

```

┌────────────────────────────────── MODULE Topo ───────────────────────────────────┐
EXTENDS API

LOCAL INSTANCE Naturals

LOCAL INSTANCE Sequences

LOCAL INSTANCE FiniteSets

CONSTANT Nodes

CONSTANT OK, Error

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

┌────────────────────────────────── MODULE Store ───────────────────────────────────┐
  Create(m)  $\triangleq [status \mapsto OK]$ 
  Update(m)  $\triangleq [status \mapsto OK]$ 
  Delete(m)  $\triangleq [status \mapsto OK]$ 
  Get(m)  $\triangleq [status \mapsto OK]$ 
  List(m)  $\triangleq [status \mapsto OK]$ 
  Watch(m)  $\triangleq [status \mapsto OK]$ 
  Init  $\triangleq \text{TRUE}$ 
  Next  $\triangleq \text{FALSE}$ 
┌──────────────────────────────────┐

LOCAL Store  $\triangleq \text{INSTANCE } Store$ 

┌────────────────────────────────── MODULE NB ───────────────────────────────────┐
  HandleCreateRequest(c, m)  $\triangleq$ 
     $\wedge \text{LET } r \triangleq Store!Create(m)$ 
     $\text{IN } API!Topo!Server!Send!CreateResponse(c, r)$ 
     $\wedge \text{UNCHANGED } \langle \rangle$ 

  HandleUpdateRequest(c, m)  $\triangleq$ 
     $\wedge \text{LET } r \triangleq Store!Update(m)$ 
     $\text{IN } API!Topo!Server!Send!UpdateResponse(c, r)$ 
     $\wedge \text{UNCHANGED } \langle \rangle$ 

  HandleDeleteRequest(c, m)  $\triangleq$ 

```

$$\begin{aligned} & \wedge \text{LET } r \triangleq \text{Store!Delete}(m) \\ & \quad \text{IN } \text{API!Topo!Server!Send!DeleteResponse}(c, r) \\ & \wedge \text{UNCHANGED } \langle \rangle \end{aligned}$$

$$\begin{aligned} \text{HandleGetRequest}(c, m) & \triangleq \\ & \wedge \text{LET } r \triangleq \text{Store!Get}(m) \\ & \quad \text{IN } \text{API!Topo!Server!Send!GetResponse}(c, r) \\ & \wedge \text{UNCHANGED } \langle \rangle \end{aligned}$$

$$\begin{aligned} \text{HandleListRequest}(c, m) & \triangleq \\ & \wedge \text{LET } r \triangleq \text{Store!List}(m) \\ & \quad \text{IN } \text{API!Topo!Server!Send!ListResponse}(c, r) \\ & \wedge \text{UNCHANGED } \langle \rangle \end{aligned}$$

$$\begin{aligned} \text{HandleWatchRequest}(c, m) & \triangleq \\ & \wedge \text{LET } r \triangleq \text{Store!Watch}(m) \\ & \quad \text{IN } \text{API!Topo!Server!Send!WatchResponse}(c, r) \\ & \wedge \text{UNCHANGED } \langle \rangle \end{aligned}$$

$$\begin{aligned} \text{Init} & \triangleq \\ & \wedge \text{TRUE} \end{aligned}$$

$$\begin{aligned} \text{Next} & \triangleq \\ & \vee \exists s \in \text{Nodes} : \text{API!Topo!Server!Serve}(s) \\ & \vee \exists s \in \text{API!Topo!Servers} : \text{API!Topo!Server!Stop}(s) \\ & \vee \exists c \in \text{API!Topo!Connections} : \\ & \quad \vee \text{API!Topo!Server!Receive!CreateRequest}(c, \text{HandleCreateRequest}) \\ & \quad \vee \text{API!Topo!Server!Receive!UpdateRequest}(c, \text{HandleUpdateRequest}) \\ & \quad \vee \text{API!Topo!Server!Receive!DeleteRequest}(c, \text{HandleDeleteRequest}) \\ & \quad \vee \text{API!Topo!Server!Receive!GetRequest}(c, \text{HandleGetRequest}) \\ & \quad \vee \text{API!Topo!Server!Receive!ListRequest}(c, \text{HandleListRequest}) \\ & \quad \vee \text{API!Topo!Server!Receive!WatchRequest}(c, \text{HandleWatchRequest}) \end{aligned}$$

$$\text{LOCAL } NB \triangleq \text{INSTANCE } NB$$

$$\begin{aligned} \text{Init} & \triangleq \\ & \wedge \text{NB!Init} \\ & \wedge \text{Store!Init} \end{aligned}$$

$$\begin{aligned} \text{Next} & \triangleq \\ & \vee \text{NB!Next} \\ & \vee \text{Store!Next} \end{aligned}$$

* Modification History
* Last modified *Fri Aug 13 15:49:50 PDT 2021* by *jordanhalterman*
* Created *Fri Aug 13 09:50:50 PDT 2021* by *jordanhalterman*