

Note Subdomain

# Table of Contents

Domain Model.....	2
Screenshots .....	3
How to configure/use .....	9
Classpath .....	9
Bootstrapping .....	9
For each domain object... ..	9
SPI .....	12
UI Concerns .....	13
Suppressing/adding UI elements .....	13
Link class .....	13
Other Services.....	14
Known issues .....	15
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.

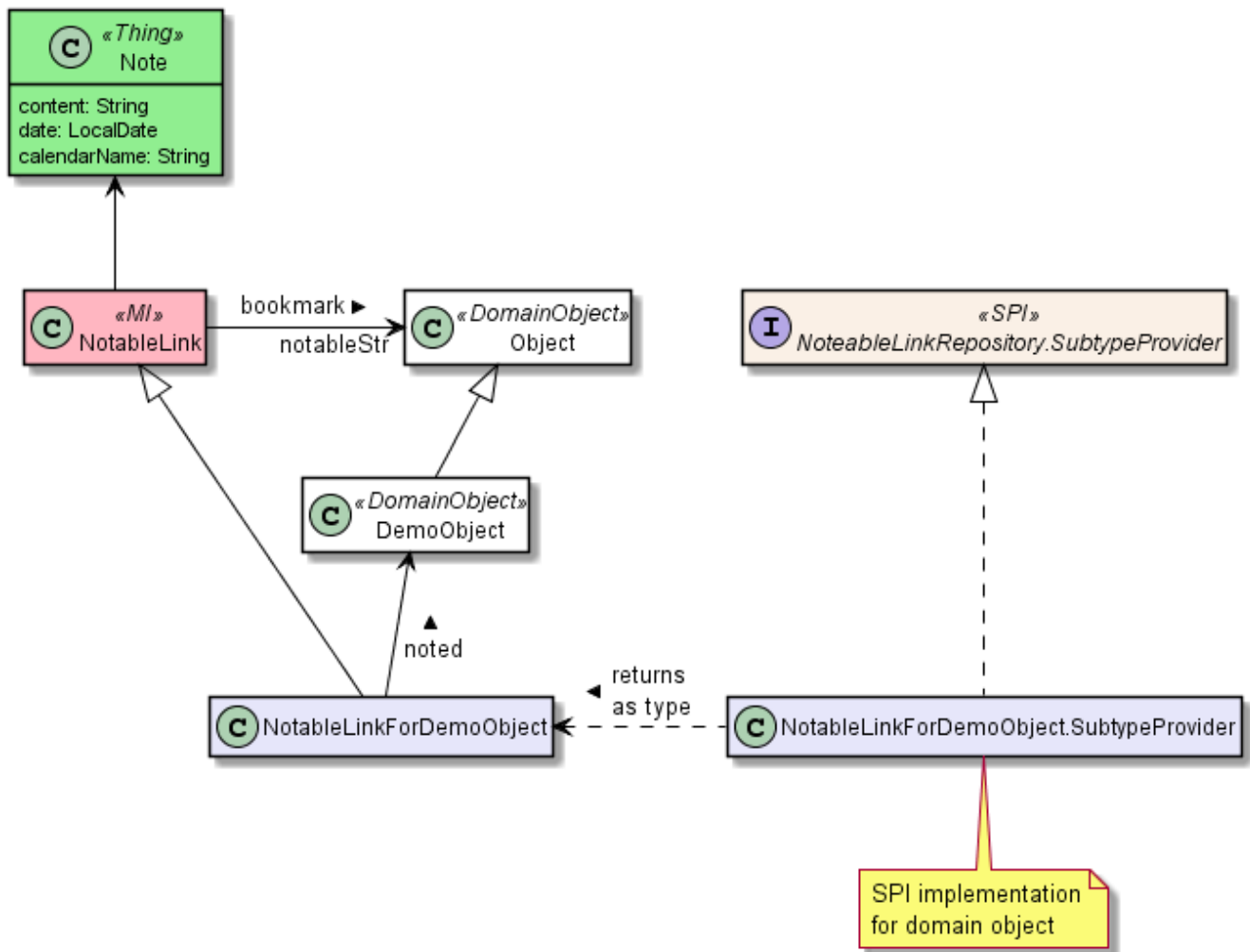
Each `Note` can optionally have a date associated with it, and corresponding (predefined) calendar. The `Note` implements the `CalendarEventable` interface (from the `fullcalendar2` wicket component) meaning that they can then be rendered in a calendar view. This makes the notes useful for a simple task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

