Visualize Time Enabled Data using ArcGIS Qt (C++) and Toolkit

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About Esri

- We build mapping technology that our customers use to solve the world's most complex challenges
- We offer solutions to apply location-based analytics to business practices
  - Visualize and analyze data more effectively
  - Collaborate and share maps, apps and reports easily
- Headquartered in Southern California
  - We have offices all around the world

Purpose of this talk

- Showcase a quick way to create a desktop app to visualize time enabled data
- Setup the development environment using Esri templates
- Use the ArcGIS toolkit to use already existing UI components

Time aware layer

- We will be using a feature layer that include hurricane data as features
- Each feature has a specific start time and end time in the feature table
- We will use these start and end date values to draw and clear features on the map
- The JSON of the feature layer includes all the necessary information for the time slider
  - Start and end dates, time interval, etc.
  - Feature layer URL

Time Info:

Start Time Field: Date_date
End Time Field: null
Track ID Field: null
Time Extent
[9/1/2005 5:00:00 AM UTC, 12/31/2005 5:00:00 AM UTC]

Time Reference: UTC
Time Interval: 1
Time Interval Units: esriTimeUnitsDays
Has Live Data: false
Export Options:
Use Time: false
Time Data Cumulative: false
Time Offset: 0
Time Offset Units: esriTimeUnitsCenturies

ArcGIS Runtime for Qt - SDK

- The Qt SDK allows you to build cross platform desktop and mobile apps
- Incorporate features such as mapping, geocoding, routing, geoprocessing, etc.
- In this sample we will be using the C++ SDK

ArcGIS Runtime Toolkit for Qt

- Open-source project
- Contains UI components and utilities to help simplify Qt app development
- Can plug and play various UI pieces
- Where:
  - https://github.com/Esri/arcgis-runtime-toolkit-qt
- How:
  - Clone the repository and import the path in .pro file in Qt Creator

```
# path of the toolkit relative to the sample
TOOLKIT_PRI_PATH = $$absolute_path("", "D:\applications\qt\sdk\toolkit")

exists($$TOOLKIT_PRI_PATH/uitools/toolkitqml.pri) {
    include($$TOOLKIT_PRI_PATH/uitools/toolkitcpp.pri)
} else {
    error(TOOLKIT_PRI_PATH is missing which is required to build this application.)
}
```

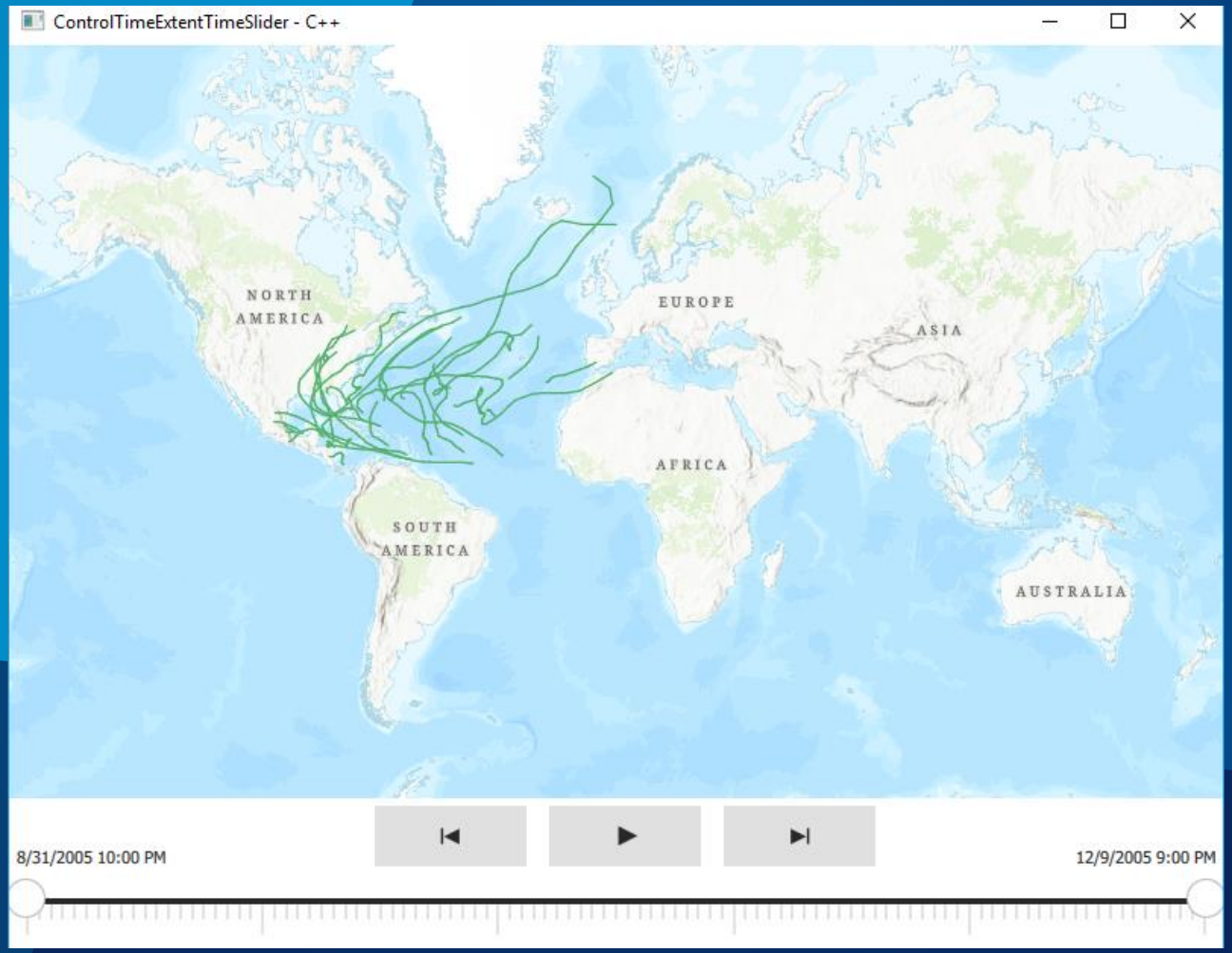
  - Register your components in main.cpp

```
#include <Esri/ArcGISRuntime/Toolkit/register.h>


Esri::ArcGISRuntime::Toolkit::registerComponents(engine);
```

ArcGIS Runtime Toolkit for Qt

- **Time slider UI component:**
  - **Provides controls to visualize and step through temporal data**
  - **Set the current time extent manually or animate the time extent on GeoView**
  - **It initializes all required values using data from the layer**
  - **You can customize several UI elements**


ControlTimeExtentTimeSlider - C++
NORTH AMERICA
EUROPE
ASIA
AFRICA
SOUTH AMERICA
AUSTRALIA
8/31/2005 10:00 PM
12/9/2005 9:00 PM

Resources

- ArcGIS Runtime API for Qt
  - https://developers.arcgis.com/qt/
- ArcGIS Runtime Toolkit for Qt API reference
  - https://developers.arcgis.com/qt/toolkit/api-reference/
- ArcGIS Runtime Toolkit – Qt on GitHub
  - https://github.com/Esri/arcgis-runtime-toolkit-qt
- How to setup the SDK
  - https://developers.arcgis.com/qt/get-started/
- Esri Careers
  - https://www.esri.com/en-us/about/careers/overview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