



ed-fi[®]
ALLIANCE

Ready, Set, Roster

Wednesday February 10, 2021 – Interactive Webinar

Welcome!

- 30 minute presentation, 10 minutes of Q&A
- Use the Webex Q&A feature to submit a question at anytime

What We'll Cover

- Overview of Rostering with Ed-Fi
- What is the Roster Starter kit and how it helps
- Resources to get started
- Where to find us?

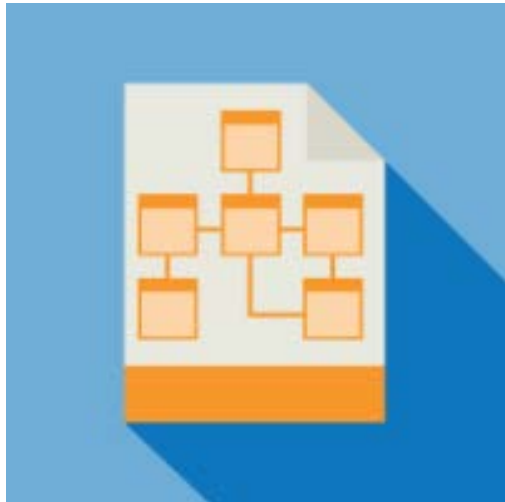
Agenda

- Introduction
- Starter Kit on the Ed-Fi Tech Docs
- Wrap Up
- Questions

Introduction

- Ed-Fi Overview
- Webinar Focus
- Ed-Fi Roster Data Flow

Ed-Fi Overview



Ed-Fi Data Standard

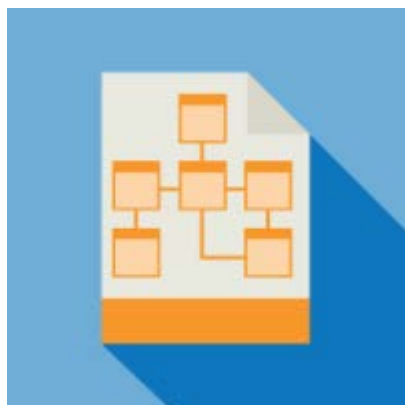


Ed-Fi ODS / API Platform



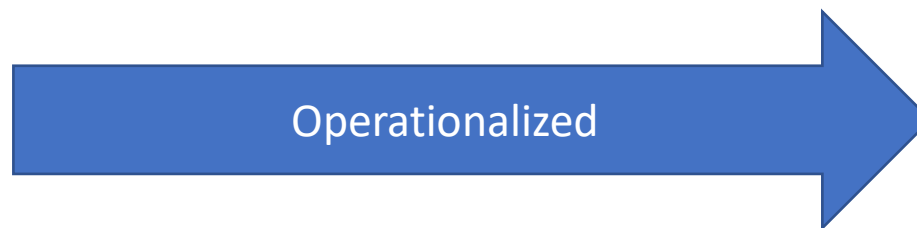
Ed-Fi Tools

The Ed-Fi Data Standard and ODS / API



Ed-Fi Data Standard

The Ed-Fi Data Standard is the widely adopted, CEDS-aligned, open-source data standard developed by the educational community for the betterment of the community. The Ed-Fi Data Standard serves as the foundation for enabling interoperability among secure data systems and contains a Unifying Data Model designed to capture the meaning and inherent structure in the most important information in the K-12 education enterprise. The latest version is the [Ed-Fi Data Standard v3.2](#).



Ed-Fi ODS / API

The Ed-Fi Operational Data Store (ODS) provides a secure, transactional information store that integrates data from multiple source systems and applications. The Ed-Fi ODS API accompanies the Ed-Fi Operational Data Store and provides a developer-friendly interface to create, read, and update information stored in an Ed-Fi powered ODS. The latest version is the [Ed-Fi ODS / API v5.1.0](#).

What is the Enrollment Composite?

Any “composite API” in Ed-Fi is a data out only resource. It is a resource that returns data that is pulled from several separate resources connected through references.