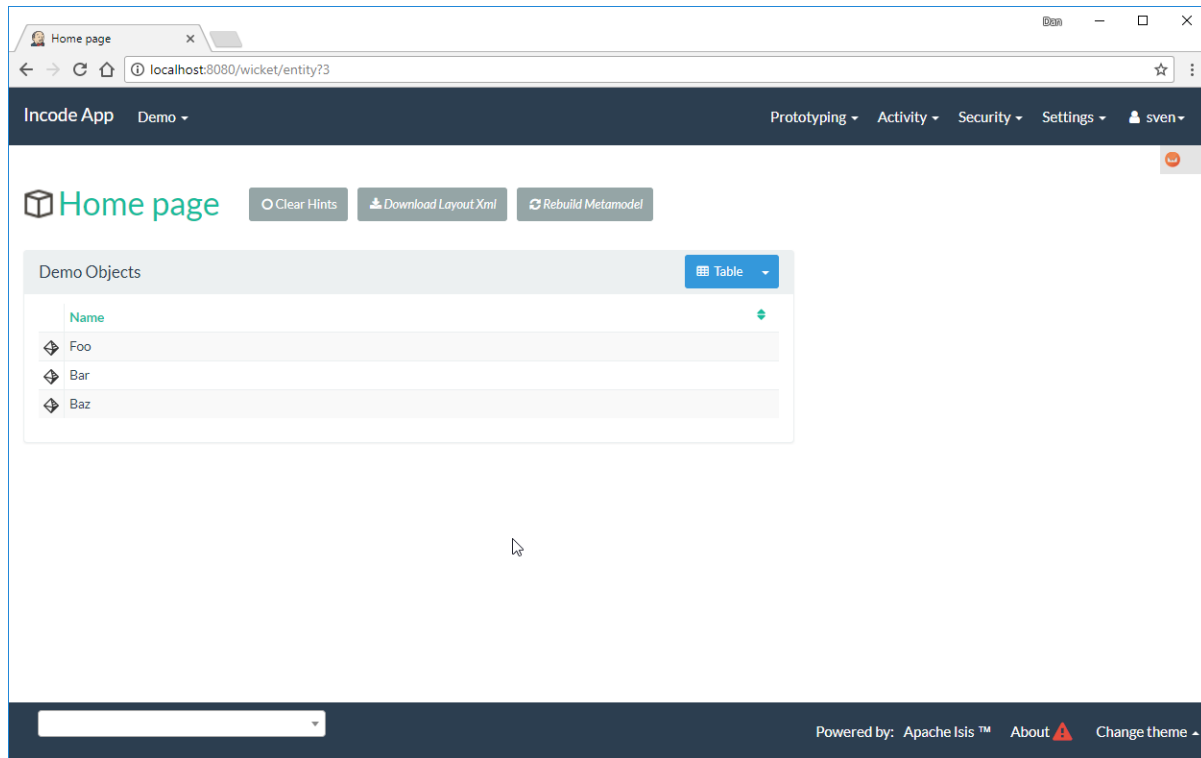


(The colours used in the diagram are - approximately - from [Object Modeling in Color](#)).

