



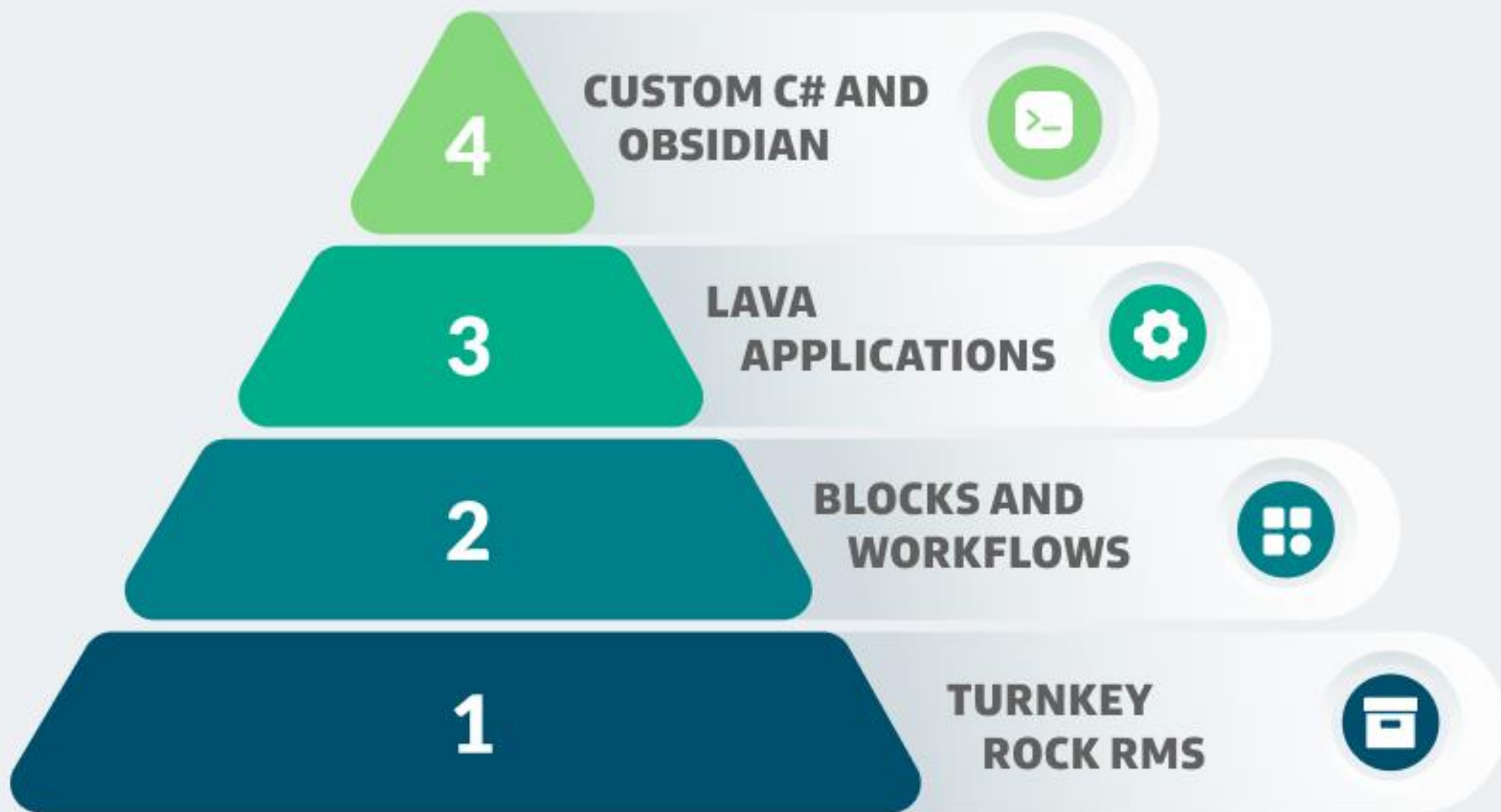
Obsidian Development

And some common gotchas





<https://community.rockrms.com/developer/obsidian>





Review

A quick recap of Obsidian Blocks



Obsidian Blocks are Client & Server

- All Obsidian blocks are comprised of essentially two parts.



- Compiles into a .dll
- This part is always required. This contains any logic required to view, edit, and otherwise interact with the person viewing the page. This does not handle any UI, just the logic required to provide the information to the UI.



- Trans'piled into .obs.js
- It can either be Obsidian, Rock Mobile, or some future UI framework. This is what handles the UI and the direct interaction with the person viewing the page.



Page Load

GetObsidianBlockInitialization()

setup()

Wait for Input

onFormSubmit()

[BlockAction]

Server
C# / .cs

Client
TypeScript / .obs



Components

Pretty much everything is a component in Obsidian land
Sometimes we call them controls



UI Toolkit

The screenshot displays the Obsidian Control Gallery interface. On the left is a sidebar with icons for gallery, user, currency, tools, and a briefcase. The main area is titled "Obsidian Control Gallery" and lists various UI controls. The "Entity Picker" control is selected and expanded, showing its configuration options and current values.

Obsidian Control Gallery

- Component Picker
- Connection Request Picker
- Content Channel Item Picker
- Content Drop Down Picker
- Copy Button
- Countdown Timer
- Currency Box
- Data View Picker
- Date Parts Picker
- Date Picker
- Date Range Picker
- Date Time Picker
- Day Of Week Picker
- Defined Value Picker
- Dialog
- Drop Down Content
- Drop Down List
- Drop Down Menu
- Electronic Signature
- Email Box
- Entity Picker**
- Entity Type Picker
- Ethnicity Picker
- Event Calendar Picker
- Event Item Picker
- Field Filter Editor
- Field Type Editor
- Field Type Picker
- File Uploader

Entity Picker

Test Control

Entity Type •

Campus

Campus i •

Main Campus

Current Values

```
value
"76882ae3-1ce8-42a6-a2b6-8c0b29cf8cf"

entityType
{
  "value": "00096bed-9587-415e-8ad",
  "text": "Campus",
  "category": "All Entities",
  "disabled": null
}
```

Demo Settings

Disabled ☐

Hide Entity Type Picker i ☐

Entity Control Help Text Template i

This is the help text. Single Entity: {0}; Multip

Usage Notes

Import

- Rock Control Gallery

- This Obsidian block shows most all of the UI controls in the Obsidian arsenal



Campuses
Home > Settings > General > Campuses

Name

8 Campuses

Name	Short Code	Campus Leader	Campus Type	Campus Status	Avg. Attendance	Active
Main Campus	MAIN		Physical	Open	1	✓
Phoenix Central						✓
Mesa East						✓
Chandler South						✓
Glendale West						✓
Gilbert East						✓
Avondale Southwest						✓
Test Campus			Physical	Open		✓

50

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- List Blocks
- Lists of entities

Campus Detail
Home > Settings > General > Campuses > Campus Detail

Name

Main Campus

• Name Active ☒

Description

Status Type

Opened Date Closed Date

Code URL

Campus Leader Phone Number

Service Times Location

Campus Schedules

Schedule	Type
No Schedules Found	

Topics

Type	Email	Public
No Topics Found		

- Detail Blocks
- View/Edit entities



Detail Blocks

Blocks show the view/edit for
an entity

Campus Detail
Home > Settings > General > Campuses > Campus Detail

Name

Alisha

Main Campus

Active

Status	Type
Open	Physical
Code	Location
MAIN	Main Campus
	Average Weekend Attendance
	1 ⓘ

[Edit](#) [Delete](#)

Campus Data			
Id	Name	Status	Created At
1	Main	Open	2023-10-27 10:30:00

Showing 1 of 1 records



Front-end (TypeScript)

```
campusDetail.obs

1 <template>
2   <NotificationBox v-if="blockError" alertType="warning" v-html="blockError"></NotificationBox>
3
4   <NotificationBox v-if="errorMessage" alertType="danger" v-html="errorMessage"></NotificationBox>
5
6   <DetailBlock v-if="!blockError"
7     v-model:mode="panelMode"
8     :name="panelName"
9     :labels="blockLabels"
10    :entityKey="entityKey"
11    :isAuditHidden="false"
12    :isBadgesVisible="true"
13    :isDeleteVisible="isEditable"
14    :isEditVisible="isEditable"
15    :isFollowVisible="false"
16    :isSecurityHidden="true"
17    :isFullScreenVisible="false"
18    @cancelEdit="onCancelEdit"
19    @delete="onDelete"
20    @edit="onEdit"
21    @save="onSave">
22     <template #view>
23       <ViewPanel :modelValue="campusViewBag" :options="options" />
24     </template>
25
26     <template #edit>
27       <EditPanel v-model="campusEditBag" :options="options" @propertyChanged="baseBlock.onPropertyChanged" />
28     </template>
29   </DetailBlock>
30 </template>
31 <script setup lang="ts">
32   import { computed, ref } from "vue";
33   ...
```




