

Data Modeling Report

GeneratorNode

Version 1.0 • Proposed



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systemsdemo

EA Repository : C:\Users\systemsdemo\Desktop\Test_RandMult\Rand_Mult.eap

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1 GeneratorNode

Package in package 'Model'

GeneratorNode
Version 1.0 Phase 1.0 Proposed
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Alias

1.1 GeneratorNode diagram

Class diagram in package 'GeneratorNode'

GeneratorNode
Version 1.0
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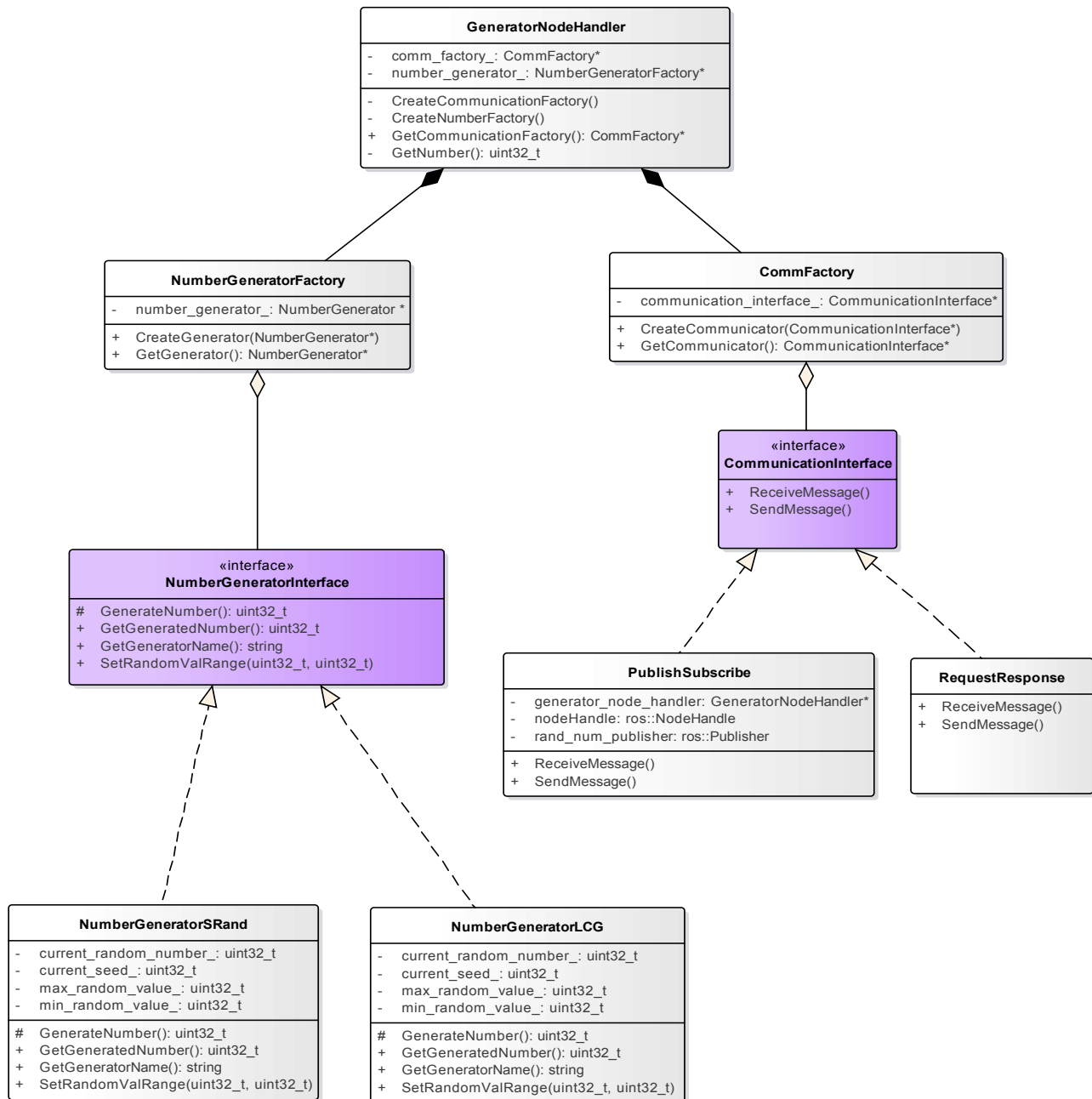


Figure 1: GeneratorNode

1.2 CommFactory

Class in package 'GeneratorNode'

Factory to create communication objects

CommFactory
Version 2.0 Phase 1.0 Proposed
KPIT created on 10/17/2017. Last modified 10/19/2017

OUTGOING STRUCTURAL RELATIONSHIPS

← Aggregation from CommFactory to GeneratorNodeHandler

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Aggregation from CommunicationInterface to CommFactory

[Direction is 'Source -> Destination'.]

ATTRIBUTES

communication_interface_ : CommunicationInterface* Private

[Is static False. Containment is Not Specified.]

OPERATIONS

CreateCommunicator (comm_int : CommunicationInterface*) : Public

[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

GetCommunicator () : CommunicationInterface* Public

[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

1.3 GeneratorNodeHandler

Class in package 'GeneratorNode'

Handler to perform communication and message processing functionality

GeneratorNodeHandler

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ASSOCIATED FILES

Local File. C:\Users\systemsdemo\Desktop\Test_RandMult\Rand_Mult.eap

[Size of 1234 k.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Aggregation from NumberGeneratorFactory to GeneratorNodeHandler

[Direction is 'Source -> Destination'.]