# 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:

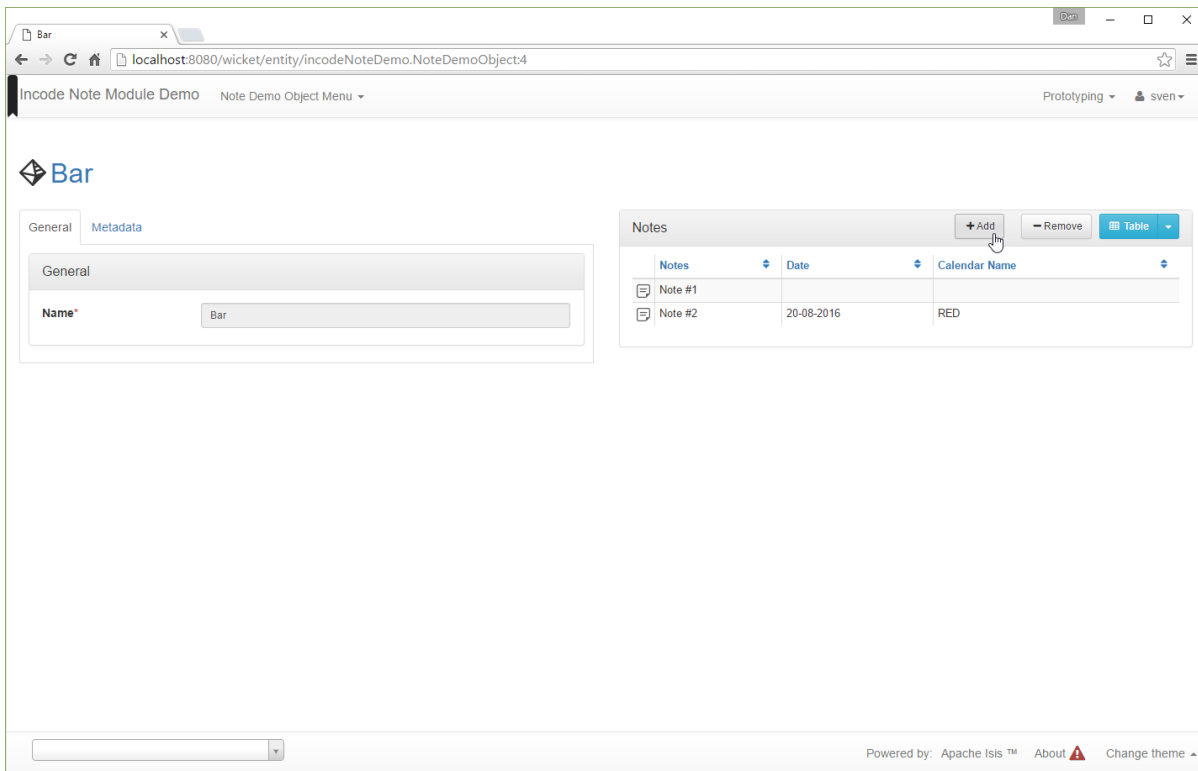


These are our "notable" domain objects.