Front-end (TypeScript)

```
campusDetail.obs

1 <template>

campusDetail.obs

173 /**
174  * Event handler for the Edit button being clicked. Request the edit
175  * details from the server and then enter edit mode.
176  *
177  * @returns true if the panel should enter edit mode; otherwise false.
178  */
179 async function onEdit(): Promise<boolean> {
180     const result = await invokeBlockAction<ValidPropertiesBox<CampusBag>>("Edit", {
181         key: campusViewBag.value?.idKey
182     });
183
184     if (result.isSuccess && result.data && result.data.bag) {
185         campusEditBag.value = {
186             bag: result.data.bag,
187             validProperties: result.data.validProperties ?? Object.keys(result.data.bag)
188         };
189
190         return true;
191     }
192     else {
193         return false;
194     }
195 }
```





CampusDetail.cs

```
1 using System;
2 using System.Collections.Generic;
3 using System.ComponentModel;
4 ...
5 using Rock.ViewModels.Utility;
6 using Rock.Web.Cache;
7
8 namespace Rock.Blocks.Core
9 {
10     /// <summary>
11     /// Displays the details of a particular campus.
12     /// </summary>
13     /// <seealso cref="Rock.Blocks.RockDetailBlockType" />
14
15     [DisplayName( "Campus Detail" )]
16     [Category( "Core" )]
17     [Description( "Displays the details of a particular campus." )]
18     [IconCssClass( "ti ti-building" )]
19     [SupportedSiteTypes( Model.SiteType.Web )]
20
21     #region Block Attributes
22
23     #endregion
24
25     [Rock.SystemGuid.EntityTypeGuid( "A61EAF51-5DB4-451E-9F88-9D4C6ACCE73B" )]
26     [Rock.SystemGuid.BlockTypeGuid( "507F5108-FB55-48F0-A66E-CC3D5185D35D" )]
27     public class CampusDetail : RockEntityDetailBlockType<Campus, CampusBag>
28     {
29         ...
30
31         #region Block Actions
32         [BlockAction]
33         public BlockActionResult Edit( string key )
34         {
35             ...
36         }
37     }
38 }
```

Back-end (C#)



Back-end C#

GetObsidianBlockInitialization()

```
CampusDetail.cs

72     /// <inheritdoc>
73     public override object GetObsidianBlockInitialization()
74     {
75         var box = new DetailBlockBox<CampusBag, CampusDetailOptionsBag>();
76
77         SetBoxInitialEntityState( box );
78
79         box.NavigationUrls = GetBoxNavigationUrls();
80         box.Options = GetBoxOptions( box.IsEditable );
81
82         return box;
83     }
```




Back-end C# Block Actions

```
CampusDetail.cs

733     [BlockAction]
734     public BlockActionResult Edit( string key )
735     {
736         if ( !TryGetEntityForEditAction( key, out var entity, out var actionError ) )
737         {
738             return actionError;
739         }
740
741         entity.LoadAttributes( RockContext );
742
743         var bag = GetEntityBagForEdit( entity );
744
745         return ActionOk( new ValidPropertiesBox<CampusBag>
746         {
747             Bag = bag,
748             ValidProperties = bag.GetType().GetProperties().Select( p => p.Name ).ToList()
749         } );
750     }
```




Back-end C# Block Action

```
CampusDetail.cs

733 [BlockAction]
734 public BlockActionResult Edit( string str )
735 {
736     if ( !TryGetEntityForEditAction( str ) )
737     {
738         return actionError;
739     }
740
741     entity.LoadAttributes( RockContext );
742
743     var bag = GetEntityBagForEdit( entity );
744
745     return ActionOk( new ValidPropertiesBox<CampusBag>
746     {
747         Bag = bag,
748         ValidProperties = bag.GetValidProperties()
749     } );
750 }
```

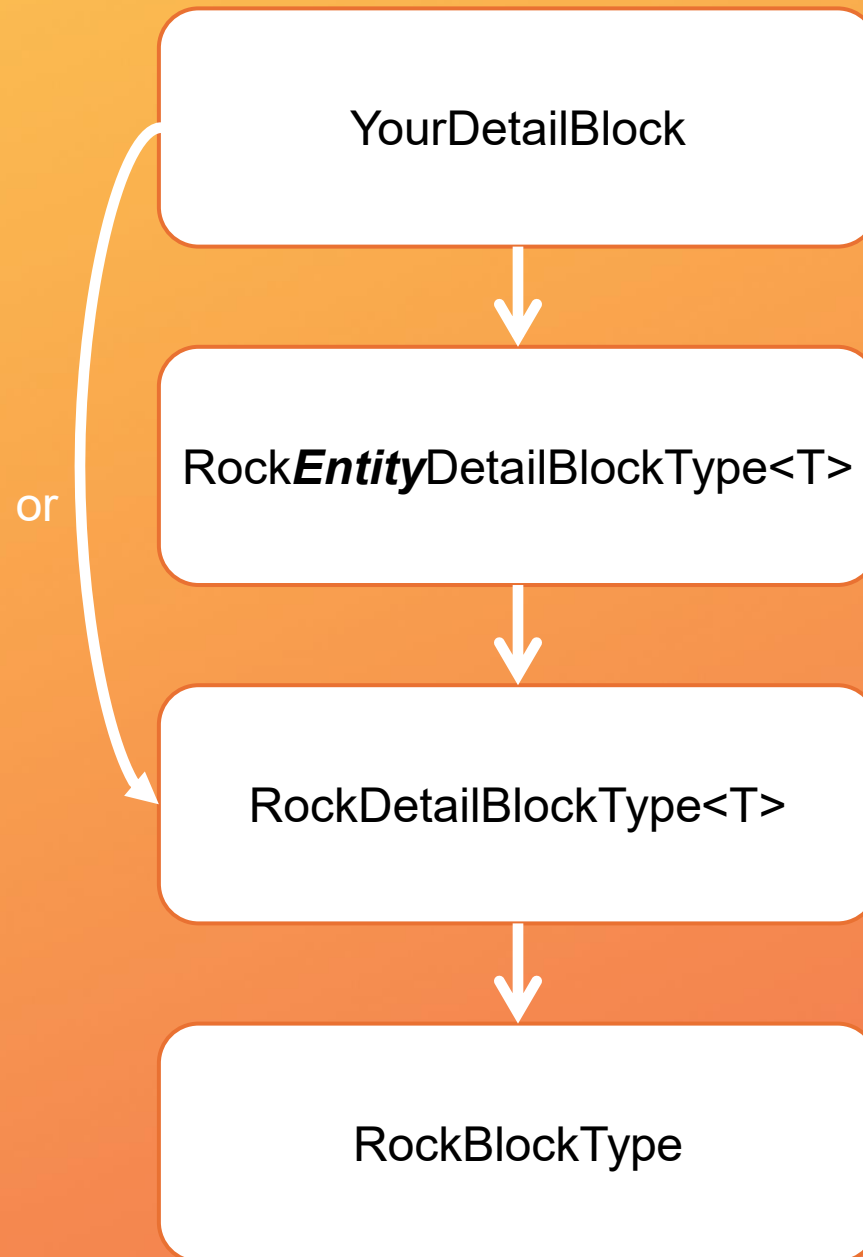
```
CampusDetail.cs

757 [BlockAction]
758 public BlockActionResult Save( ValidPropertiesBox<CampusBag> box )
759 {
760     var entityService = new CampusService( RockContext );
761
762     if ( !TryGetEntityForEditAction( box.Bag.IdKey, out var entity, out var actionError ) )
763     {
764         return actionError;
765     }
766
767     // Update the entity instance from the information in the bag.
768     if ( !UpdateEntityFromBox( entity, box ) )
769     {
770         return BadRequest( "Invalid data." );
771     }
772
773     // Ensure everything is valid before saving.
774     if ( !ValidateCampus( entity, out var validationMessage ) )
775     {
776         return BadRequest( validationMessage );
777     }
778
779     var isNew = entity.Id == 0;
780
781     RockContext.WrapTransaction( () =>
782     {
783         RockContext.SaveChanges();
784         entity.SaveAttributeValues( RockContext );
785     } );
786
787     if ( isNew )
788     {
789         return ActionContent( System.Net.HttpStatusCode.Created, this.GetCurrentPageUrl( new Dictionary<string, string>
790         {
791             [PageParameterKey.CampusId] = entity.IdKey
792         } ) );
793     }
794
795     // Ensure navigation properties will work now.
796     entity = entityService
797         .AsNoFilter()
798         .Include( "CampusSchedules.Schedule" )
799         .FirstOrDefault( t => t.Id == entity.Id );
800     entity.LoadAttributes( RockContext );
801
802     var bag = GetEntityBagForView( entity );
803
804     return ActionOk( new ValidPropertiesBox<CampusBag>
805     {
806     }
```



Detail Block: Inheritance

What base class should you inherit from?





