

Technical University of Košice  
Faculty of Electrical Engineering and Informatics

Atmosphere: Concurrency enabled data  
synchronization platform with HTML5/JS  
and Cocoa clients

Appendix B: System guide

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Appendix B: System guide

Study Programme: Informatics  
Field of study: 9.2.1 Informatics  
Department: Department of Computers and Informatics (DCI)  
Supervisor: Assoc. Prof. Ing. František Jakab, PhD.  
Consultant(s): Ing. Ivan Klimek

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Vojtech Riník

## B System guide

### B.1 JavaScript library

All of the following sources are available in the GitHub repository of Atmosphere.

#### B.1.1 AppContext

##### Public Methods

**exists** Check if object exists.

**updateOrCreate** Updates or creates object with passed data.

**create** Creates new object.

**update** Updates object with data.

**changeID** Changes ID of an object.

**relation** Sets up relationship for an object.

**objectAtURI** Returns object at passed URI.

**dataForURI** Returns data for object at passed URI.

**dataForObject** Returns data for object.

**objectURI** Returns URI of an object.

**allURIs** Returns URIs of all objects.

**destroy** Destroy object.

##### Private Methods

**\_modelForURI** Returns model for URI.

### B.1.2 MessageClient

#### Public Methods

**connect** Connects the client.

**close** Closes the connection.

**socketDidClose** Callback called when socket closes.

**send** Sends a message.

**parseNotification** Parses incoming notification.

**parseUpdate** Parses incoming update notification

### B.1.3 MetaContext

#### Public Methods

**configure** Configures meta context.

**markURIChanged** Marks object at URI as changed.

**findOrCreateObjectAtURI** Finds or creates meta object for URI.

**objectAtURI** Returns meta object for URI.

**createObjectAtURI** Creates new meta object for URI.

**saveObject** Saves meta object.

**deleteObject** Deletes meta object.

**changeIDAtURI** Changes ID of meta object for URI.

**isURILocalOnly** Returns true if object at URI has flag of being local only.

**isURIChanged** Returns true if object at URI has flag of being changed.

**changedObjects** Returns all changed objects.

**markURISynced** Marks object at URI as synced. (Removes the flag of being changed.)

#### B.1.4 ResourceClient

##### Public Methods

**fetch** Fetches remote items.

**updateFromItems** Updates local storage from remote JSON object.

**updateFromItem** Updates local object from remote JSON object.

**itemsFromResult** Extracts items from JSON result.

**save** Saves object remotely.

**execute** Executes requests against remote service.

**request** Creates remote request.

**ajax** Makes AJAX call.

**addHeader** Adds header to be sent with every HTTP request.

##### Private Methods

**\_updateFromData** Updates local object from data.

**\_removeObjectsNotInList** Removes local objects that were not included in the response.

**\_findPathForObject** Returns remote path for local object.

**\_findPathForURI** Returns remote path for object with URI.

**\_findPath** Finds path using routing table.

#### B.1.5 Synchronizer

##### Public Methods

**constructor** Constructs synchronizer.

**bind** Binds event.

**trigger** Triggers event.

**unbind** Unbinds event.

**updateOrCreate** Updates or create local object with data specified.

**fetch** Fetches remote object.

**save** Saves local object remotely.

**execute** Executes request.

**request** Creates request.

**markObjectChanged** Marks object as changed.

**markURISynced** Marks object as synced.

**setNeedsSync** Schedules synchronization for the next cycle.

**startSync** Starts synchronization.

**removeObjectsNotInList** Removes objects not included in the list passed.

**setAuthKey** Sets authentication key.

**hasAuthKey** Checks if authentication key is present.

**didAuth** Callback for successful authentication.

**didFailAuth** Callback for failed authentication.

## B.2 Cocoa library

The source code for Cocoa library is not included here due to its size. It can be found in GitHub repository of Atmosphere.

Here follows the documentation for main classes and data structures of Cocoa implementation.

