# Notes on Composites

## Background:

Specification, development, and release of the API Composites as a feature of the Ed-Fi API are in progress at the Ed-Fi Alliance. Until the release, an SDK solution to support the needs for Food Service, Library, and Transportation vendors working with Michigan has been developed that offers behavior expected once the API Composites in the Ed-Fi API are available.

## Usage:

Composites can be used in the same way as any other generated SDK API client.  The provided clients expose GetAll (with a limit and offset), GetByExample (with a limit and offset and filters), GetByKey (lookup by natural key), and GetById (lookup by resource id).  These all work the same way as expected for other resources, can be consumed in a similar manner.  See <https://techdocs.ed-fi.org/display/ODSAPI20/SDK+Reference> for additional details.

## Details to note:

1. Limit on sub-collections – The Composites have been implemented to pull the max (100) for all sub-collections. Final version by Ed-Fi Alliance should not implement a limit.
2. Chattiness – The Composites perform around 50-180 queries per bundle of records with the help of caching. In the case of a request failure or timeout, the Composite returns an empty list wrapped by the request that failed/timed out to show error information.
3. Brittleness – When there are changes to any of the extensions or underlying models, code changes in the Composites to match will be necessary.

## How the handle Updates

### Food Service

For Food Service, there is only one field "FoodServiceStatusDescriptor" that needs to support Updates.  The recommended approach for a vendor to do Updates is to take advantage of the Student PATCH call by creating a new Student object, setting the student unique id and requested value of the FoodServiceStatusDescriptor, and calling PatchByKey.  For example:

**Food Service Update**

|  |
| --- |
| var studentsApi = new StudentsApi(restClient);  var updatedStudent = new Student  {      studentUniqueId = "StudentUniqueId",      foodServiceStatusDescriptor = "NewValue"  };  studentsApi.PatchGetStudentByKey(studentUniqueId, null, updatedStudent); |

### Library

Updates are not supported for Library.  For loading and modifying the StudentLibraryService and StaffLibraryService, the generated API clients from the SDK can be used, or bulk loaded through XML.

### Transportation

For Transportation, the primary Update resources are StudentTransportation and BusRoute. Update support exists for the following fields:

StudentTransportation

* BusRouteTime

BusRoute

* BusNumber
* DirectionDescriptor
* DayOfWeekDescriptor
* Name
* BusRouteNumberOrId
* StartTime
* EndTime
* BusDriverFirstName
* BusDriverMiddleName
* BusDriverLastSurnames

The generated API clients from the SDK can be used to work with these, including using PATCH as needed.