Note Subdomain
Note Subdoittain

Table of Contents

Domain Model	2
Screenshots	
How to configure/use	9
Classpath	9
Bootstrapping	9
For each domain object	9
SPI	
UI Concerns	
Suppressing/adding UI elements	
Link class	
Other Services	
Known issues	
Dependencies	15

This module (incode-module-note) provides the ability to attach Note objects to arbitrary domain entities. There are *no* requirements for those domain objects implement any interfaces. A subclass of the NotableLink abstract class is required (about 50 lines of boilerplate), acting as the "glue" between the note and the "notable" domain object.

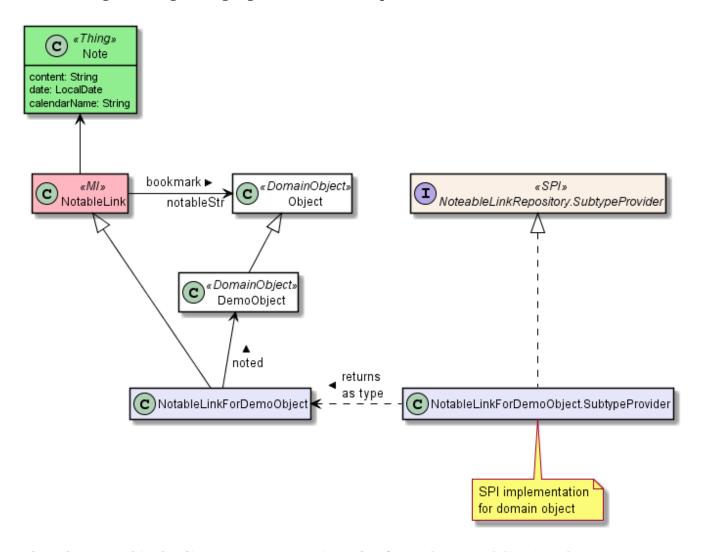
Each Note can optionally have a date associated with it, and corresponding (predefined) calendar. The Note implements the CalendarEventable interface (from the fullcalendar2 wicket component) meaning that they can then be rendered in a calendar view. This makes the notes useful for a simple task list.

The optional CalendarNameRepository SPI service is used to enumerate the calendars for any given "notable" domain object. The list of available calendars is determined by the "notable": if Customer and Order both are "notable", then the CalendarNameRepository could provide different calendar names for each. If no implementation of the CalendarNameRepository service can be found, then a single "default" calendar is used.

Any given "notable" domain object can have multiple Notes. As currently implemented, a "notable" domain object can only have one Note per named calendar.

Domain Model

The following class diagram highlights the main concepts:

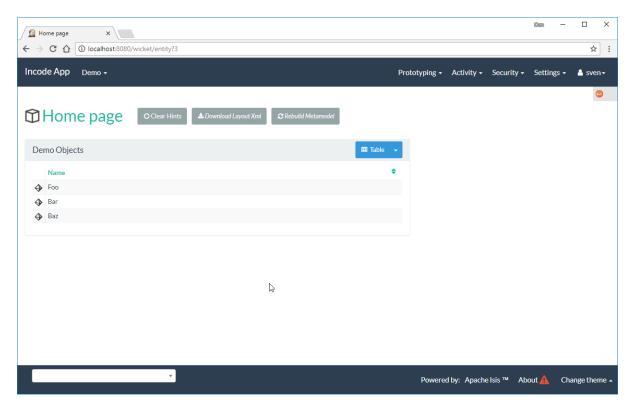


(The colours used in the diagram are - approximately - from Object Modeling in Color).

Screenshots

The module's functionality can be explored by running the quickstart with example usage using the org.incode.domainapp.example.app.modules.ExampleDomDomNoteAppManifest.

A home page is displayed when the app is run:

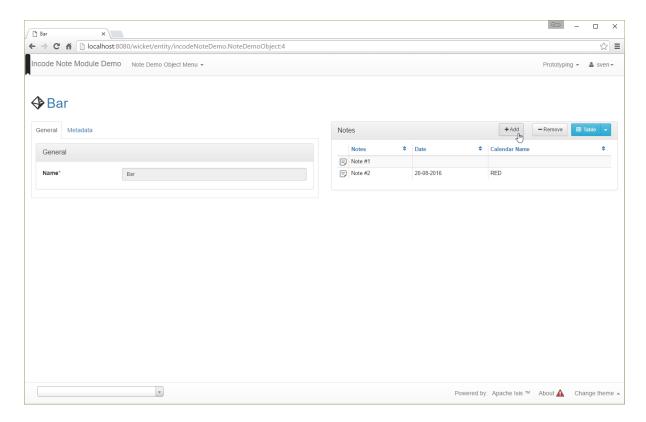


These are our "notable" domain objects.