Detail Block : Inheritance

: Rock**Entity**DetailBlockType<TEntity, TEntityBag>

- Expects your <TEntity> to be an EntityType
- Expects you'll implement the abstract methods:
 - abstract bool TryGetEntityForEditAction(...)
 - abstract bool UpdateEntityFromBox(...)
 - abstract TEntityBag GetEntityBagForView(...)
 - abstract TEntityBag GetEntityBagForEdit(...)
- Inherits RockDetailBlockType

: RockDetailBlockType

- Doesn't expect much
- Expects you to implement the GetInitialEntity() that gets the entity instance in question
- Provides a RockContext property

```
SiteDetail.cs

var entity = GetInitialEntity();

protected override Site GetInitialEntity()
{
    return GetInitialEntity<Site, SiteService>(RockContext, PageParameterKey.SiteId);
}
```




List Blocks

These are essentially the blocks that list Rock's entities.






















Campus List						2 Campuses	🔍	+	⋮
Name	Campus Leader	Campus Type	Campus Status	Avg. Attendance	Active				

Batch List						573 Batches	🔍	⚙️	+	⋮	×
<input type="checkbox"/>	Name	Date	Variances	Status	Total Amount						
<input type="checkbox"/>	SampleData1698537600000 #656 Transaction Count: 2	10/29/2023		Closed	\$204.00						×
<input type="checkbox"/>	SampleData1697932800000 #655 Transaction Count: 2	10/22/2023		Closed	\$204.00						×
<input type="checkbox"/>	SampleData1697328000000 #844 Transaction Count: 1	10/15/2023		Closed	\$159.00						×
<input type="checkbox"/>	SampleData1696723200000 #654 Transaction Count: 1	10/8/2023		Closed	\$45.00						×
<input type="checkbox"/>	SampleData1696550400000 #391 Transaction Count: 2	10/6/2023		Closed	\$375.00						×



Grid Component

```
1 <Grid :definition="config.gridDefinition ?? undefined"
2       :data="gridDataSource"
3       keyField="guid"
4       personKeyField="guid"
5       itemTerm="Person"
6       tooltipField="email"
7       stickyHeader
8       liveUpdates
9       :entityTypeGuid="EntityType.Person"
10      :expectedRowCount="config.expectedRowCount ?? undefined"
11      :customActions="customActions"
12      :onAddItem="config.isAddEnabled ? onAddItem : undefined"
13      @selectItem="onSelectItem">
```

Person List							57 of 59 People				
<input type="checkbox"/>	Name	Birth Date	Age	Email Active		Campus	Connection Status				
<input type="checkbox"/>	 Giver Anonymous			✓		Main Campus	Participant				
<input type="checkbox"/>	 Presence Presence			✓		Main Campus	Visitor				
<input type="checkbox"/>	 Ted Decker	2/10/1986	38	✓		Main Campus	Member				
<input type="checkbox"/>	 Cindy Decker	3/10/1987	37	✓		Main Campus	Member				
<input type="checkbox"/>	 Noah Decker	3/10/2014	10	✓		Main Campus	Attendee				

Obsidian Grid

<https://community.rockrms.com/subscriptions/rx24/the-new-obsidian-grid>



The image shows a video player interface for a presentation titled "Obsidian Grid". The video thumbnail shows a speaker at a podium in a dark room. The title "Obsidian Grid" is displayed in large white text, followed by the subtitle "A few details about our flagship control". A large orange play button is centered on the video area. Below the video, there is a text overlay: "If you can't read this→ Obsidian. This is a test. ... you might be sitting too far in the back." The video player includes a progress bar at the bottom showing a duration of -39:00, along with standard controls like volume, settings, and share icons. The "RX24" logo is visible in the bottom left corner of the player area.



Obsidian Grid

A few details about our flagship control



If you can't read this→ Obsidian. This is a test.
... you might be sitting too far in the back.



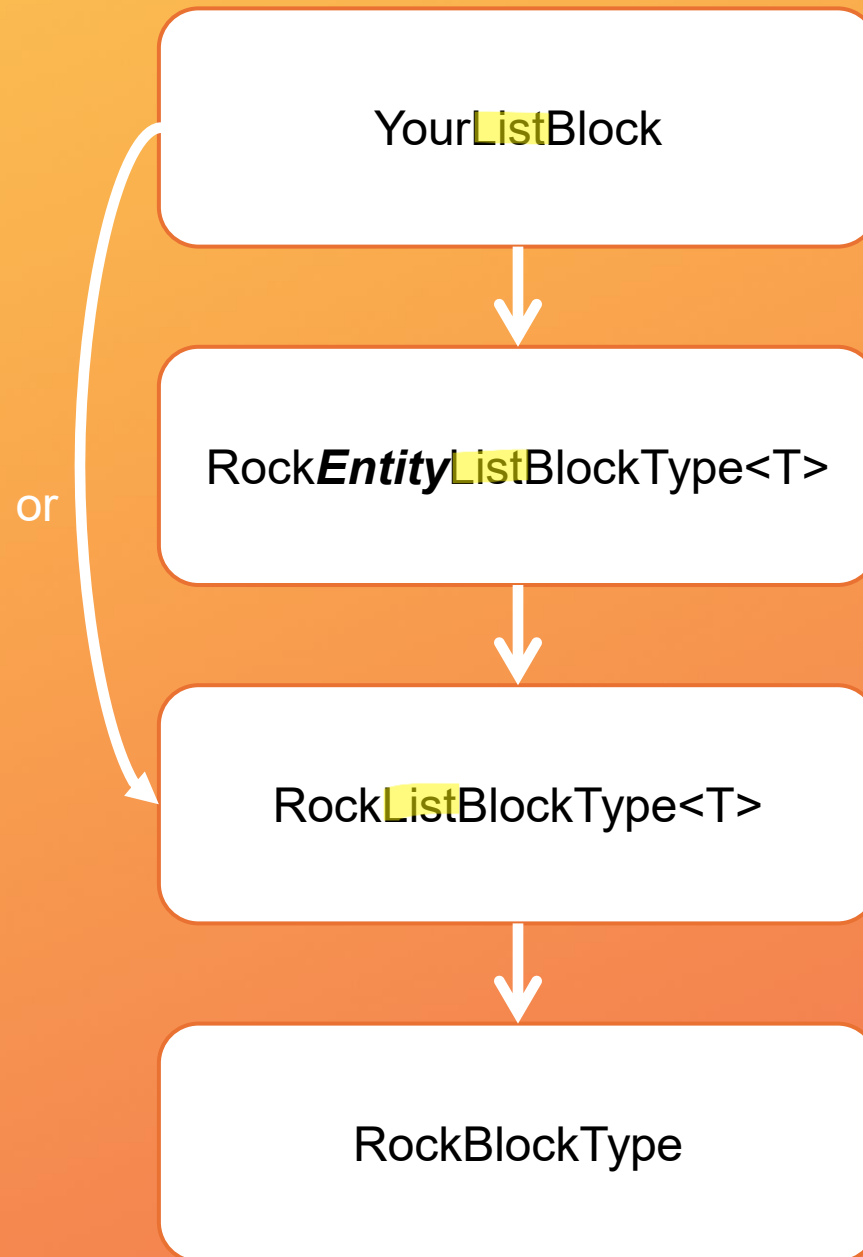
RX24

-39:00



List Block: Inheritance

What base class should you inherit from?





List Block : Inheritance

Rock**Entity**ListBlockType<T>

- Expects your <T> to be an EntityType
- Provides a default implementation of the GetListQueryable() and GetOrderedListQueryable() methods
- Has a BuildGridAttributes() method
- It inherits from RockListBlockType...