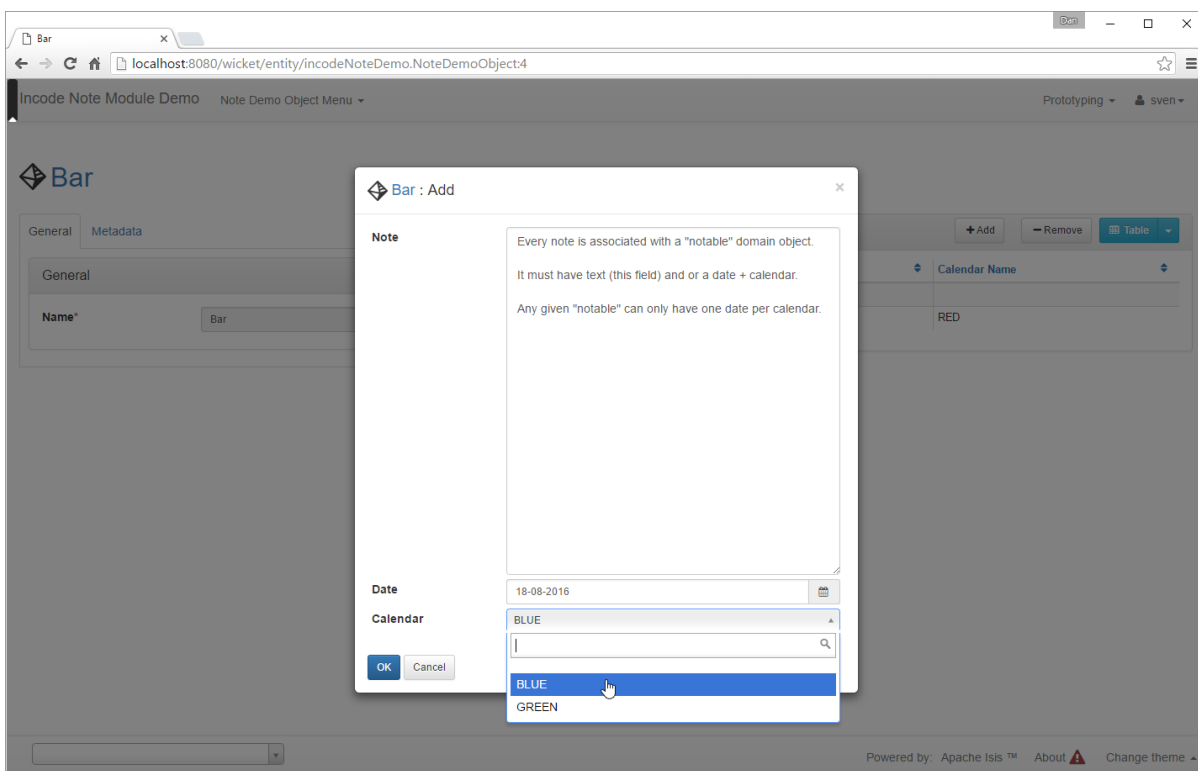


The remaining screenshots below **do** demonstrate the functionality of this module, but are out of date in that they are taken from the original `isisaddons/incodehq` module (prior to being amalgamated into the `incode-platform`).

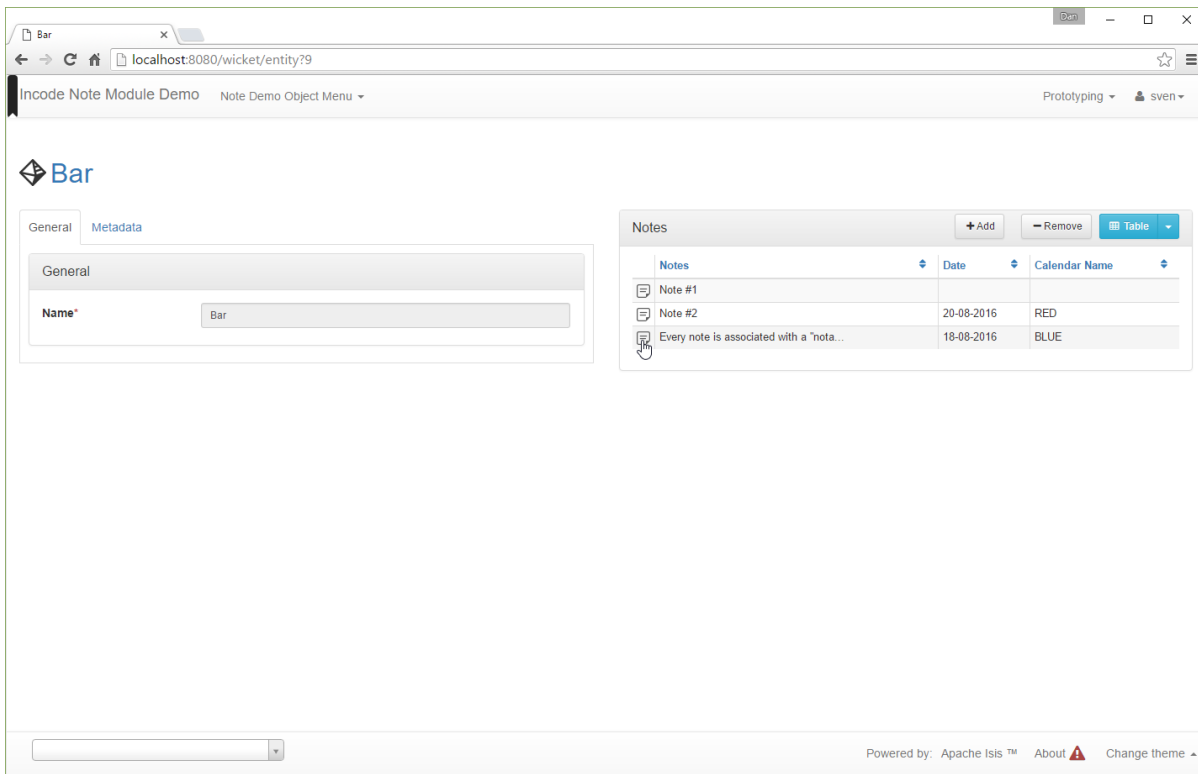
The fixture sets up some notes for each of these "notable" objects; these are displayed in a (contributed) `notes` collection. We can also add new notes using a (contributed) `addNote(...)` action:



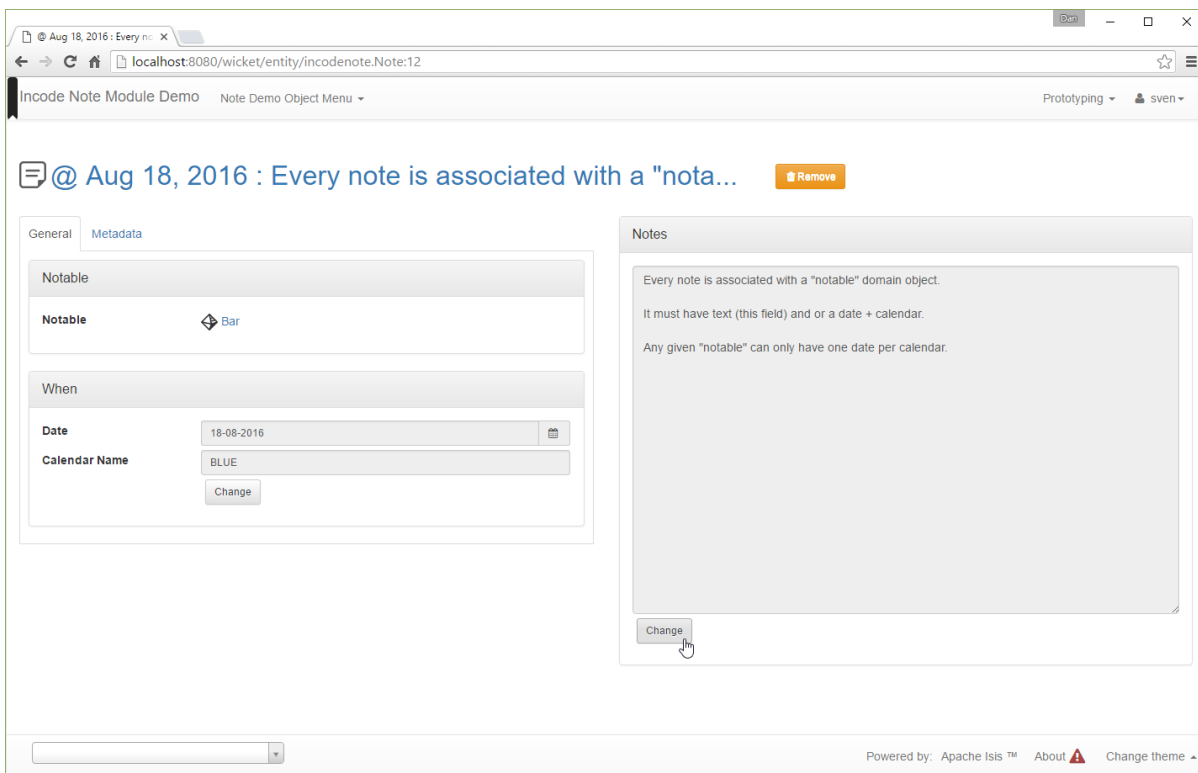
The action allows the note text and optionally a date/calendar to be specified. Every note must have either text and/or a date and calendar. Also, each "notable" can only associate one **Note** per calendar. The list of calendars is defined by the optional **CalendarNameRepository** SPI domain service,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