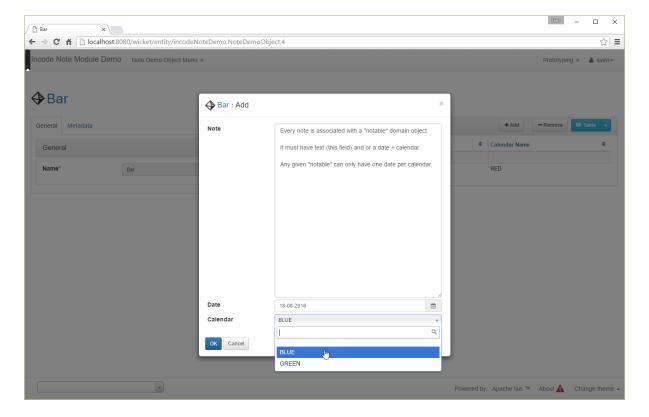


The remaining screenshots below **do** demonstrate the functionality of this module, but are out of date in that they are taken from the original isisaddons/incodehq module (prior to being amalgamated into the incode-platform).

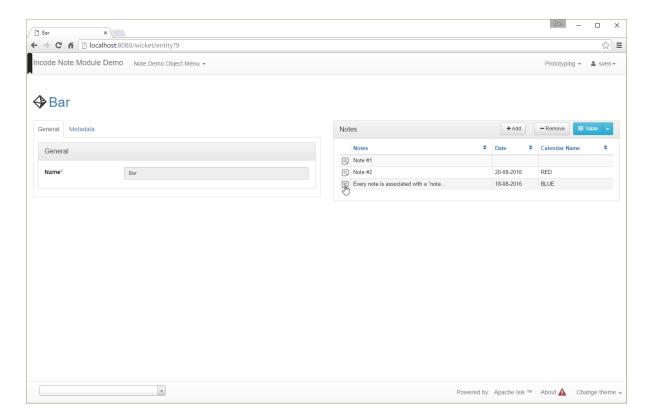
The fixture sets up some notes for each of these "notable" objects; these are displayed in a (contributed) notes collection. We can also add new notes using a (contributed) $addNote(\cdots)$ action:



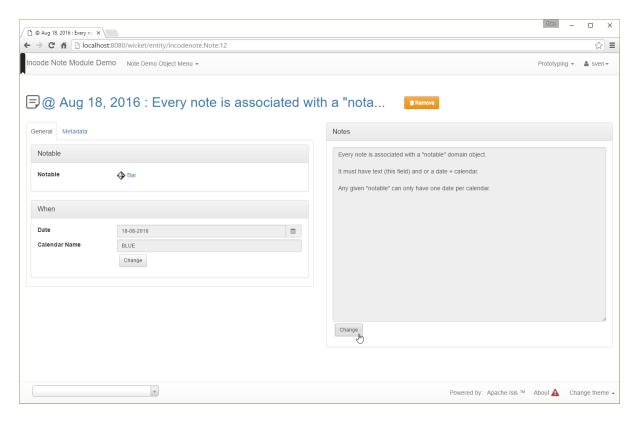
The action allows the note text and optionally a date/calendar to be specified. Every note must have either text and/or a date and calendar. Also, each "notable" can only associate one Note per calendar. The list of calendars is defined by the optional CalendarNameRepository SPI domain service, discussed below:



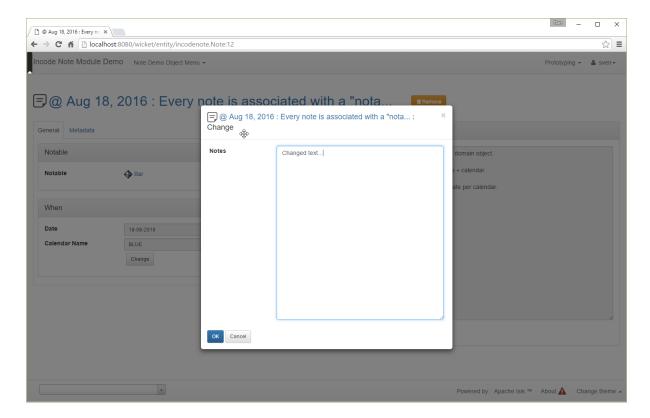
The notes for the "notable" domain object is added to. Each Note can also be viewed:



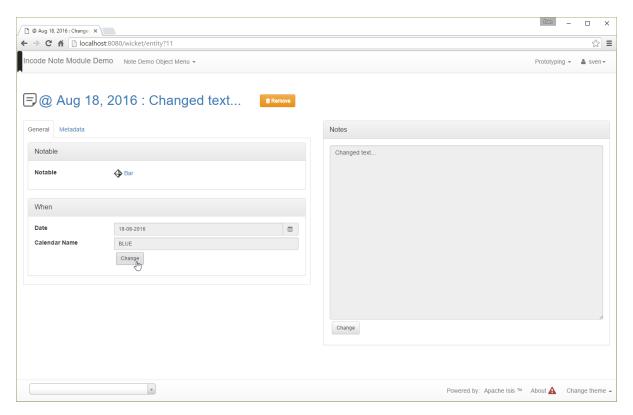
The Note shows the text and date/calendar, as well as the "notable" domain object that it is attached to.