### B.2.1 `__ATObjectURI` Struct Reference

#### Public Attributes

`NSString * entity`

`NSString * identifier`

The documentation for this struct was generated from the following file:

`ATObjectURI.h`

### B.2.2 `__ATRoute` Struct Reference

#### Public Attributes

`RKRequestMethod method`

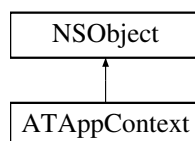
`NSString * path`

The documentation for this struct was generated from the following file:

`ATResourceClient.h`

### B.2.3 `ATAppContext` Class Reference

Inheritance diagram for `ATAppContext`:



#### Public Member Functions

(id) - `initWithSynchronizer:appContext:`

(NSManagedObject \*) - `objectAtURI:`

(NSManagedObject \*) - `createAppObjectAtURI:`

(Class) - **\_\_managedClassForURI:**  
(ATObjectURI) - **URIOfAppObject:**  
(void) - **changeIDTo:atURI:**  
(void) - **updateAppObject:withDictionary:**  
(void) - **deleteAppObject:**  
(void) - **\_\_resolveRelations:withDictionary:**  
(NSDictionary \*) - **dataForObject:**  
(NSArray \*) - **relationsForAppObject:**  
(BOOL) - **attributesChangedInAppObject:**  
(BOOL) - **hasChanges**  
(void) - **save**  
(void) - **save:**  
(void) - **obtainPermanentIDsForObjects:error:**

### **Static Public Member Functions**

(id) + **sharedAppContext**

### **Protected Attributes**

ATSynchronizer \* **\_\_sync**  
NSManagedObjectContext \* **\_\_managedContext**  
NSMutableArray \* **\_\_relationsQueue**

### **Properties**

ATSynchronizer \* **sync**  
NSManagedObjectContext \* **managedContext**



ATAttributeMapper \* **attributeMapper**

The documentation for this class was generated from the following files:

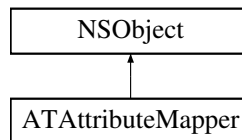
ATAppContext.h

ATAppContext.m

## B.2.4 ATAttributeMapper Class Reference

```
#import <ATAttributeMapper.h>
```

Inheritance diagram for ATAttributeMapper:



### Public Member Functions

(id) - **initWithMappingHelper:**

### Properties

ATMappingHelper \* **mappingHelper**

## B.2.5 Detailed Description

This class does nothing

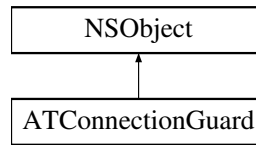
The documentation for this class was generated from the following files:

ATAttributeMapper.h

ATAttributeMapper.m

## B.2.6 ATConnectionGuard Class Reference

Inheritance diagram for ATConnectionGuard:



### Public Member Functions

(void) - **start**

(void) - **stop**

(void) - **\_\_checkConnection**

### Protected Attributes

BOOL **isRunning**

### Properties

ATSynchronizer \* **client**

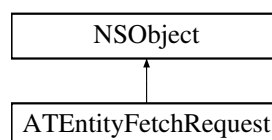
The documentation for this class was generated from the following files:

ATConnectionGuard.h

ATConnectionGuard.m

## B.2.7 ATEntityFetchRequest Class Reference

Inheritance diagram for ATEntityFetchRequest:



### Public Member Functions

(id) - **initWithResourceClient:entity:**

(void) - **send**

(ATObjectURI) - **objectURIFromItem:**

### Properties

ATResourceClient \* **resourceClient**

RKClient \* **networkClient**

NSString \* **entity**

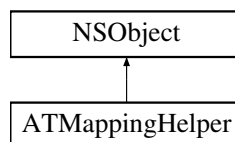
The documentation for this class was generated from the following files:

ATEntityFetchRequest.h

ATEntityFetchRequest.m

### B.2.8 ATMappingHelper Class Reference

Inheritance diagram for ATMappingHelper:



### Public Member Functions

(void) - **loadEntitiesMapFromResource:**

(void) - **loadAttributesMapFromResource:**

(void) - **loadRelationsMapFromResource:**

(void) - **\_\_loadResource:intoDictionary:**

(NSString \*) - **localEntityNameFor:**

(NSString \*) - **serverEntityNameFor:**

(NSString \*) - **serverEntityNameForObject:**

(NSString \*) - **serverAttributeNameFor:entity:**

(NSString \*) - **localAttributeNameFor:entity:**

(NSDictionary \*) - **relationsForObject:**

(NSDictionary \*) - **relationsForEntity:**

## Properties

NSDictionary \* **entitiesMap**

NSDictionary \* **attributesMap**

NSDictionary \* **relationsMap**

## B.2.9 Property Documentation

### B.2.10 - (NSDictionary\*) **entitiesMap** [**read**, **write**, **retain**]

Entities map dictionary. Key represents server entity name and value represents client entity name

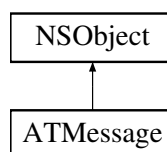
The documentation for this class was generated from the following files:

ATMappingHelper.h

ATMappingHelper.m

### B.2.11 ATMessage Class Reference

Inheritance diagram for ATMessage:



## Public Member Functions

(NSString \*) - **JSONString**

## Static Public Member Functions

(ATMessage \*) + **messageFromJSONString:**

## Protected Attributes

NSString \* **\_type**

NSDictionary \* **\_content**

## Properties

NSString \* **type**

NSDictionary \* **content**

The documentation for this class was generated from the following files:

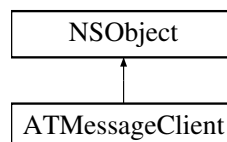
ATMessage.h

ATMessage.m

## B.2.12 ATMessageClient Class Reference

```
#import <ATMessageClient.h>
```

Inheritance diagram for ATMessageClient:



## Public Member Functions

(id) - **initWithSynchronizer:**  
(void) - **connect**  
(BOOL) - **isConnected**  
(void) - **\_\_initializeSocketConnection**  
(void) - **\_\_sendConnectMessage**  
(void) - **disconnect**  
(void) - **\_\_didReceiveServerAuthFailure:**  
(void) - **\_\_didReceiveServerAuthSuccess:**  
(void) - **sendMessage:**  
(void) - **\_\_didReceiveServerPush:**

## Protected Attributes

BOOL **\_\_isRunning**  
ATSynchronizer \* **\_\_sync**  
NSString \* **\_\_host**  
NSInteger **\_\_port**  
SocketIO \* **\_\_connection**

## Properties

ATSynchronizer \* **sync**  
NSString \* **host**  
NSInteger **port**  
SocketIO \* **connection**

### B.2.13 Detailed Description

ATMessageClient is responsible for dealing with live connection for push updates and notifications.

### B.2.14 Member Data Documentation

#### B.2.15 - (NSString\*) \_host **[protected]**

Connection

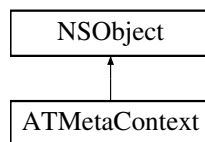
The documentation for this class was generated from the following files:

ATMessageClient.h

ATMessageClient.m

### B.2.16 ATMetaContext Class Reference

Inheritance diagram for ATMetaContext:



#### Public Member Functions

(BOOL) - **save**

(void) - **markURIChanged:**

(void) - **markURISynced:**

(ATMetaObject \*) - **objectAtURI:**

(ATMetaObject \*) - **ensureObjectAtURI:**

(ATMetaObject \*) - **createObjectAtURI:**

(NSArray \*) - **changedObjects**

(void) - **changeIDTo:atURI:**

### Static Public Member Functions

(id) + **restore**

(NSString \*) + **path**

### Protected Attributes

NSMutableDictionary \* **\_\_objects**

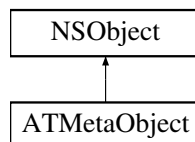
The documentation for this class was generated from the following files:

ATMetaContext.h

ATMetaContext.m

## B.2.17 ATMetaObject Class Reference

Inheritance diagram for ATMetaObject:



### Public Member Functions

(id) - **initWithURI:**

### Properties

ATObjectURI **uri**

BOOL **isChanged**

BOOL **isLocalOnly**

The documentation for this class was generated from the following files:

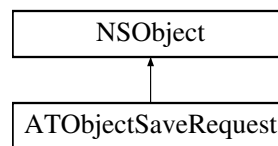


ATMetaObject.h

ATMetaObject.m

### B.2.18 AObjectSaveRequest Class Reference

Inheritance diagram for AObjectSaveRequest:



#### Public Member Functions

(id) - **initWithResourceClient:object:options:**

(void) - **send**

#### Properties

ATResourceClient \* **resourceClient**

RKClient \* **networkClient**

NSDictionary \* **options**

NSManagedObject \* **object**

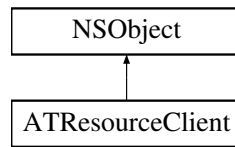
The documentation for this class was generated from the following files:

AObjectSaveRequest.h

AObjectSaveRequest.m

### B.2.19 ATResourceClient Class Reference

Inheritance diagram for ATResourceClient:



### Public Member Functions

(id) - **initWithSynchronizer:**

(void) - **setBaseURL:**

(void) - **addHeader:withValue:**

(void) - **fetchEntity:**

(void) - **didFetchItem:withURI:**

(void) - **saveObject:**

(void) - **saveObject:options:**

(void) - **loadRoute:params:delegate:**

(void) - **loadRoutesFromResource:**

(ATRoute) - **routeForEntity:action:**

(ATRoute) - **routeForEntity:action:params:**

### Properties

ATSynchronizer \* **sync**

RKClient \* **client**

NSDictionary \* **routes**

NSString \* **IDField**

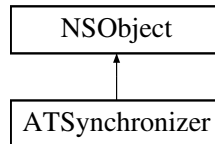
The documentation for this class was generated from the following files:

ATRResourceClient.h

ATRResourceClient.m

### B.2.20 ATSyncronizer Class Reference

Inheritance diagram for ATSyncronizer:



#### Public Member Functions

(id) - **initWithAppContext:**

(void) - **close**

(NSString \*) - **authKeyOrNull**

(void) - **fetchEntity:**

(void) - **syncObject:**

(void) - **startSync**

(void) - **sync**

(void) - **updateObjectAtURI:withDictionary:**

(void) - **changeURIFrom:to:**

(void) - **startAutosync**

(void) - **stopAutosync**

(void) - **\_\_didChangeAppObject:**

#### Protected Attributes

ATMappingHelper \* **\_\_mappingHelper**

ATMetaContext \* **\_\_metaContext**

ATAppContext \* **\_\_appContext**

---

```
ATMessageClient * __messageClient
ATResourceClient * __resourceClient
NSString * __authKey
BOOL __isSyncScheduled
```

### Properties

```
ATMetaContext * metaContext
ATAppContext * appContext
ATMappingHelper * mappingHelper
ATMessageClient * messageClient
ATResourceClient * resourceClient
NSString * authKey
id< ATSynchronizerDelegate > delegate
```

### B.2.21 Member Data Documentation

#### B.2.22 - (NSString\*) \_\_authKey [protected]

State

#### B.2.23 - (ATMappingHelper\*) \_\_mappingHelper [protected]

Helper

#### B.2.24 - (ATMessageClient\*) \_\_messageClient [protected]

Networking clients

#### B.2.25 - (ATMetaContext\*) \_\_metaContext [protected]

Context

## B.2.26 Property Documentation

**B.2.27** - (id< `ATSynchronizerDelegate` >) delegate [**read**, **write**,  
**assign**]

Delegate

The documentation for this class was generated from the following files:

`ATSynchronizer.h`

`ATSynchronizer.m`

## B.2.28 <ATSynchronizerDelegate> Protocol Reference

### Public Member Functions

(void) - **clientAuthDidSucceed:**

(void) - **clientAuthDidFail:**