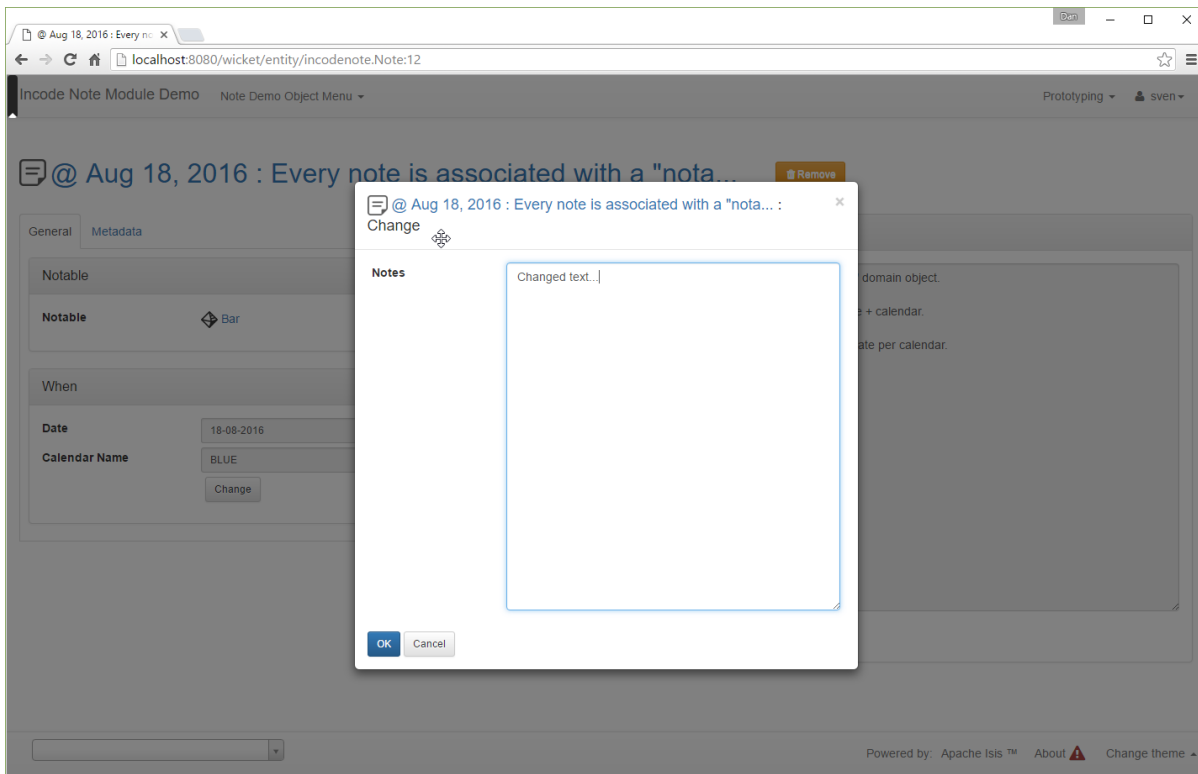
The notes for the "notable" domain object is added to. Each **Note** can also be viewed:



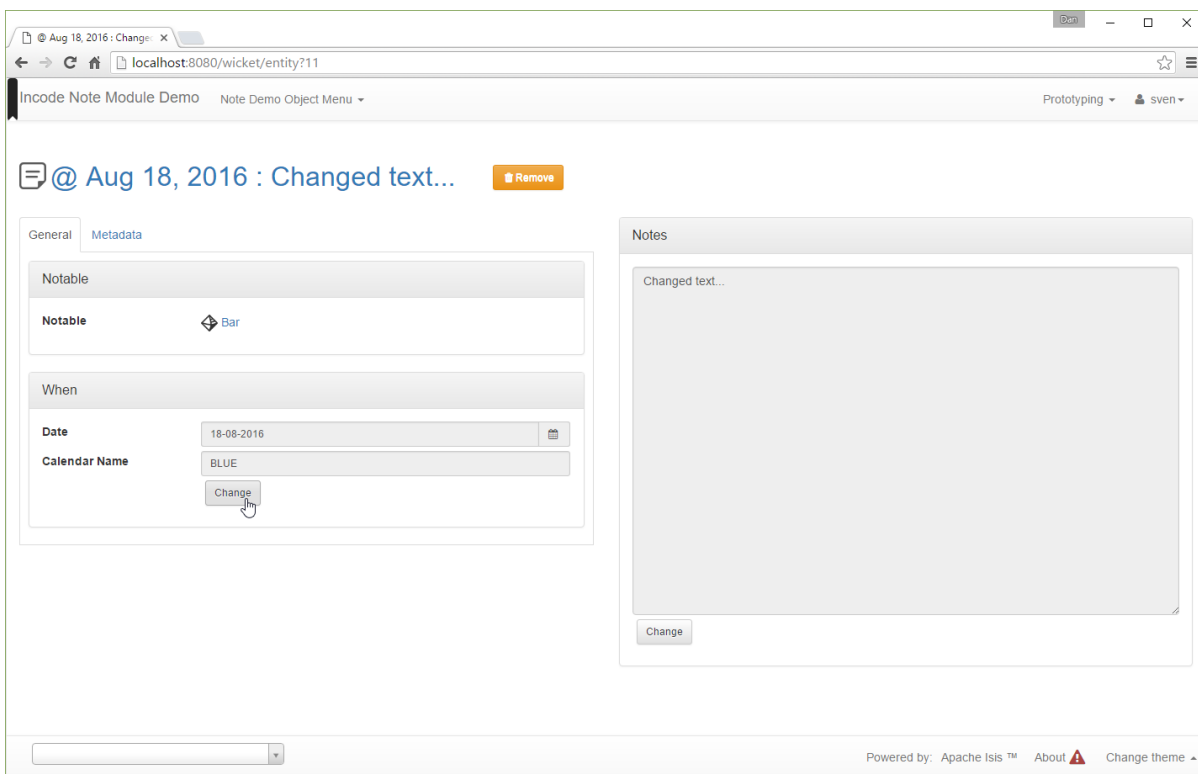
The **Note** shows the text and date/calendar, as well as the "notable" domain object that it is attached to.