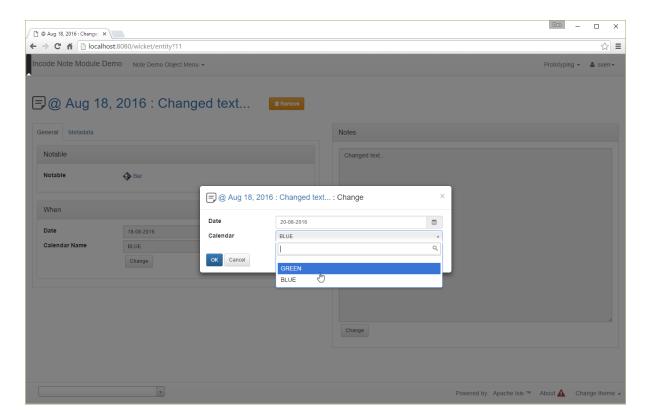
The $changeNote(\cdots)$ action allows the note text to be updated (or cleared/set to null if the note has a date/calendar):



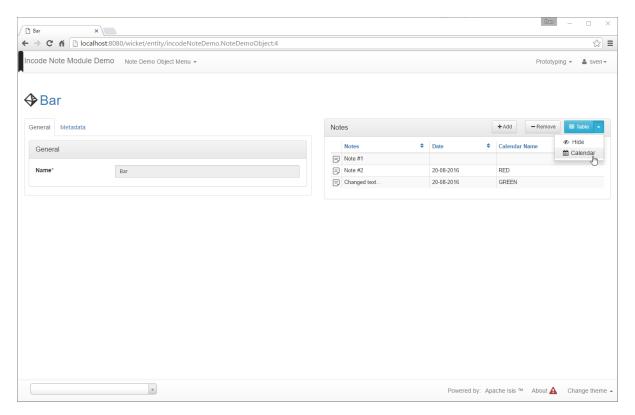
while the $changeDate(\cdots)$ action...



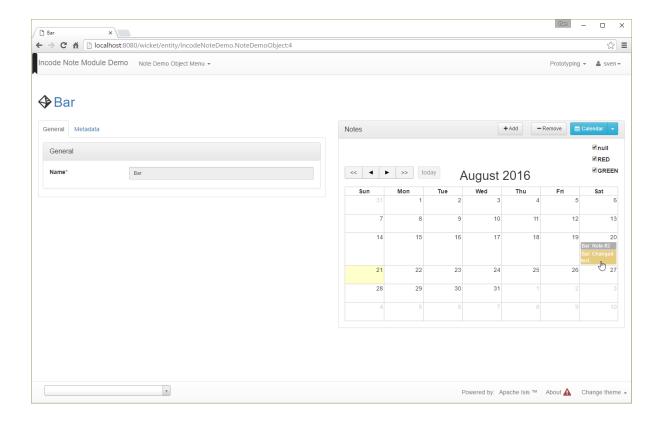
allows the note's date/calendar to be updated (or cleared/set to null if the note has text):



Each Note implements the fullcalendar2 component's CalendarEventable interface, meaning ...



... that it can be rendered on a calendar:



How to configure/use

Classpath

Update your classpath by adding this dependency in your dom project's pom.xml:

```
<dependency>
    <groupId>org.incode.module.note</groupId>
    <artifactId>incode-module-note-dom</artifactId>
        <version>1.15.0</version>
</dependency>
```

Check for later releases by searching Maven Central Repo.

For instructions on how to use the latest -SNAPSHOT, see the contributors guide.

Bootstrapping

in the AppManifest, update its getModules() method, eg:

For each domain object...

In order to be able to attach a note to a domain object, you need to:

- implement a subclass of NotableLink to hold a type-safe reference back to the domain object.
 - This link acts as a type-safe tuple linking the domain object to the Note.
- implement the NotableLinkRepository.SubtypeProvider SPI interface:

```
public interface SubtypeProvider {
   Class<? extends NotableLink> subtypeFor(Class<?> domainObject);
}
```

This tells the module which subclass of NotableLink to use to attach to the domain object. The SubtypeProviderAbstract adapter can be used to remove some boilerplate.

• subclass T_addNote, T_removeNote, T_notes (abstract) mixin classes for the domain object.