RockListBlockType<T>

- Expects your <T> to be anything
- Provides only basic abstract methods and some virtuals.
 - GetListQueryable() and
 - GetOrderedListQueryable()
...does not actually order *your* queryable
(Gotcha: that's for you to implement)



List Block : Inheritance

RockBlockType

- All inherit from RockBlockType
- Now provides a **RockContext** property
- ...and Logger



Block Roles

A new mechanism to implement our old ISecondaryBlock




Block Roles

- **System** - Used for blocks that provide core system-level functionality on the page.
- **Navigation** - Used for blocks that manage page navigation.
- **Content** - The default role. Typically used for blocks that display informational or visual content.
- **Primary** - Indicates that the block delivers the main functionality of the page.
- **Secondary** - Blocks that provide a secondary feature to the page, such as a list of things related to the primary block.
 - These are commonly hidden when a Primary block enters edit mode




Role: Secondary

**Media Folder**

Name ▾

Bookmark

Notifications

Alisha 

Home > Media Accounts > Local Account's Media > Folder A

Folder A

Name •
Folder A

Description

Workflow Type ⓘ
⚙️ ▾

☐ Enable Content Channel Sync

Save

Cancel

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Webforms -> Obsidian

Was using an Interface


```
: ..., ISecondaryBlock
```






Now uses a decorator

```
[DefaultBlockRole( BlockRole.Secondary )]
```



Role: Secondary





Media Folder

Home > Media Accounts

Folder A

Account
Local Account

Edit

Folder A Media Elements

Filter Options ▾

Name	Duration	Watch Count	Transcribed
Media Element 1		0	×

50

500

5,000

1 Media Element



```
1  [Rock.Cms.DefaultBlockRole( Rock.Enums.Cms.BlockRole.Secondary )]  
2  //[Rock.SystemGuid.EntityTypeGuid( "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx" )]  
3  //[Rock.SystemGuid.BlockTypeGuid( "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx" )]
```




Role: Secondary

Active Users CMS / Id: 435

Basic Settings

Advanced Settings

CSS Class

Pre-HTML

```
1 <div class="panel panel-block">
2   <div class="panel-heading">
3     <h4 class="panel-title">Active Internal Users</h4>
4   </div>
5   <div class="panel-body">
6
```

Post-HTML

```
1 </div>
2 </div>
3
```

Role

▼

Default: Content

System

Navigation

Content

Primary

Secondary

Save

Cancel



Gotcha

The corresponding
“Detail” block needs to
use **<DetailBlock**

or

implement API calls to
send the right ‘event’.



```
1 <template>
2   <DetailBlock v-if="!blockError"
3                 v-model:mode="panelMode"
4                 :name="panelName"
5                 :labels="blockLabels"
6                 :entityKey="entityKey"
```

or



```
1 await hideBlockRole(BlockRole.Secondary);
```



```
1 await showBlockRole(BlockRole.Secondary);
```




Grid Gotchas

A few additional gotchas we've seen in code



Gotcha

Column Issues: Alignment

- TextColumn

Name
Main Campus
Phoenix Central
Mesa East

- DateTimeColumn

Stop DateTime
9/19/2025 10:00 AM
12/12/2024 11:00 AM
1/1/2021 1:00 AM

- Column

Status
Success
Warning
Info

```
yourListBlock.obs

<TextColumn name="campus"
             title="Campus"
             field="campus" >

<DateTimeColumn name="stopDateTime"
                 title="Stop DateTime"
                 field="stopDateTime" >

<Column name="status"
         title="Status"
         field="status" >
  <template #format="{ row }">
    <span :class='getStatusClass(row)'>{{ row.status }}</span>
  </template>
```



Gotcha

Column Issues: Alignment

- headerClass=
 - title-right
 - title-center
 - text-nowrap
- itemClass=
 - justify-content-end text-right
 - justify-content-center text-center

- DateTimeColumn

Stop DateTime
9/19/2025 10:00 AM
12/12/2024 11:00 AM
1/1/2021 1:00 AM

```
yourListBlock.obs

<DateTimeColumn name="stopDateTime"
  title="Stop DateTime"
  field="stopDateTime"
  headerClass="title-right"
  itemClass="justify-content-end text-right">
```



Gotcha

Column Issues: Filtering

Campus List						
0 of 8 Campuses						
Name	Short Code	Campus Leader	Campus Type	Campus Status	Avg. Attendance	Active
No Campuses Found						
50						

Campus List						
0 of 8 Campuses						
This is the quick filter						
Name	Short Code	Campus Leader	Campus Type	Campus Status	Avg. Attendance	Active
No Campuses Found						
50						

```
<Column name="location"
  title="Location"
  field="location"
  :filter="pickExistingValueFilter"
  :filterValue="getLocationFilterValue"
  :quickFilterValue="getLocationFilterValue"
  visiblePriority="xs"
  width=15%>
  <template #format="{ row }">
    <div class="text">
      <div>{{ row.location }}</div>
      <div><small>{{ row.locationPath }}</small></div>
    </div>
  </template>

  <template #skeleton>
    <div class="skeleton skeleton-text skeleton-rounded" />
  </template>
</Column>

...
```




- HighlightDetailColumn

Note Label

Label that contains legal and allergy notes about the child to be used in a log book.

New Grid Column Type

HTML

Copy

```
<HighlightDetailColumn name="name"
                        title="Name"
                        field="name"
                        detailField="description"
                        :filter="textValueFilter"
                        visiblePriority="xs" />
```



Gotcha - Performance

- Check When Writing Code...
...especially List blocks





rockContext.SqlLogging(true)

and false to disable logging



From 100k to 1 query

- “If only I had known”

```
PersonIndex.cs
public static List<PersonIndex> LoadByModelBulk( IQueryable<Person> personQuery, RockCo
{
    // Includes to avoid lazy loading.
    personQuery = personQuery
        .Include( p => p.PrimaryFamily.GroupLocations )
        .Include( p => p.PhoneNumbers );

    var personIndexes = new List<PersonIndex>();

    var people = personQuery.ToList();
    if ( !people.Any() )
    {
        return personIndexes;
    }

    // Load all index enabled attributes for the collection.
    // NOTE: This is not fully bulk, but still much more efficient than loading attrib
    people.LoadFilteredAttributes( a => a.IsIndexEnabled );

    // Bulk queries to avoid spawning new queries for each Person record.
    var homeLocations = personQuery.GetHomeLocations( rockContext );
    var previousNames = personQuery.GetPreviousNames( rockContext );
    var spouses = personQuery.GetSpousesFullName( rockContext );

    foreach ( Person person in people )
    {
        var personIndex = new PersonIndex();
        try
        {
            personIndex.SourceIndexModel = "Rock.Model.Person";
            personIndex.ModelConfiguration = "nofilters";
            personIndex.Id = person.Id;
            personIndex.FirstName = person.FirstName;
```



Visual Studio interface showing a C# code file `PersonIndex.cs` and the Immediate Window.

Code File: `PersonIndex.cs`

```
// NOTE: This is a very basic example of how to use the Rock framework. It is not intended to be a production-ready example.
// NOTE: This is a very basic example of how to use the Rock framework. It is not intended to be a production-ready example.
people.LoadFilteredAttributes( a => a.IsIndexEnabled );

// Bulk queries to avoid spawning new queries for each Person record.
var homeLocations = personQuery.GetHomeLocations( rockContext );
var previousNames = personQuery.GetPreviousNames( rockContext );
var spouses = personQuery.GetSpousesFullName( rockContext );

foreach ( Person person in people )
{
    var personIndex = new PersonIndex();
    try
    {
        personIndex.SourceIndexModel = "Rock.Model.Person";
        personIndex.ModelConfiguration = "nofilters";
        personIndex.Id = person.Id;
    }
}
```

Immediate Window

Expression has been evaluated and has no value

Autos

Name	Value	Type
Rock.Model.Pers...	Count = 22	System.C...
personQuery	"System.Data.Entity.Infra..."	System.Li...
previousNames	Count = 1	System.C...
rockContext	{Rock.Data.RockContext}	Rock.Data...
spouses	Count = 22	System.C...





Visual Studio Code interface showing a C# project named "Rock" with a file named "PersonIndex.cs". The code is in the "Debug" state, and the "PersonIndex.cs" file is open. The code is a LINQ query that filters people based on whether they have an index enabled, and then loads the filtered attributes. The code is as follows:

```
// Load all index enabled attributes for the collection.
// NOTE: This is not fully bulk, but still much more efficient than loading attributes for
people.LoadFilteredAttributes( a => a.IsIndexEnabled );

// Bulk queries to avoid spawning new queries for each Person record.
var homeLocations = personQuery.GetHomeLocations( rockContext );
var previousNames = personQuery.GetPreviousNames( rockContext );
var spouses = personQuery.GetSpousesFullName( rockContext );

foreach ( Person person in people )
{
    var personIndex = new PersonIndex();
    try
    {
    }
```

The "Autos" pane shows the following variables:

Name	Value	Type
Rock.Model.Pers...	Count = 22	System.C...
people	Count = 70	System.C...
personQuery	"System.Data.Entity.Infra..."	System.Li...
rockContext	{Rock.Data.RockContext}	Rock.Data...
spouses	Count = 22	System.C...