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

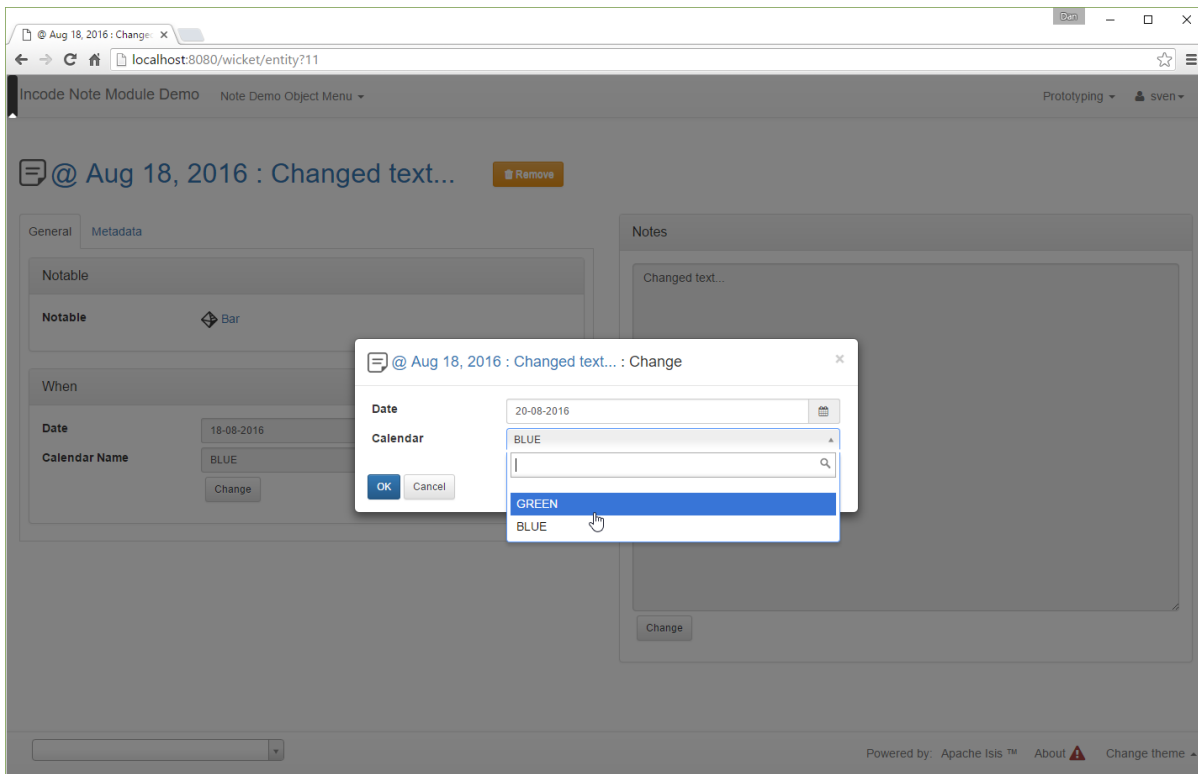


while the `changeDate(...)` action...

