
MODULE *E2Node*

LOCAL INSTANCE *Naturals*

LOCAL INSTANCE *Sequences*

LOCAL INSTANCE *FiniteSets*

LOCAL INSTANCE *TLC*

An empty value

CONSTANT *Nil*

Node states

CONSTANT *Stopped, Started*

The *E2* node identifier

CONSTANT *E2Node*

A set of *RIC* node identifiers

CONSTANT *RIC*

ASSUME $\wedge IsFiniteSet(RIC)$
 $\wedge \forall n \in RIC : n \in \text{STRING}$

The state of the *E2* node

VARIABLE *state*

The state of the network

VARIABLE *network*

The state of *E2AP* connections

VARIABLE *conns*

Subscriptions

VARIABLE *subs*

$vars \triangleq \langle state, network, conns, subs \rangle$

LOCAL *E2AP* \triangleq INSTANCE *E2AP* WITH $conns \leftarrow network$

StartNode \triangleq
 $\wedge state = Stopped$
 $\wedge state' = Started$
 $\wedge \text{UNCHANGED } \langle network, conns, subs \rangle$

StopNode \triangleq

$\wedge state = Started$
 $\wedge state' = Stopped$
 $\wedge \text{UNCHANGED } \langle network, conns, subs \rangle$

$SendE2SetupRequest(c) \triangleq$
 $\wedge \text{UNCHANGED } \langle conns, subs \rangle$

$HandleE2SetupResponse(c, r) \triangleq$
 $\wedge \text{UNCHANGED } \langle conns, subs \rangle$

$HandleRICSubscriptionRequest(c, r) \triangleq$
 $\wedge \text{UNCHANGED } \langle conns, subs \rangle$

$HandleRICSubscriptionDeleteRequest(c, r) \triangleq$
 $\wedge \text{UNCHANGED } \langle conns, subs \rangle$

$HandleRICControlRequest(c, r) \triangleq$
 $\wedge E2AP!Client(E2Node)!Reply!RICControlAcknowledge(c, [foo \mapsto \text{"bar"}, bar \mapsto \text{"baz"}])$
 $\wedge \text{UNCHANGED } \langle conns, subs \rangle$

$HandleE2ConnectionUpdate(c, r) \triangleq$
 $\wedge \text{UNCHANGED } \langle subs \rangle$

$HandleE2NodeConfigurationUpdateAcknowledge(c, r) \triangleq$
 $\wedge \text{UNCHANGED } \langle subs \rangle$

$HandleRequest(c) \triangleq$
 $\wedge \vee E2AP!Client(E2Node)!Handle!RICSubscriptionRequest(c, HandleRICSubscriptionRequest)$
 $\vee E2AP!Client(E2Node)!Handle!RICSubscriptionDeleteRequest(c, HandleRICSubscriptionDeleteRequest)$
 $\vee E2AP!Client(E2Node)!Handle!RICControlRequest(c, HandleRICControlRequest)$
 $\vee E2AP!Client(E2Node)!Handle!E2ConnectionUpdate(c, HandleE2ConnectionUpdate)$
 $\vee E2AP!Client(E2Node)!Handle!E2NodeConfigurationUpdateAcknowledge(c, HandleE2NodeConfigurationUpdateAcknowledge)$
 $\wedge \text{UNCHANGED } \langle state \rangle$

$Init \triangleq$
 $\wedge E2AP!Init$
 $\wedge state = Stopped$
 $\wedge conns = [c \in \{\} \mapsto Nil]$
 $\wedge subs = [i \in \{\} \mapsto [id \mapsto Nil]]$

$Next \triangleq$
 $\vee StartNode$
 $\vee StopNode$
 $\vee \exists t \in RIC : E2AP!Client(E2Node)!Connect(t)$
 $\vee \exists c \in E2AP!Client(E2Node)!Connections : E2AP!E2Node(E2Node)!Disconnect(c)$

$\forall \exists c \in E2AP!Client(E2Node)!Connections : SendE2SetupRequest(c)$
 $\forall \exists c \in E2AP!Client(E2Node)!Connections : HandleRequest(c)$

\ * Modification History
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