The "Output" pane shows the SQL query executed by the application:

```
[Filter5].[PersonId4] AS [PersonId1],
[Extent13].[RecordTypeValueId] AS [RecordTypeValueId],
[Extent13].[NickName] AS [NickName],
[Extent13].[LastName] AS [LastName],
[Extent13].[SuffixValueId] AS [SuffixValueId]
FROM (SELECT [Extent8].[PersonId] AS [PersonId3], [Extent8].[GroupRoleId] AS [GroupRoleId3], [Extent9].[
FROM [dbo].[GroupMember] AS [Extent8]
INNER JOIN [dbo].[Person] AS [Extent9] ON [Extent8].[PersonId] = [Extent9].[Id]
INNER JOIN [dbo].[Group] AS [Extent10] ON [Extent8].[GroupId] = [Extent10].[Id]
INNER JOIN (SELECT [Extent11].[GroupId] AS [GroupId2], [Extent11].[PersonId] AS [PersonId4], [Extent1
FROM [dbo].[GroupMember] AS [Extent11]
INNER JOIN [dbo].[Person] AS [Extent12] ON [Extent11].[PersonId] = [Extent12].[Id] ) AS [Join8] ON
WHERE (0 = [Extent8].[IsArchived]) AND (0 = [Extent8].[IsArchived]) AND (0 = [Extent9].[IsDeceased]) A
LEFT OUTER JOIN [dbo].[Person] AS [Extent13] ON [Filter5].[PersonId3] = [Extent13].[Id]
WHERE ([Filter5].[GroupTypeId2] = @__linq_0) AND ([Filter5].[GroupRoleId3] = @__linq_1) AND ( EXISTS (
1 AS [C1]
FROM ( SELECT [Project5].[Id] AS [Id], [Project5].[MaritalStatusValueId] AS [MaritalStatusValueId]
FROM ( SELECT
[Extent14].[Id] AS [Id],
[Extent14].[MaritalStatusValueId] AS [MaritalStatusValueId]
FROM [dbo].[Person] AS [Extent14]
WHERE ([Extent14].[RecordTypeValueId] IS NOT NULL) AND ( NOT ((@__linq_2 = [Extent14].[Recor
) AS [Project5]
ORDER BY row_number() OVER (ORDER BY [Project5].[Id] ASC)
OFFSET 0 ROWS FETCH NEXT 70 ROWS ONLY
) AS [Limit2]
WHERE ([Limit2].[MaritalStatusValueId] = @__linq_5) AND ([Limit2].[Id] = [Filter5].[PersonId4])
)) AND ([Filter5].[GroupTypeId2] = @__linq_6) AND ([Filter5].[GroupRoleId4] = @__linq_7) AND ([Filter5
END
GO
```

The "Output" pane also shows the execution time for the query:

```
-- Call# 1 Timings:
-- [ 100 ms] ExecutionTime (CommandExecuted)
-- [ 92.779 ms] ElapsedTime (CommandExecuted)
-- [ - ] ExecutionTime (StatementCompleted)
-- [ 1.274 ms] ElapsedTime (StatementCompleted)
-- [ 94.053 ms] Total
```




/*
Call# 10
StackTrace:
<GetSpouses>b__91_16 at offset 93 in file:line:column \Rock\Model\CRM\Person\PersonService.cs:3119:62
GetSpouses at offset 13690 in file:line:column \Rock\Model\CRM\Person\PersonService.cs:3116:13
GetSpouses at offset 103 in file:line:column \Rock\Model\CRM\Person\PersonExtensionMethods.cs:347:13
LoadByModelBulk at offset 1325 in file:line:column \Rock\UniversalSearch\IndexModels\PersonIndex.cs:334:13
IndexChunkedQuery at offset 906 in file:line:column \Rock\Model\CRM\Person\Person.Logic.cs:2053:17
<IndexPeopleThreaded>b__0 at offset 102 in file:line:column \Rock\Model\CRM\Person\Person.Logic.cs:2000:62

*/BEGIN

DECLARE
@EntityKeyValue1 Int = 6449

SELECT
[Extent1].[Id] AS [Id],
[Extent1].[IsSystem] AS [IsSystem],
[Extent1].[RecordTypeValued] AS [RecordTypeValued],
[Extent1].[RecordStatusValued] AS [RecordStatusValued],
[Extent1].[RecordStatusLastModifiedDateTime] AS [RecordStatusLastModifiedDateTime],
[Extent1].[RecordStatusReasonValued] AS [RecordStatusReasonValued],
[Extent1].[ConnectionStatusValued] AS [ConnectionStatusValued],
[Extent1].[RecordSourceValued] AS [RecordSourceValued],
[Extent1].[ReviewReasonValued] AS [ReviewReasonValued],
[Extent1].[IsDeceased] AS [IsDeceased],
[Extent1].[TitleValued] AS [TitleValued],
[Extent1].[FirstName] AS [FirstName],
[Extent1].[NickName] AS [NickName],
[Extent1].[MiddleName] AS [MiddleName],
[Extent1].[LastName] AS [LastName],
[Extent1].[SuffixValued] AS [SuffixValued],
[Extent1].[Photold] AS [Photold],
[Extent1].[BirthDay] AS [BirthDay],
.
.
.



```
.  
. .  
[Extent1].[PrimaryAliasGuid] AS [PrimaryAliasGuid],  
[Extent1].[IsChatProfilePublic] AS [IsChatProfilePublic],  
[Extent1].[IsChatOpenDirectMessageAllowed] AS [IsChatOpenDirectMessageAllowed],  
[Extent1].[DaysUntilBirthday] AS [DaysUntilBirthday],  
[Extent1].[GivingGroupId] AS [GivingGroupId],  
[Extent1].[BirthDate] AS [BirthDate],  
[Extent1].[DaysUntilAnniversary] AS [DaysUntilAnniversary],  
[Extent1].[CreatedDateTime] AS [CreatedDateTime],  
[Extent1].[ModifiedDateTime] AS [ModifiedDateTime],  
[Extent1].[CreatedByPersonAliasId] AS [CreatedByPersonAliasId],  
[Extent1].[ModifiedByPersonAliasId] AS [ModifiedByPersonAliasId],  
[Extent1].[Guid] AS [Guid],  
[Extent1].[ForeignId] AS [ForeignId],  
[Extent1].[ForeignGuid] AS [ForeignGuid],  
[Extent1].[ForeignKey] AS [ForeignKey]  
FROM [dbo].[Person] AS [Extent1]  
WHERE [Extent1].[Id] = @EntityKeyValue1
```

```
END  
GO
```



```
-- Call# 85551 Timings:  
-- [      - ] ExecutionTime (CommandExecuted)  
-- [ 0.442 ms] ElapsedTime  (CommandExecuted)  
-- [      - ] ExecutionTime (StatementCompleted)  
-- [ 0.062 ms] ElapsedTime  (StatementCompleted)  
-- [ 0.504 ms] Total
```

Yikes!