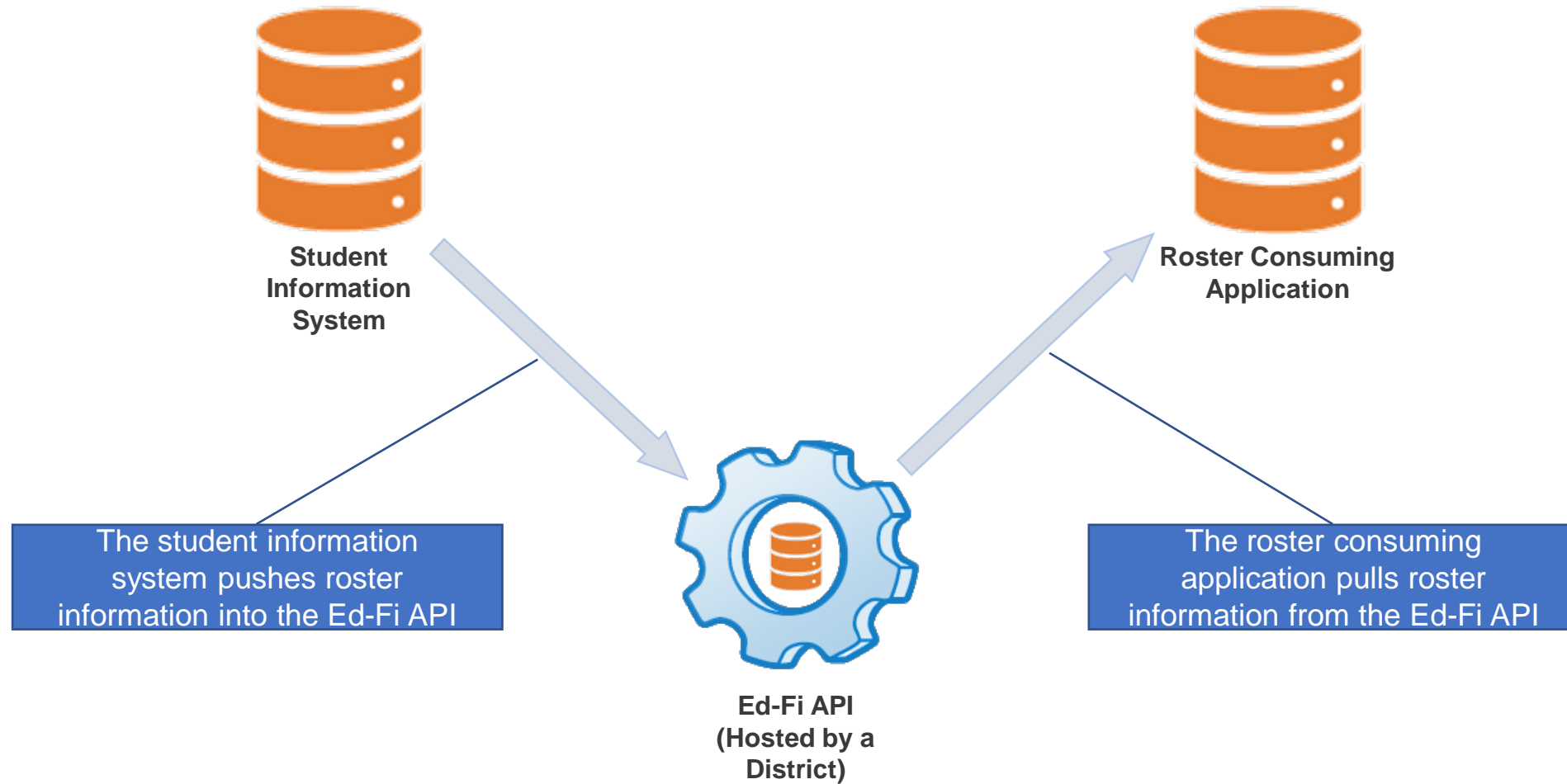
For example, in the Enrollment Composite sections resource, the endpoint pulls a list of students assigned to a section through the studentSectionAssociation resource.

Section->studentSectionAssociation->Student

Webinar Focus

An overview of the steps needed for an education technology provider to pull roster information from the Enrollment API from a district or state level implementation of the Ed-Fi ODS / API

Ed-Fi Roster Data Flow



Roster Starter Kit Overview

- Analyze
 - Analyze and map the data
- Develop
 - Begin development of the rostering functionality
- Partner
 - Find a partner with an Ed-Fi implementation to partner with
- Badge
 - Apply for and Ed-Fi Badge

Analyze

Analyze and Map Data Elements

- Review what data is available from the Enrollment Composite in the Ed-Fi API
- Determine what data is needed to provision the software application
- Match what is needed for your software application to what is available from the Enrollment Composite
- Help refine the Enrollment Composite by submitting Ed-Fi Tracker tickets for data gaps



Local Education Agencies
<https://api.ed-fi.org/v5.1.0/api/composites/v1/ed-fi/enrollment/LocalEducationAgencies>

- Local Education Agency Id
- Name
- Address(es)
- More...

