

High Level Architecture

Module 1

Basic Concepts



The Society for
Computer
Simulation



Roy Crosbie
John Zenor

McLeod Institute of Simulation Sciences
California State University, Chico

California State University, Chico

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Lesson 3

Object Model Template



Review of HLA Rules

- Rule 1: Federations shall have an HLA Federation Object Model (FOM), documented in accordance with the HLA Object Model Template (OMT).
- Rule 6: Federates shall have an HLA Simulation Object Model (SOM), documented in accordance with the HLA Object Model Template.

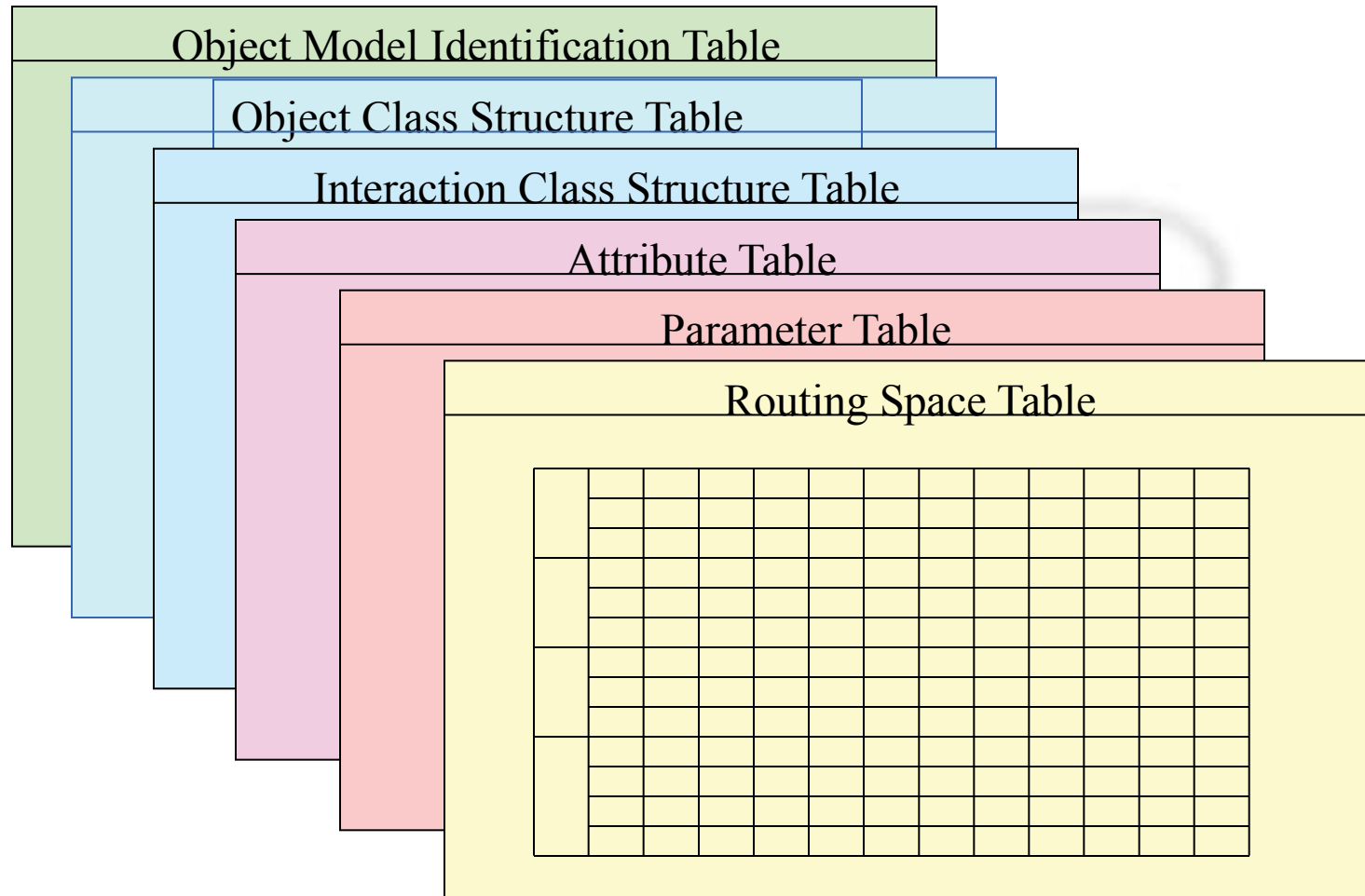


Rationale for an Object Model Template

- Provides a commonly understood mechanism for specifying the exchange of data and general coordination among the members of a federation.
- Provides a common, standardized mechanism for describing the capabilities of potential federation members.
- Facilitates the design and application of common tool sets for development of HLA object models.