Knowing is half the battle

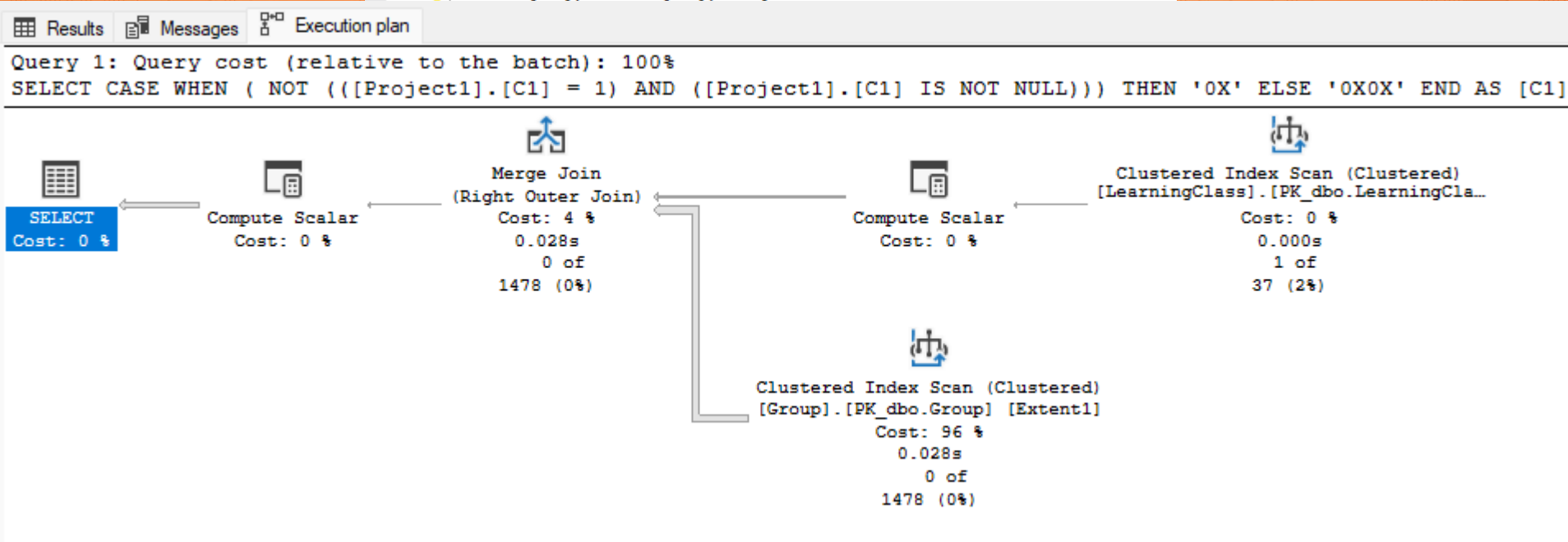
G.I. Joe
PSA 1985 to 1987





SIDE NOTE

```
4 DECLARE
5 @p_linq_0 Int = 10,
6 @p_linq_1 Int = 3,
7 @p_linq_2 Int = 773,
8 @p_linq_3 UniqueIdentifier = '7ebc167b-512d-4683-9d80-98b6bb02e1b9',
9 @p_linq_4 Int = 1,
10 @p_linq_5 Int = 143,
11 @p_linq_6 Int = 10,
12 @p_linq_7 Int = 3,
13 @p_linq_8 Int = 143,
14 @p_linq_9 Bit = 1
15
16
17 SELECT
18 [Limit3].[PersonId] AS [PersonId],
19 [Limit3].[PersonId1] AS [PersonId1],
20 [Limit3].[NickName] AS [NickName],
21 [Limit3].[FirstName] AS [FirstName],
22 [Limit3].[LastName] AS [LastName],
23 [Limit3].[SuffixValueId] AS [SuffixValueId],
24 [Limit3].[RecordTypeValueId] AS [RecordTypeValueId]
25 FROM (SELECT
26 @p_linq_0 AS [p_linq_0],
27 @p_linq_1 AS [p_linq_1],
28 @p_linq_2 AS [p_linq_2],
29 @p_linq_3 AS [p_linq_3],
```





Real Examples

Involving an earlier version of the unreleased GroupTypeList block



1) Analysis

- Look at that line in that block
- Based on this SQL, it's doing something with a DefinedValue

```
/*
Call# 6
StackTrace:
<GetGridBuilder>b_9_1 at offset 78 in file:line:column \Rock.Blocks\Group\GroupTypeList.cs:143:48
<AddTextField>b_0 at offset 91 in file:line:column \Rock\Obsidian\UI\GridBuilderExtensions.cs:105:51
<Build>b_0 at offset 238 in file:line:column \Rock\Obsidian\UI\GridBuilder.cs:126:25
Build at offset 449 in file:line:column \Rock\Obsidian\UI\GridBuilder.cs:114:13
GetGridDataBag at offset 1501 in file:line:column \Rock.Blocks\RockEntityListBlockType.cs:136:13
GetGridData at offset 117 in file:line:column \Rock.Blocks\RockListBlockType.cs:128:13
MoveNext at offset 3578 in file:line:column \Rock.Rest\v2\BlockActionsController.cs:475:17
MoveNext at offset 5987 in file:line:column \Rock.Rest\v2\BlockActionsController.cs:339:17
MoveNext at offset 1408 in file:line:column \Rock.Rest\v2\BlockActionsController.cs:144:21

*/BEGIN
DECLARE
@EntityKeyValue1 Int = 145

SELECT
    [Extent1].[Id] AS [Id],
    [Extent1].[IsSystem] AS [IsSystem],
    [Extent1].[DefinedTypeId] AS [DefinedTypeId],
    [Extent1].[Order] AS [Order],
    [Extent1].[Value] AS [Value],
    [Extent1].[Description] AS [Description],
    [Extent1].[IsActive] AS [IsActive],
    [Extent1].[CategoryId] AS [CategoryId],
    [Extent1].[CreatedDateTime] AS [CreatedDateTime],
    [Extent1].[ModifiedDate] AS [ModifiedDate],
    [Extent1].[CreatedByPersonAliasId] AS [CreatedByPersonAliasId],
    [Extent1].[ModifiedByPersonAliasId] AS [ModifiedByPersonAliasId],
    [Extent1].[Guid] AS [Guid],
    [Extent1].[ForeignId] AS [ForeignId],
    [Extent1].[ForeignGuid] AS [ForeignGuid],
    [Extent1].[ForeignKey] AS [ForeignKey]
FROM [dbo].[DefinedValue] AS [Extent1]
WHERE [Extent1].[Id] = @EntityKeyValue1

END
GO
```




2) Analysis

GroupTypeList.cs

```
138     protected override GridBuilder<GroupType> GetGridBuilder()
139     {
140         return new GridBuilder<GroupType>()
141             .WithBlock( this )
142             .AddTextField( "idKey", a => a.IdKey )
143             .AddTextField( "purpose", a => a.GroupTypePurposeValue?.Value )
144             .AddField( "groupsCount", a => a.Groups.Count )
145             .AddTextField( "name", a => a.Name )
146             .AddField( "showInNavigation", a => a.ShowInNavigation )
147             .AddField( "isSystem", a => a.IsSystem )
148             .AddField( "isSecurityDisabled", a => !a.IsAuthorized( Authorization.ADMINISTRATE, RequestContext.CurrentPerson ) );
149     }
```



3) Fix

```
GroupTypeList.cs
126
127
128     protected override IQueryable<GroupTypeWithGroupCounts> GetListQueryable( RockContext rockContext )
129     {
130         return new GroupTypeService( rockContext )
131             .Queryable()
132             .Include( gt => gt.GroupTypePurposeValue.Value );
133     }
```




4) Repeat until 1 query





```
SignatureDocumentList.cs

protected override IQueryable<SignatureDocument> GetListQueryable( RockContext rockContext )
{
    var qry = base.GetListQueryable( rockContext )
        .Include( a => a.AppliesToPersonAlias )
        .Include( a => a.AssignedToPersonAlias )
        .Include( a => a.SignedByPersonAlias )
        .Include( a => a.SignatureDocumentTemplate );
}
```



```
SignatureDocumentList.cs

protected override IQueryable<SignatureDocument> GetListQueryable( RockContext rockContext )
{
    var qry = base.GetListQueryable( rockContext )
        .Include( a => a.AppliesToPersonAlias.Person )
        .Include( a => a.AssignedToPersonAlias.Person )
        .Include( a => a.SignedByPersonAlias.Person )
        .Include( a => a.SignatureDocumentTemplate )
        .Include( a => a.BinaryFile );
}
```



Sometimes...