⇒ Aggregation from CommFactory to GeneratorNodeHandler

[Direction is 'Source -> Destination'.]

ATTRIBUTES





comm_factory_ : CommFactory* Private

[Is static False. Containment is Not Specified.]

number_generator_ : NumberGeneratorFactory* Private

[Is static False. Containment is Not Specified.]


OPERATIONS



OPERATIONS	
 CreateCommunicationFactory () : Private	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]
 CreateNumberFactory () : Private	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]
 GetCommunicationFactory () : CommFactory* Public	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]
 GetNumber () : uint32_t Private	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

1.4 NumberGenerator

Class in package 'GeneratorNode'

NumberGenerator
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ATTRIBUTES	
 current_random_number_ : unsigned long Protected	[Is static False. Containment is Not Specified.]
 current_seed_ : unsigned long Protected	[Is static False. Containment is Not Specified.]
 max_random_value_ : unsigned long Protected	[Is static False. Containment is Not Specified.]

OPERATIONS	
 GenerateNumber () : unsigned long Protected	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]
 GetCurrentNumber () : unsigned long Public	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]
 GetGeneratorName () : string Public	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]
 GetNumber () : unsigned long Public	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]
 SetMaxValLimit () : void Public	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

1.5 NumberGeneratorFactory

Class in package 'GeneratorNode'

Factory to create Number Generator objects

NumberGeneratorFactory
Version 2.0 Phase 1.0 Proposed
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OUTGOING STRUCTURAL RELATIONSHIPS

← Aggregation from NumberGeneratorFactory to GeneratorNodeHandler
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

→ Aggregation from NumberGeneratorInterface to NumberGeneratorFactory
[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ number_generator_ : NumberGenerator * Private
[Is static False. Containment is Not Specified.]

OPERATIONS

◆ CreateGenerator (pGenerator : NumberGenerator*) : Public
[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

◆ GetGenerator () : NumberGenerator* Public
[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

1.6 NumberGeneratorLCG

Class in package 'GeneratorNode'

Perform Linear Congruential generator random number generation number








NumberGeneratorLCG
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OUTGOING STRUCTURAL RELATIONSHIPS

← Realization from NumberGeneratorLCG to NumberGeneratorInterface
[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ current_random_number_ : uint32_t Private
[Is static False. Containment is Not Specified.]





ATTRIBUTES	
 <code>current_seed_ : uint32_t Private</code>	[Is static False. Containment is Not Specified.]
 <code>max_random_value_ : uint32_t Private</code>	[Is static False. Containment is Not Specified.]
 <code>min_random_value_ : uint32_t Private</code>	[Is static False. Containment is Not Specified.]
OPERATIONS	
 <code>GenerateNumber () : uint32_t Protected</code>	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]
 <code>GetGeneratedNumber () : uint32_t Public</code>	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]
 <code>GetGeneratorName () : string Public</code>	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]
 <code>SetRandomValRange (min_value : uint32_t , max_value : uint32_t) : Public</code>	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]






1.7 NumberGeneratorSRand

Class in package 'GeneratorNode'

Perform SRand random number generation number

NumberGeneratorSRand
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OUTGOING STRUCTURAL RELATIONSHIPS	
 Realization from NumberGeneratorSRand to NumberGeneratorInterface	[Direction is 'Source -> Destination'.]
ATTRIBUTES	
 <code>current_random_number_ : uint32_t Private</code>	[Is static False. Containment is Not Specified.]
 <code>current_seed_ : uint32_t Private</code>	[Is static False. Containment is Not Specified.]
 <code>max_random_value_ : uint32_t Private</code>	[Is static False. Containment is Not Specified.]

ATTRIBUTES	
 min_random_value_ : uint32_t Private	[Is static False. Containment is Not Specified.]
OPERATIONS	
 GenerateNumber () : uint32_t Protected	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]
 GetGeneratedNumber () : uint32_t Public	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]
 GetGeneratorName () : string Public	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]
 SetRandomValRange (min_value : uint32_t , max_value : uint32_t) : Public	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

1.8 PublishSubscribe

Class in package 'GeneratorNode'

Perform publish subscribe mode of communication

PublishSubscribe
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OUTGOING STRUCTURAL RELATIONSHIPS	
 Realization from PublishSubscribe to CommunicationInterface	[Direction is 'Source -> Destination'.]
ATTRIBUTES	
 generator_node_handler : GeneratorNodeHandler* Private	[Is static False. Containment is Not Specified.]
 nodeHandle : ros::NodeHandle Private	[Is static False. Containment is Not Specified.]
 rand_num_publisher : ros::Publisher Private	[Is static False. Containment is Not Specified.]
OPERATIONS	
 ReceiveMessage () : Public	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]
 SendMessage () : Public	[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

OPERATIONS

1.9 RequestResponse

Class in package 'GeneratorNode'

Perform request response mode of communication

RequestResponse
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OUTGOING STRUCTURAL RELATIONSHIPS

← Realization from RequestResponse to CommunicationInterface

[Direction is 'Source -> Destination'.]

OPERATIONS

◆ ReceiveMessage () : Public

[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

◆ SendMessage () : Public

[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]