

Time Management

Code Snippets

Snippet from Environment Federate

```
// Set up time management.
try {
    // Get the logical time factory.
    time_factory=(HLAInteger64TimeFactory)rti_ambassador.getTimeFactory();

    // Make the local logical time object.
    env_fed_amb.logical_time = time_factory.makeInitial();

    // Make the local logical time interval.
    lookahead_interval = time_factory.makeInterval( lookahead_usec );

    // Make this federate time constrained.
    enable_time_constrained = time_constrained_flag;
    if ( enable_time_constrained ) {

        // Enable time constraint.
        rti_ambassador.enableTimeConstrained();

        // Wait for time constraint to take affect.
        while( !env_fed_amb.is_time_constrained ){Thread.yield();}
    }
}
```

Snippet from Environment Federate

```
// Advance time to the current federation execution time.
```

```
advance_to_current_hla_time();
```

```
// Make this federate time regulating.
```

```
enable_time_regulating = time_regulating_flag;
```

```
if ( enable_time_regulating ) {
```

```
// Enable time regulation.
```

```
rti_ambassador.enableTimeRegulation( lookahead_interval );
```

```
// Wait for time regulation to take affect.
```


```
while( !env_fed_amb.is_time_regulating ){Thread.yield();}
```

```
}
```

Snippet from MIT Short Course Examples

```
/* (non-Javadoc)
 * @see hla.rti1516e.NullFederateAmbassador#timeAdvanceGrant(hla.rti1516e.LogicalTime)
 */
@Override
public void timeAdvanceGrant(LogicalTime theTime)
    throws FederateInternalError {
    // Set the timeAdvanceGranted status boolean to true.
    timeAdvanceGranted = true;

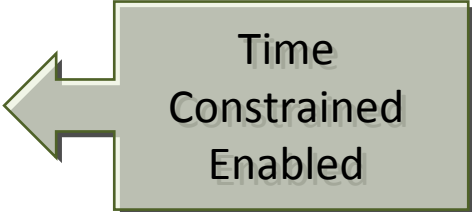
    // Update the logical time, casting it as an HLAinteger64Time type.
    logicalTime = (HLAinteger64Time) theTime;
}
```



Time Advance
Grant

```
/* (non-Javadoc)
 * @see hla.rti1516e.NullFederateAmbassador#timeConstrainedEnabled(hla.rti1516e.LogicalTime)
 */
@Override
public void timeConstrainedEnabled(LogicalTime time)
    throws FederateInternalError {
    // Set the timeConstrained status boolean to true.
    timeConstrained = true;

    // Update the logical time, casting it as an HLAinteger64Time type.
    logicalTime = (HLAinteger64Time) time;
}
```



Time
Constrained
Enabled

```
}
http://ptgrogan.scripts.mit.edu/fundms/code\_5-2/TimeElementSim.java
```

Snippet from LCANSat2 TheFederate

```
// Get the logical time factory.
_timeFactory = (HLAinteger64TimeFactory) rti_ambassador.getTimeFactory();
// Make the local logical time object.
if (_debugMessageLvl2) {
    System.out.println("make time");
}
_logicalTime = _timeFactory.makeInitial();
if (_logicalTime == null) {
    System.out.println("make time failed");
}
// Make the local logical time interval.
_logicalTimeInterval = _timeFactory.makeInterval(timetick);

// Make this federate time constrained.
if (_desireTimeConstraint) {

    // Enable time constraint.
    rti_ambassador.enableTimeConstrained();

    if (_debugMessageLvl2) {
        System.out.println(" timing init");
    }
    // Wait for time constraint to take affect.
    while (!_isTimeConstrained) {
        if (_debugMessageLvl2) {
            System.out.println(" waiting for time constraint");
        }
        Thread.yield();
    }
}
```

Zack Crues' EZ Button Federate served as an example so the code looks similar to the Environment Federate.

```
try {
    _startingGALT =
    rti_ambassador.queryGALT();
    if (_startingGALT.timeIsValid) {

        rti_ambassador.timeAdvanceReq
        uest(_startingGALT.time);
        _logicalTime = (HLAinteger64Time)
        _startingGALT.time;
    }
} catch (Exception e) {
    System.out.println(e.getMessage());
}
```

Code Snippet from LCANSat Driver

```
// Executive run loop.
while (!UserIO.quit) {
    // Compute the current simulation execution time in seconds.
    sim_exec_time = (exec_loop_counter * TIME_TICK) / 1000000.0;
    // Compute the problem time.
    time = time_epoch + sim_exec_time;

    if (HLA_CONSTRAIN_TIME) {
        // Wait for the time advance grant.
        while (!theFederate.get_timeCanAdvance()) {
            Thread.yield();
        }
    } else {
        try {
            Thread.sleep(1000);
        } catch (Exception e) {
            System.out.println("\": Unknown error in sleep:");
            System.out.println(e.getMessage());
        }
    }

    if (HLA_CONSTRAIN_TIME) {
        theFederate.RequestTimeAdvance();
    }
}
```