These contribute the "notes" collection and actions to add/remove notes for the domain object.

Typically the SPI implementations and the mixin classes are nested static classes of the NotableLink subtype.

For example, in the demo app the NoteDemoObject domain object can have notes attached to it by virtue of the NotableLinkForDemoObject subclass:

```
@javax.jdo.annotations.PersistenceCapable(identityType= IdentityType.DATASTORE, schema
="incodeNoteDemo")
@javax.jdo.annotations.Inheritance(strategy = InheritanceStrategy.NEW_TABLE)
@DomainObject
public class NotableLinkForDemoObject extends NotableLink {
                                                                                      1
    private NoteDemoObject demoObject;
    @Column( allowsNull = "false", name = "demoObjectId" )
    public NoteDemoObject getDemoObject() {
                                                                                      (2)
        return demoObject;
    }
    public void setDemoObject(final NoteDemoObject demoObject) {
        this.demoObject = demoObject;
    }
    public Object getNotable() {
                                                                                      3
        return getDemoObject();
    }
    protected void setNotable(final Object object) {
        setDemoObject((NoteDemoObject) object);
    }
    @DomainService(nature = NatureOfService.DOMAIN)
    public static class SubtypeProvider
                extends NotableLinkRepository.SubtypeProviderAbstract {
                                                                                      4
        public SubtypeProvider() {
            super(NoteDemoObject.class, NotableLinkForDemoObject.class);
        }
    }
    @Mixin
    public static class _notes extends T_notes<NoteDemoObject> {
                                                                                      (5)
        public _notes(final NoteDemoObject notable) {
            super(notable);
        }
    }
    @Mixin
    public static class _addNote extends T_addNote<NoteDemoObject> {
        public _addNote(final NoteDemoObject notable) {
            super(notable);
        }
    }
    @Mixin
    public static class _removeNote extends T_removeNote<NoteDemoObject> {
        public _removeNote(final NoteDemoObject notable) {
            super(notable);
        }
   }
}
```

- ① extend from NotableLink
- ② the type-safe reference property to the "notable" domain object (in this case DemoObject). In the RDBMS this will correspond to a regular foreign key with referential integrity constraints correctly applied.
- ③ implement the hook setNotable(…) method to allow the type-safe reference property to the "notable" (in this case DemoObject) to be set. Also implemented getNotable() similarly
- implementation of the SubtypeProvider SPI domain service, telling the module which subclass of NotableLink to instantiate to attach to the owning domain object
- (5) mixins for the collections and actions contributed to the owning domain object

SPI

The CalendarNameRepository interface can optionally be implemented to specify the available calendars for each "notable" domain object.

For example, in the demo app this is implemented as:

```
@DomainService(nature = NatureOfService.DOMAIN)
public class CalendarNameRepositoryForDemo implements CalendarNameRepository {
    private final Map<Class<?>, List<String>> namesByClass = Maps.newHashMap();
    public CalendarNameRepositoryForDemo() {
        setCalendarNames(NoteDemoObject.class, "BLUE", "GREEN", "RED");
    }
    @Programmatic
    public void setCalendarNames(final Class<?> cls, final String... names) {
        namesByClass.put(cls, Lists.newArrayList(names));
    }
    @Override
    public Collection<String> calendarNamesFor(final Object notable) {
        return namesByClass.get(notable.getClass());
    }
}
```

If no implementation of this interface can be found, then the module provides a single "default" calendar for all "notable" domain objects.

UI Concerns

Suppressing/adding UI elements

Every property, collection and action has a corresponding domain event. Thus, a subscriber can be used to hide or disable UI representation of any domain object's members.

For example, the "content" property of a Note could be suppressed using the following service:

Conversely, new UI elements can be added using contributions and mixins.

Link class

The NotableLink object is not intended to be rendered directly in the UI. Rather, the T_notes mixin renders the referenced Notes instead.

Nevertheless (just in case there is a requirement to render the link object), the NotableLink allows its title, icon and CSS class to be specified using subscribers to UI event classes specific to the link class.

Other Services

The module provides the following domain services for querying notes:

• NoteRepository

To search for notes by "notable" or in general within a date range

• NotableLinkRepository

To search for NotableLinks, ie the tuple that links a Note with an arbitrary "notable" domain object. This repository is likely to be less useful than NoteRepository, but is crucial to the internal workings of the incode-module-note module.

Known issues

None known at this time.

Dependencies

Maven can report modules dependencies using:

```
mvn dependency:list -o -pl modules/dom/note/impl -D excludeTransitive=true
```

which, excluding the Incode Platform and Apache Isis modules, returns no direct compile/runtime dependencies.

From the Incode Platform it uses:

- poly library
- fullcalendar2 wicket component

The module also uses icons from icons8.