



**Communication Modes**

- async** one-way messaging
- UDP unicast** e.g. member interface
- request-response**
- ephemeral connection** single request-response per connection e.g. locator interface
- persistent connection** TCP full-duplex; pooling implemented e.g. client's cache interface, WAN interface
- HTTP 1.1** servlets: Pulse, REST API; persistent connections
- hybrid** usually one-way with request-response possible too!
- P2P** e.g. peer's cache interface is usually TCP one-way but can optionally do request-response
- streaming**
- CQ and "register interest" results flow from client's cache interface back to client on a dedicated (separate) connection

**Serialization Formats**

- Java Formats
- DSFID** DataSerializableFixedID
  - used for member, and peer's cache interfaces
- Java Serializable**
  - for user-defined cache content
- java, C++, and .Net Formats
- DataSerializable**
  - used in geode-core for peer's cache interface and also for user-defined cache content
- PDX**
  - for user-defined cache content
- Language-Agnostic Formats
- protobuf**
  - an alternate format supported by parts of the locator and client's cache interfaces

- locator** interface (request-response with ephemeral connection):
- "peer" locator** interface as defined in **geode-membership** module:
  - find coordinator
  - get view
- + locator interface defined in **geode-core** module:
  - locator list
  - client connection
  - queue connection
  - client replacement
  - get all servers
  - locator status
  - info
  - JMX manager locator
  - shared configuration status
- + locator interface WAN Edition™ (as defined in **geode-wan** module):
  - remote locator join
  - locator join
  - remote locator ping
  - remote locator

- member** interface (async via UDP unicast):
  - final check passed
  - heartbeat
  - heartbeat request
  - install view
  - join request
  - join response
  - leave request
  - network partition
  - remove member
  - suspect members
  - suspect request
  - view ACK
- health** a.k.a. failure detection interface (request-response with ephemeral connection):
  - caller requests with (serialization version, and expected view id, and UUID of recipient)
  - receiver responds with OK = 0x7B or ERROR = 0x00

- client's cache** interface (request-response with persistent connection)
  - PutOp
  - GetOp
  - 73 other Op implementations defined in org.geode.client.internal and their corresponding Command implementations
  - streaming** CQ and "register interest" results flow to client on dedicated (separate) connection
- peer's cache** interface (hybrid P2P):
  - PutMessage
  - GetMessage
  - 361 other Message implementations

- WAN** interface (request-response with persistent connection):
  - GatewaySenderBatchOp / GatewayReceiverCommand
  - PingOp (from client's cache operators)

- Interface and Serialization Format Selection
  - locator and client's cache interfaces support Geode message object or protobuf format based on magic number in request

- Not Pictured
  - memcached-compatible interface (default port 11211)
  - redis-compatible interface (default port 6379)

author: Bill Burcham  
 bill.burcham@gmail.com  
 bburcham@vmware.com  
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