Schools
<https://api.ed-fi.org/v5.1.0/api/composites/v1/ed-fi/enrollment/Schools>

- School Id
- Name
- Address(es)
- School Type
- School Category
- Grade Levels
- More...

Staff
<https://api.ed-fi.org/v5.1.0/api/composites/v1/ed-fi/enrollment/Staff>

- Staff Id
- Name
- Email
- Ed Org Assignments
- Demographics
- More...

Students
<https://api.ed-fi.org/v5.1.0/api/composites/v1/ed-fi/enrollment/Students>

- Student Unique Id
- Name
- Birth Date
- School Enrollment(s)
- Demographics
- More...

Sections
<https://api.ed-fi.org/v5.1.0/api/composites/v1/ed-fi/enrollment/Sections>

- Section Identifier
- Local Course Code
- Academic Subject
- Local Course Title
- Staff Ids
- Student ids
- More...

Map Data

Map the Ed-Fi data fields to the data needs of the software application

Ed-Fi Data

Students

Property
Id
studentUniqueId
birthDate
firstName
lastSurName
middleName
personalTitlePrefix
studentDemographics:[]
studentSchoolEnrollments:[]

Data requirements of the software

	A	B	C
1	Field	Req/Opt	Desc
2	Student ID	Required	A unique identifier of the student
3	Student First Name	Required	The student's first name.
4	Student Middle Name	Optional	The student's middle name. Recommended to further identify a student.
5	Student Last Name	Required	The student's last name.
6	Date of Birth	Required	The date of birth of the student
7	Native Language	Optional	The preferred communication language or the language spoken at home.
8	Gender	Optional	

Detailed information is available on the [v5.1.0 Enrollment Composite API Documentation](#) site.

ed-fi. API Section: **Composites: Enrollment**

Ed-Fi Operational Data Store API ³

[Base URL: api.ed-fi.org:443/v5.1.0/api/composites/v1/]
<https://api.ed-fi.org/v5.1.0/api/metadata/composites/v1/ed-fi/enrollment/swagger.json>

The Ed-Fi ODS / API enables applications to read and write education data stored in an Ed-Fi ODS through a secure REST interface.

Note: Consumers of ODS / API information should sanitize all data for display and storage. The ODS / API provides reasonable safeguards against cross-site scripting attacks and other malicious content, but the platform does not and cannot guarantee that the data it contains is free of all potentially harmful content.

Authorize

- localEducationAgencies** >
- schools** >
- sections** >
- staffs** >
- students** >
- Models** >

VALID

See the [ED-FI RFC 19 - ENROLLMENT API FOR SUITE 3](#) See the for more documentation










