

EXTENDS *Naturals, Sequences, TLC*

A reserved value.

CONSTANTS *Nil*

Message type constants

CONSTANT

*E2Setup,*  
*E2SetupResponse,*  
*E2SetupFailure*

CONSTANT

*ResetRequest,*  
*ResetResponse*

CONSTANT

*RICSubscriptionRequest,*  
*RICSubscriptionResponse,*  
*RICSubscriptionFailure*

CONSTANT

*RICSubscriptionDeleteRequest,*  
*RICSubscriptionDeleteResponse,*  
*RICSubscriptionDeleteFailure*

CONSTANT

*RICControlRequest,*  
*RICControlResponse,*  
*RICControlFailure,*  
*RICServiceUpdate*

CONSTANT

*E2ConnectionUpdate,*  
*E2ConnectionUpdateAcknowledge,*  
*E2ConnectionUpdateFailure*

CONSTANT

*E2NodeConfigurationUpdate,*  
*E2NodeConfigurationUpdateAcknowledge,*  
*E2NodeConfigurationUpdateFailure*

Failure cause constants

CONSTANT

*MiscFailureUnspecified,*  
*MiscFailureControlProcessingOverload,*  
*MiscFailureHardwareFailure,*  
*MiscFailureOMIntervention*

CONSTANT

*ProtocolFailureUnspecified,*  
*ProtocolFailureTransferSyntaxError,*

*ProtocolFailureAbstractSyntaxErrorReject,*  
*ProtocolFailureAbstractSyntaxErrorIgnoreAndNotify,*  
*ProtocolFailureMessageNotCompatibleWithReceiverState,*  
*ProtocolFailureSemanticError,*  
*ProtocolFailureAbstractSyntaxErrorFalselyConstructedMessage*

CONSTANT

*RICFailureUnspecified,*  
*RICFailureRANFunctionIDInvalid,*  
*RICFailureActionNotSupported,*  
*RICFailureExcessiveActions,*  
*RICFailureDuplicateAction,*  
*RICFailureDuplicateEvent,*  
*RICFailureFunctionResourceLimit,*  
*RICFailureRequestIDUnknown,*  
*RICFailureInconsistentActionSubsequentActionSequence,*  
*RICFailureControlMessageInvalid,*  
*RICFailureCallProcessIDInvalid*

CONSTANT

*RICServiceFailureUnspecified,*  
*RICServiceFailureFunctionNotRequired,*  
*RICServiceFailureExcessiveFunctions,*  
*RICServiceFailureRICResourceLimit*

CONSTANT

*TransportFailureUnspecified,*  
*TransportFailureTransportResourceUnavailable*

VARIABLE *connections*

VARIABLE *connectionId*

VARIABLE *messages*

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*InitMessageVars*  $\triangleq$

$\wedge \text{connections} = [c \in \{\} \mapsto [e2node \mapsto Nil, e2tnode \mapsto Nil]]$   
 $\wedge \text{messages} = [m \in \{\} \mapsto \langle \rangle]$

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*Send*(*c*, *m*)  $\triangleq$  *messages'* = [*messages* EXCEPT ![*c*] = *Append(messages[c], m)*]

*Receive*(*c*)  $\triangleq$  *messages'* = [*messages* EXCEPT ![*c*] = *SubSeq(messages[c], 2, Len(messages[c]))*]

*Reply*(*c*, *m*)  $\triangleq$  *messages'* = [*messages* EXCEPT ![*c*] = *Append(SubSeq(messages[c], 2, Len(messages[c])), m)*]

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$$\begin{aligned}
\text{Connect}(\text{ricnode}, \text{e2node}) &\triangleq \\
&\wedge \text{connectionId}' = \text{connectionId} + 1 \\
&\wedge \text{connections}' = \text{connections} @@ (\text{connectionId} :> [\text{ricnode} \mapsto \text{ricnode}, \text{e2node} \mapsto \text{e2node}]) \\
&\wedge \text{UNCHANGED } \langle \text{messages} \rangle
\end{aligned}$$

$$\begin{aligned}
\text{Disconnect}(\text{id}) &\triangleq \\
&\wedge \text{connections}' = [c \in \{v \in \text{DOMAIN } \text{connections} : v \neq \text{id}\} \mapsto \text{connections}[c]] \\
&\wedge \text{UNCHANGED } \langle \text{connectionId}, \text{messages} \rangle
\end{aligned}$$


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\ \* Last modified *Tue Aug 03 17:09:12 PDT 2021* by *jordanhalterman*  
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