

# The FrameSquared

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## Abstract

The FrameSquared performs database schema version control and scaffold generation for Postgres databases and the Treefrog C++ MVC framework using YAML to

The FrameSquared is very much a work in progress at this time and is not ready for prime time. Use at your own risk.

xxx

FS2	Postgres	C++/Qt	SOAP	ExtJS/JavaScript
string	varchar	QString	xsd:string	Ext.data.field.String
integer	integer	qint32	xsd:int	Ext.data.field.Integer
float	real	float	xsd:float	Ext.data.field.Number
double	double precision	double	xsd:double	Ext.data.field.Number
numeric	numeric	double	xsd:double	Ext.data.field.Number
boolean	boolean	bool	xsd:boolean	Ext.data.field.Boolean
uuid	uuid	QString	xsd:string	Ext.data.field.String
serial	serial	qint	xsd:int	Ext.data.field.Integer
datetime	timestamp	QDateTime	xsd:string	Ext.data.field.Date
	date			Ext.data.field.Date
	time			Ext.data.field.Date

# 1 Overview

The rise of iterative and incremental software development methodologies has been transformative. Continuous integration[1], deployment and delivery[2, 3] has met the challenge of regular changes in requirements. Unpredictable and changing requirements[4] have been factored into the development process to enable software architectures to evolve gracefully.

Iterative and incremental methodologies have been successfully applied to database schema revision control and migration[5]. Refactoring database schema effects the database and related queries but also has repercussions to external systems that access the database programmatically, these include models and controllers.

The nature of MVC frameworks lends itself to the use of boilerplate code. Some MVC frameworks create scaffolding using templates to generate boilerplate code. Scaffolding was made popular by Ruby-on-Rails. Most scaffold generators focus primarily on create, retrieve, update and delete (CRUD) operations using HTML[6, 7] and do not generally support single page applications[8] and associated messaging protocols such as SOAP or REST.

The FrameSquared is tool that can generate code to be used as final source files and/or migrations based on serial numbers and up/down direction and can execute programs. The FrameSquared uses the notion of "serial" numbers and "direction" to determine whether a migration "action" should be executed.

## 2 Getting Started

### 2.1 Required Libraries

The FrameSquared utilizes the Inja[9] template engine. Inja and The FrameSquared both rely on the nlohmann JSON library[10]. The FrameSquared also uses the jbeder YAML[11] library.

#### 2.1.1 yaml-cpp

Download and compile yaml-cpp:

```
git clone https://github.com/jbeder/yaml-cpp.git
cd yaml-cpp/
mkdir build
cd build
cmake ..
make
sudo make install
```

Figure 1: Steps to building

Optionally, if you want to clean after the build:

```
cd ..  
rm -rf build
```

Figure 2: Steps to clean

### 2.1.2 nlohmann/json

Download and compile nlohmann/json:

```
git clone https://github.com/nlohmann/json.git  
cd json/  
mkdir build  
cd build  
cmake ..  
make  
sudo make install
```

Figure 3: Steps to building

Optionally, if you want to clean after the build:

```
cd ..  
rm -rf build
```

Figure 4: Steps to clean

### 2.1.3 Building The FrameSquared

The following steps will compile the The FrameSquared tool.

```
mkdir build  
cd build  
cmake ..  
make  
./fs2_migration02
```

Figure 5: Steps to building

## 2.2 Overview

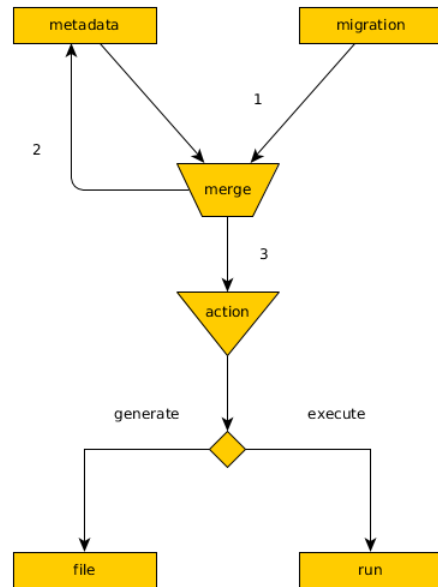


Figure 6: Merge Overview

## References

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