Develop

Begin Development

- SDK Generation
- Best Practices and Information
- Roster Sample Application

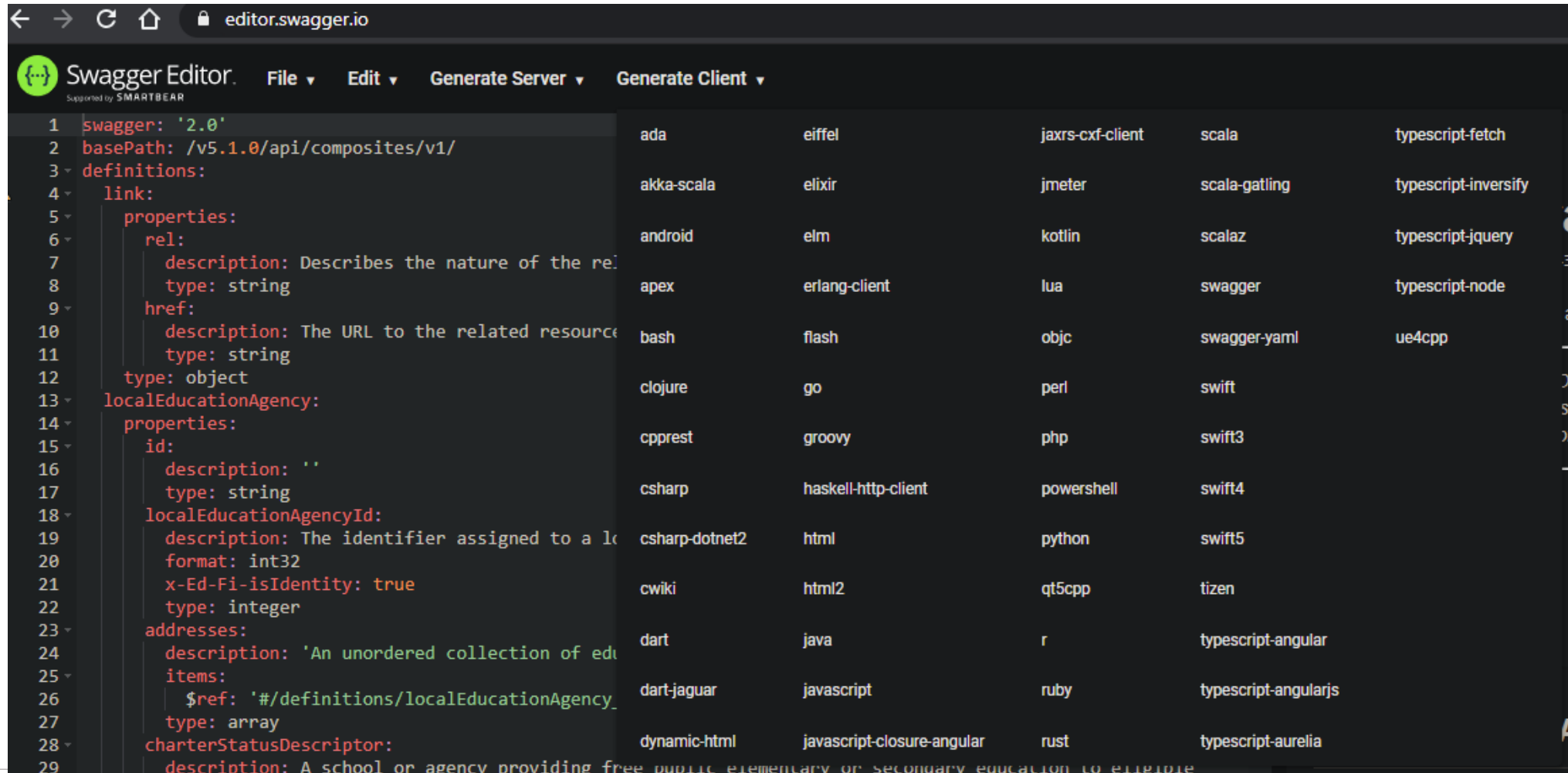
SDK Generation

List of [SDK generators](#) for OpenAPI specification files

SDK Generators				
Generate code to give to consumers, to help them avoid interacting at a HTTP level.				
Name	Language	v2	v3	GitHub
APIMatic CodeGen - Bring in your API description (OAI v2/v3, RAML, API Blueprint, WSDL, etc.) to generate fully functional SDKs in over 10 languages.	SaaS	✓	✓	
Flotiq - headless CMS with OpenAPI support - Visually define your Content Types, Flotiq automatically generates your own OpenAPI v3 compatible endpoints, SDKs and Postman collections.		✗	✓	
go-swagger - Unmaintained v2.0 only project seeking new maintainer, or probably a fork. Parser, validator, generates descriptions from code, or code from descriptions!	Go	✓	✗	
guardrail - Principled code generation from OpenAPI descriptions	Scala, Java, ...	✓	✓	
janephp/open-api - Generate a PHP Client API (PSR-7 compatible) given a OpenAPI specification.	PHP	✓	✓	
oa-client - Flexible client helper for making and validating calls to OpenAPI backends. For Node and the browser. Runtime lib - no need for code generation!	TypeScript	✗	✓	
oazapfts! - Generate TypeScript clients from a given OpenAPI description document.	TypeScript	✓	✓	
OpenAPI Client Generators - .NET Core command line program to generate strongly typed client API codes in C# on .NET Frameworks and .NET Core, and in TypeScript for Angular 5+, Aurelia, jQuery, AXIOS and Fetch API.	C#	✓	✓	
OpenAPI Generator - A template-driven engine to generate documentation, API clients and server stubs in different languages by parsing your OpenAPI Description (community-driven fork of swagger-codegen)	Java	✓	✓	
restful-react - Generate React hooks with appropriate type-signatures from OpenAPI descriptions	React (Typescript)	✓	✓	
Unchase.OpenAPI.Connectedservice - Visual Studio extension to generate C# (TypeScript) HttpClient (or C# Controllers) code for OpenAPI web service with NSwag.	.NET	✓	✓	