HLA Object Model Template



Sample Object Model Identification Table

Object Model Identification Table	
Category	Information
Name	Restaurant SOM
Version	1,0 Alpha
Date	1 Jan 1998
Purpose	Provide Object Model for Restaurant Federate
Application Domain	Restaurant Operations
Sponsor	Federated Foods
POC	Mr. Joseph Smith
POC Organization	Joe's Place
POC Telephone	(977) 555 1234
POC Email	Smithj@fedfoods.com



Sample Class Structure Table

Object Class Structure Table				
Customer (PS)				
Bill (PS)				
Order (PS)				
Employee (S)	Greeter (PS)			
	Waiter (PS)			
	Cashier (PS)			
Food (S)	Main_Course (PS)			
	Appetizer (S)	Soup (S)	Clam_Chowder (S)	Manhattan (PS)
				New_England (PS)
			Beef_Barley (PS)	
		Salad (PS)		
	Entrée (S)	Seafood (S)	Fish (PS)	
			Shrimp (PS)	
		Pasta (PS)		

(S) = Subscribe

(PS) = Publish and Subscribe



Sample Class Structure Table

Interaction Class Structure Table		
Customer_ Employee_ Transactions (I)	Customer_Seated (IS)	
	Order_Taken (I)	Order_Taken_ From_Kids_Menu (I)
		Order_Taken_ From_Adult_Menu (I)
	Food_Served (I)	Drink_Served (I)
		Appetizer_Served (I)
		Main_Course_Served (I)
		Dessert_Served (I)
	Customer_Pays (I)	Pay_Bill_by_
		Credit_Card (I)

(I) = Initiates (S) = Senses (R) = Reacts (N) = Neither initiates, senses, or reacts



Sample Attribute Table

Attribute Table												
Object	Attribute	Data-type	Cardinality	Units	Resolution	Accuracy	Accuracy Condition	Update Type	Update Condition	T/A	U/R	Routing Space
Employee	Pay_Rate	Float	1	Cents/Hour	1	perfect	always	conditional	Merit Increases	TA	UR	N/A
	Years_of_Service	Short	1	Years	1	perfect	always	periodic	1/year, on Anniversary	TA	UR	N/A
	Home_Address	Address_Type	1	N/A	N/A	N/A	N/A	conditional	Employee Request	TA	UR	N/A
Waiter	Efficiency	Short	1	N/A	1	perfect	always	periodic	Performance Review	TA	UR	N/A
	Cheerfulness	Short	1	N/A	1	perfect	always	periodic	Performance Review	TA	UR	N/A
	State	Waiter_Tasks	1	N/A	N/A	N/A	N/A	conditional	Work Flow	TA	UR	N/A
Drink	Number_Cups	Short	1	Cups	1	perfect	always	conditional	Customer Request	TA	UR	N/A



Sample Parameter Table

Parameter Table								
Interaction	Parameter	Data-type	Cardinality	Units	Resolution	Accuracy	Accuracy Condition	Routing Space
Main_Course_Served	Temperature_OK	Temp_Type	1	N/A	N/A	N/A	N/A	N/A
	Accuracy_OK	Accur_Type	1	N/A	N/A	N/A	N/A	
	Timeliness_OK	Boolean	1	N/A	1	perfect	always	



Sample Routing Space Table

Routing Space Table					
Routing Space	Dimension	Dimension Type	Dimension Range/Set	Range/Set Units	Normalization Function
Bar_Order	Soda_flavor	Flavor_Type	Cola, Orange, Root Beer	N/A	linear_enumerated (Flavor)
	Bar_Quantity	short	[1-25]	N/A	linear (Number_Cups)
Server_Order	Waiter_ID	short	[1-20]	N/A	linear (Waiter ID)



FOM / SOM Lexicon

Object Class Definitions	
Term	Definition
<term name>	<term definition>
...	...
<term name>	<term definition>

Interaction Class Definitions	
Term	Definition
<term name>	<term definition>
...	...
<term name>	<term definition>



FOM / SOM Lexicon (continued...)

Attribute Definitions		
Class	Term	Definition
<term name>	<term name>	<term definition>
...	...	...
<term name>	<term name>	<term definition>

Parameter Definitions		
Class	Term	Definition
<term name>	<term name>	<term definition>
...	...	...
<term name>	<term name>	<term definition>