SignatureDocumentTemplateList.cs

```
public class SignatureDocumentTemplateList : RockEntityListBlockType<SignatureDocumentTemplate>
{
    ...
    protected override IQueryable<SignatureDocumentTemplate> GetListQueryable( RockContext rockContext )
    {
        return new SignatureDocumentTemplateService( rockContext ).Queryable();
    }
    ...
}
```



Document Templates

4 Document Templates



Name	Description	File Type	Requested Documents		
Board Meeting Minutes Approval	This document is signed by board members to indicate they have read and approved the minutes for the indicated board meeting.	Digitally Signed Documents	36		
Field Trip Release (Event Registration)	An example of a sample 'Field Trip Release' form.	Digitally Signed Documents	0		
Photo Release	An example "Photo Release" agreement which can be used when the SignedByPerson and AppliesToPerson are provided.	Digitally Signed Documents	0		
RX Sponsor Agreement	Signature document to be used for Sponsor digital agreements for upcoming RX	Digitally Signed Documents	20		

50





...more is needed

```
SignatureDocumentTemplateList.cs

public class SignatureDocumentTemplateList : RockListBlockType<SignatureDocumentTemplate>
{
    ...
    protected override IQueryable<SignatureDocumentTemplateData> GetListQueryable( RockContext rockContext )
    {
        var signatureDocumentQuery = new SignatureDocumentService( rockContext )
            .Queryable();
        var signatureDocumentTemplateQuery = new SignatureDocumentTemplateService( rockContext )
            .Queryable()
            .Include( sdt => sdt.BinaryFileType );

        return signatureDocumentTemplateQuery.Select( s => new SignatureDocumentTemplateData
        {
            SignatureDocumentTemplate = s,
            BinaryFileType = s.BinaryFileType.Name,
            Count = signatureDocumentQuery.Where( sd => sd.SignatureDocumentTemplateId == s.Id ).Count()
        } );
    }
    ...
}
```

was RockEntityListTypeBlock

was SignatureDocumentTemplate



SignatureDocumentTemplateList.cs

```
/*
Call# 1
StackTrace:
GetListItems at offset 126 in file:line:column \Rock.Blocks\Core\SignatureDocumentTemplateList.cs:146:13
GetGridDataBag at offset 183 in file:line:column \Rock.Blocks\RockListBlockType.cs:112:13
GetGridData at offset 111 in file:line:column \Rock.Blocks\RockListBlockType.cs:129:13
MoveNext at offset 3572 in file:line:column \Rock.Rest\v2\BlockActionsController.cs:480:17
MoveNext at offset 6107 in file:line:column \Rock.Rest\v2\BlockActionsController.cs:344:17
MoveNext at offset 1402 in file:line:column \Rock.Rest\v2\BlockActionsController.cs:144:21

*/BEGIN

SELECT
    [Project1].[Id] AS [Id],
    [Project1].[Name] AS [Name],
    [Project1].[Description] AS [Description],
    [Project1].[ProviderEntityTypeId] AS [ProviderEntityTypeId],
    [Project1].[ProviderTemplateKey] AS [ProviderTemplateKey],
    [Project1].[BinaryFileTypeId] AS [BinaryFileTypeId],
    [Project1].[InviteSystemCommunicationId] AS [InviteSystemCommunicationId],
    [Project1].[InviteSystemEmailId] AS [InviteSystemEmailId],
    [Project1].[LavaTemplate] AS [LavaTemplate],
    [Project1].[IsActive] AS [IsActive],
    [Project1].[DocumentTerm] AS [DocumentTerm],
    [Project1].[SignatureType] AS [SignatureType],
    [Project1].[CompletionSystemCommunicationId] AS [CompletionSystemCommunicationId],
    [Project1].[IsValidInFuture] AS [IsValidInFuture],
    [Project1].[ValidityDurationInDays] AS [ValidityDurationInDays],
    [Project1].[CreatedDateTime] AS [CreatedDateTime],
    [Project1].[ModifiedDateTime] AS [ModifiedDateTime],
    [Project1].[CreatedByPersonAliasId] AS [CreatedByPersonAliasId],
    [Project1].[ModifiedByPersonAliasId] AS [ModifiedByPersonAliasId],
    [Project1].[Guid] AS [Guid],
    [Project1].[ForeignId] AS [ForeignId],
    [Project1].[ForeignGuid] AS [ForeignGuid],
    [Project1].[ForeignKey] AS [ForeignKey],
    [Project1].[Name1] AS [Name1],
    [Project1].[C1] AS [C1]
FROM ( SELECT
    [Extent1].[Id] AS [Id],
    [Extent1].[Name] AS [Name],
```

```
[Extent1].[Name] AS [Name],
[Extent1].[Description] AS [Description],
[Extent1].[ProviderEntityTypeId] AS [ProviderEntityTypeId],
[Extent1].[ProviderTemplateKey] AS [ProviderTemplateKey],
[Extent1].[BinaryFileTypeId] AS [BinaryFileTypeId],
[Extent1].[InviteSystemCommunicationId] AS [InviteSystemCommunicationId],
[Extent1].[InviteSystemEmailId] AS [InviteSystemEmailId],
[Extent1].[LavaTemplate] AS [LavaTemplate],
[Extent1].[IsActive] AS [IsActive],
[Extent1].[DocumentTerm] AS [DocumentTerm],
[Extent1].[SignatureType] AS [SignatureType],
[Extent1].[CompletionSystemCommunicationId] AS [CompletionSystemCommunicationId],
[Extent1].[IsValidInFuture] AS [IsValidInFuture],
[Extent1].[ValidityDurationInDays] AS [ValidityDurationInDays],
[Extent1].[CreatedDateTime] AS [CreatedDateTime],
[Extent1].[ModifiedDateTime] AS [ModifiedDateTime],
[Extent1].[CreatedByPersonAliasId] AS [CreatedByPersonAliasId],
[Extent1].[ModifiedByPersonAliasId] AS [ModifiedByPersonAliasId],
[Extent1].[Guid] AS [Guid],
[Extent1].[ForeignId] AS [ForeignId],
[Extent1].[ForeignGuid] AS [ForeignGuid],
[Extent1].[ForeignKey] AS [ForeignKey],
[Extent2].[Name] AS [Name1],
(SELECT
    COUNT(1) AS [A1]
    FROM [dbo].[SignatureDocument] AS [Extent3]
    WHERE [Extent3].[SignatureDocumentTemplateId] = [Extent1].[Id]) AS [C1]
FROM [dbo].[SignatureDocumentTemplate] AS [Extent1]
LEFT OUTER JOIN [dbo].[BinaryFileType] AS [Extent2] ON [Extent1].[BinaryFileTypeId] = [Extent2].[Id]
) AS [Project1]
ORDER BY [Project1].[Name] ASC

END
GO

-- Call# 1 Timings:
-- [ 14 ms] ExecutionTime (CommandExecuted)
-- [ 4.546 ms] ElapsedTime (CommandExecuted)
-- [ - ] ExecutionTime (StatementCompleted)
-- [ 0.833 ms] ElapsedTime (StatementCompleted)
-- [ 5.379 ms] Total
```




AsNoTracking()

What is it and when should you use it



What is AsNoTracking()

- **skips change tracking** for the query
- **faster** and uses less memory for **read-only** work
- **Don't** use it when you need to **edit/save** or **lazy-load**