SDK Generation

The [Swagger Editor](#) offers a UI for generating SDKs



The screenshot shows the Swagger Editor interface. On the left, a Swagger specification is displayed in a code editor. On the right, a grid of generated SDKs is shown, each with a language icon and a name.

```
1 swagger: '2.0'
2 basePath: /v5.1.0/api/composites/v1/
3 definitions:
4   link:
5     properties:
6     rel:
7       description: Describes the nature of the rel
8       type: string
9     href:
10      description: The URL to the related resource
11      type: string
12     type: object
13   localEducationAgency:
14     properties:
15     id:
16       description: ''
17       type: string
18     localEducationAgencyId:
19       description: The identifier assigned to a local education agency
20       format: int32
21       x-Ed-Fi-isIdentity: true
22       type: integer
23     addresses:
24       description: 'An unordered collection of education agency addresses'
25     items:
26       $ref: '#/definitions/localEducationAgencyAddress'
27     type: array
28   charterStatusDescriptor:
29     description: A school or agency providing free public elementary or secondary education to eligible
```

ada	eiffel	jaxrs-cxf-client	scala	typescript-fetch
akka-scala	elixir	jmeter	scala-gatling	typescript-inversify
android	elm	kotlin	scalaz	typescript-jquery
apex	erlang-client	lua	swagger	typescript-node
bash	flash	objc	swagger-yaml	ue4cpp
clojure	go	perl	swift	
cpprest	groovy	php	swift3	
csharp	haskell-http-client	powershell	swift4	
csharp-dotnet2	html	python	swift5	
cwiki	html2	qt5cpp	tizen	
dart	java	r	typescript-angular	
dart-jaguar	javascript	ruby	typescript-angularjs	
dynamic-html	javascript-closure-angular	rust	typescript-aurelia	

SDK Generation Tutorial

USING CODE GENERATION TO CREATE AN SDK

This section outlines how to use code generation to create an Ed-Fi ODS / API Client SDK using a Windows environment targeting C#. The high-level steps are:

- Step 1. Install Latest Version of Java
- Step 2. Download the Swagger Codegen JAR File
- Step 3. Generate the SDK Source Files
- Step 4. Use the SDK in a Sample C# Program

Each step is outlined in detail below.

Best Practices and Considerations

- **Pagination**
 - Ed-Fi API calls have limit and offset parameters
 - Paging is limited in the API
 - Version v5.0.0 and above it is configurable, previously the limit is 100 records
- **Descriptors**
 - Descriptors are enumeration sets in Ed-Fi
- **UX Considerations**
 - API configuration (url, key, secret) and test connection
 - Logs (transfer and error)
 - Other UI utility features to reduce support incidents

[API Client Developers' Guide - Error Handling & Best Practices](#)

Partner

Partner with a Client

- Find a client that will partner with you and help you solidify the functionality.
- Make sure to set the expectations of an iterative process
- Find a partner that is familiar with Ed-Fi for this phase



Badge

Apply for an Ed-Fi Badge

- Join the Ed-Fi Partner Program
- [Ed-Fi Badges](#)
- Apply for the [API Consumer Badge](#)
 - Developing a roster consumer badge



Wrap Up

- What other webinars would you like to see?
- Roster Starter Kit Phase 2
 - Change Queries
- Feedback



ANY QUESTIONS?



Resources

- [Create an Ed-Fi Account](#)
- [Sign Up for the Newsletter](#)
- [Ed-Fi Tech Docs](#)
- [Ed-Fi Tracker](#)
- [Ed-Fi Roster Starter Kit](#)
- [Ed-Fi ODS / API v5.1.0 Online Documentation](#) (with sample data)
- [API Client Developers' Guide](#)
- [Ed-Fi RFC 19 - Enrollment API for Suite 3](#)
- Cy.Jones@Ed-Fi.org and Cesare.Tise@Ed-Fi.org