto {“*value3*”, “*value4*”},
 path3 \mapsto {“*value4*”, “*value5*”}]]]

CONSTANT *Target*

A record of per-target configurations
VARIABLE *configuration*

A record of target states
VARIABLE *target*

A record of target masterhips
VARIABLE *mastership*

$Test \triangleq$ INSTANCE $Test$ WITH
 $File \leftarrow$ "Configuration.log",
 $CurrState \leftarrow$ [
 $configuration \mapsto configuration$,
 $mastership \mapsto mastership$,
 $target \mapsto target$],
 $SuccState \leftarrow$ [
 $configuration \mapsto configuration'$,
 $mastership \mapsto mastership'$,
 $target \mapsto target'$]

This section models the *Configuration* reconciler.

$ReconcileConfiguration(n, t) \triangleq$
 $\wedge \vee \wedge Target[t].persistent$
 $\wedge configuration[t].state \neq Complete$
 $\wedge configuration' = [configuration \text{ EXCEPT } ![t].state = Complete]$
 $\wedge \text{UNCHANGED } \langle target \rangle$
 $\vee \wedge \neg Target[t].persistent$
 $\wedge \vee mastership[t].term > configuration[t].config.term$
 $\vee \wedge mastership[t].term = configuration[t].config.term$
 $\wedge mastership[t].master = Nil$
 $\wedge configuration' = [configuration \text{ EXCEPT } ![t].config.term = mastership[t].term,$
 $![t].state = InProgress]$
 $\wedge \text{UNCHANGED } \langle target \rangle$
 $\vee \wedge configuration[t].state = InProgress$
 $\wedge mastership[t].term = configuration[t].config.term$
 $\wedge mastership[t].master = n$
 $\wedge target' = [target \text{ EXCEPT } ![t] = configuration[t].target.values]$
 $\wedge configuration' = [configuration \text{ EXCEPT } ![t].target.term = mastership[t].term,$
 $![t].state = Complete]$
 $\wedge \text{UNCHANGED } \langle mastership \rangle$