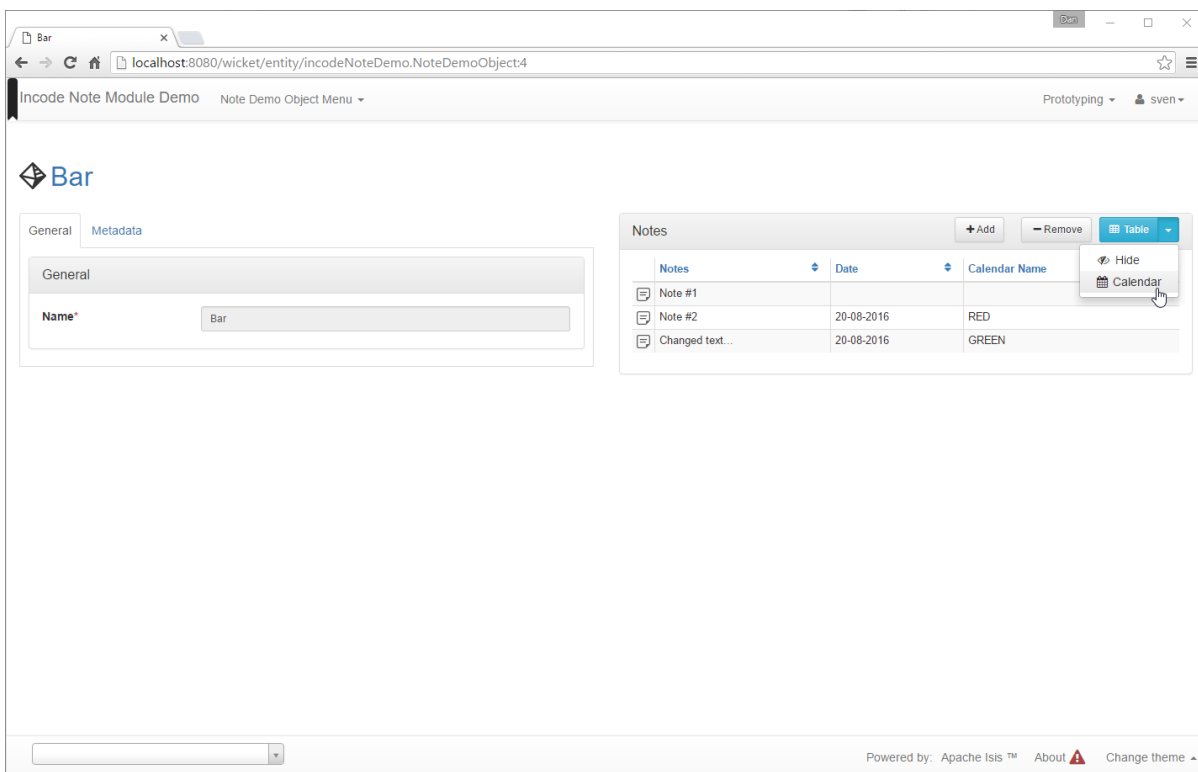


allows the note's date/calendar to be updated (or cleared/set to null if the note has text):





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



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

Bar

localhost:8080/wicket/entity/incodeNoteDemo.NoteDemoObject:4

Incoded Note Module DemoNote Demo Object Menu ▾Prototyping sven ▾

Bar

GeneralMetadata

General

Name\*Bar

Notes

+ Add- RemoveCalendar ▾

<<◀▶>>

today

August 2016

☒ null☒ RED☒ GREEN

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3
4	5	6	7	8	9	10

Bar: Note #2  
Bar: Changed text.

Powered by: Apache Isis™About ⚠Change theme ▾

# 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:

```
@Override
public List<Class<?>> getModules() {
    return Arrays.asList(
        ...
        org.incode.module.note.dom.NoteModule.class,
    );
}
```

## 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 ④
        extends NotableLinkRepository.SubtypeProviderAbstract {
        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
- ④ 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:

```
@DomainService(nature = NatureOfService.DOMAIN)
public class NotesDemoSuppressContentSubscriber extends AbstractSubscriber {
    @Subscribe
    public void on(Note.ContentDomainEvent ev) {
        switch (ev.getEventPhase()) {
            case HIDE:
                // uncomment as an example of how to influence the UI
                // (the content property should disappear)
                // ev.hide();
            }
        }
    }
}
```

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](#).