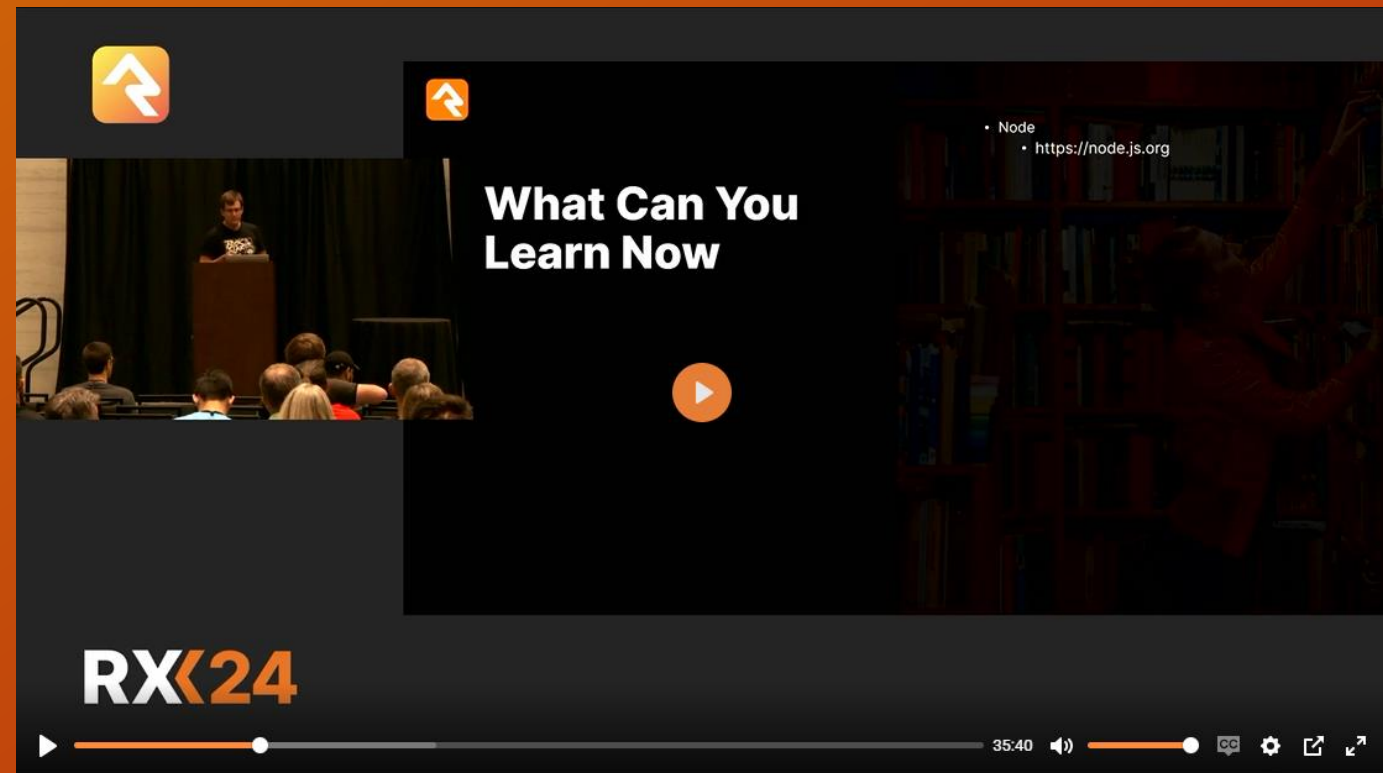


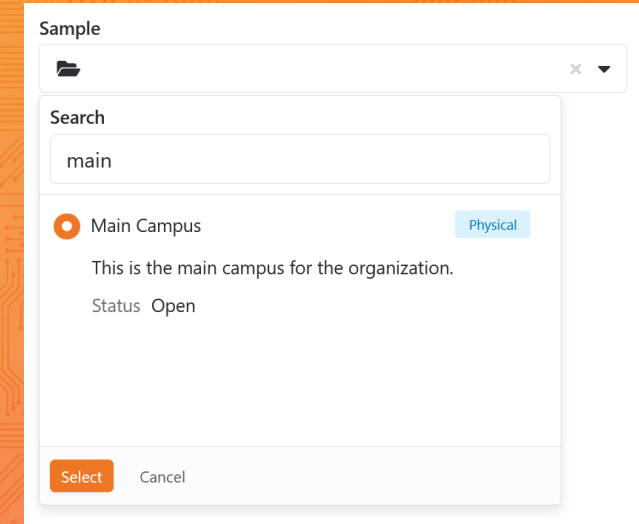
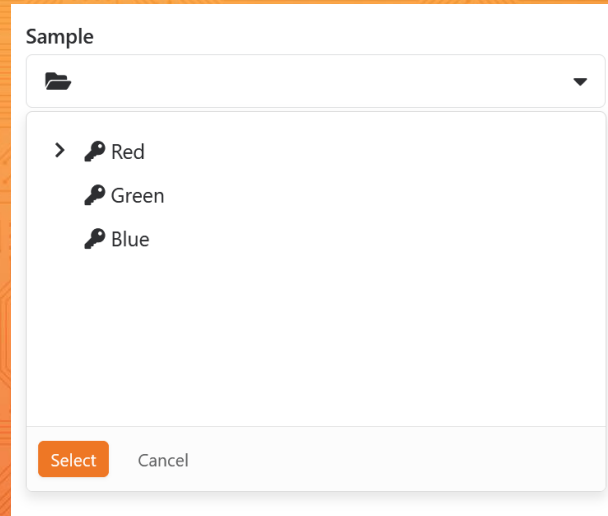
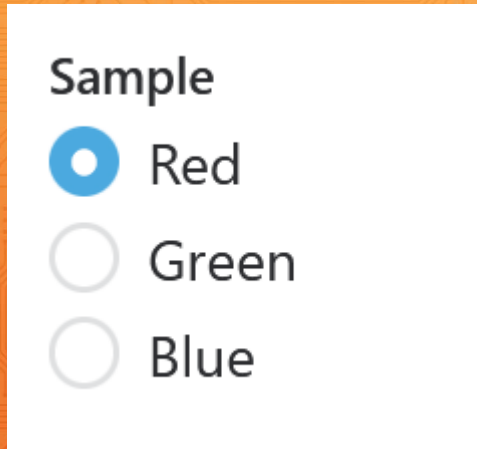
Field Types

Universal Field Types

Prepping for Obsidian

<https://community.rockrms.com/subscriptions/rx24/prepping-for-obsidian>





- Item Picker

- UniversalItemPickerFieldType

- Tree Item Picker

- UniversalItemTreePickerFieldType

- Search Picker

- UniversalItemSearchPickerFieldType



Item Picker

- Comes in a few flavors depending on how you configure it

Sample

- ☒ Red
☐ Green
☐ Blue

Sample

- ☐ Red
☒ Green
☐ Blue

Sample

Red

Green

Blue

Sample

Red × Green ×

Red



Green



Blue



Tree Item Picker

- two flavors:
- a single select
- a multi-select variant

Sample



Red



Green



Blue

Select


Cancel



Search Picker

- one flavor:
- single select

Sample

 ✕ ▼

Search

main

☒ Main Campus Physical

This is the main campus for the organization.

Status Open

Select

Cancel



Fairly simple to implement

```
TestFieldType.cs

[FieldTypeGuid( "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxxxx" )]
public class TestFieldType : UniversalItemPickerFieldType
{
    protected override bool IsMultipleSelection => false;

    protected override UniversalItemValuePickerDisplayStyle GetDisplayStyle(
        Dictionary<string, string> privateConfigurationValues );

    protected override List<ListItemBag> GetListItems(
        Dictionary<string, string> privateConfigurationValues );


    protected override List<ListItemBag> GetItemBags(
        IEnumerable<string> values,
        Dictionary<string, string> privateConfigurationValues );
}
```






See <https://community.rockrms.com/developer/obsidian>
























Gotcha

Obsidian Blocks
Only Support
Obsidian
Compatible Field
Types





	Id	Qualifier	Name	Categories	Value
≡	715	Person	Legal Notes	Childhood Information, Check-in Manager Child Attributes, Check-in Manager Roster Attributes	  
≡	716	Person	Previous Church	Visit Information	  
≡	717	Person	First Visit	Visit Information	  
≡	718	Person	Second Visit	Visit Information	  
≡	719	Person	Source of Visit	Visit Information	  
≡	739	Person	School	Education	  
≡	740	Person	Employer	Employment	  



Take Away

The Obsidian Development Guide & Important RX24 Videos

<https://community.rockrms.com/developer/obsidian>

<https://...../subscriptions/rx24/the-new-obsidian-grid>

<https://....../subscriptions/rx24/prepping-for-obsidian>



The End





Reference Material
(Just in case)



Grid Control

- Paging
- Filtering
- Sorting
- Grid Actions
- Exporting
- and much more

<https://community.rockrms.com/developer/obsidian>



Grid: Four Parts

Grid State

- Internally Managed
- This is an internal piece that you need not worry about.

Grid (Shell)

- Definition & Properties
- Handles displaying the rows, pagination, filters, etc. and handling grid actions

Column Definitions

- (exactly that)

Row Data

- (same)



Grid Definition





















```
1 <Grid :definition="config.gridDefinition ?? undefined"
2   :data="gridDataSource"
3   keyField="guid"
4   personKeyField="guid"
5   itemTerm="Person"
6   tooltipField="email"
7   stickyHeader
8   liveUpdates
9   :entityTypeGuid="EntityType.Person"
10  :expectedRowCount="config.expectedRowCount ?? undefined"
11  :customActions="customActions"
12  :onAddItem="config.isAddEnabled ? onAddItem : undefined"
13  @selectItem="onSelectItem">
```



Person List

57 of 59 People























<input type="checkbox"/>	Name	Birth Date	Age	Email Active	Campus	Connection Status			
<input type="checkbox"/>	 Giver Anonymous			✓	Main Campus	Participant			
<input type="checkbox"/>	 Presence Presence			✓	Main Campus	Visitor			
<input type="checkbox"/>	 Ted Decker	2/10/1986	38	✓	Main Campus	Member			
<input type="checkbox"/>	 Cindy Decker	3/10/1987	37	✓	Main Campus	Member			
<input type="checkbox"/>	 Noah Decker	3/10/2014	10	✓	Main Campus	Attendee			



Grid Definition

```
1 <Grid :definition="config.gridDefinition ?? undefined"
2   :data="gridDataSource"
3   keyField="guid"
4   personKeyField="guid"
5   itemTerm="Person"
6   tooltipField="email"
7   stickyHeader
8   liveUpdates
9   :entityTypeGuid="EntityType.Person"
10  :expectedRowCount="config.expectedRowCount ?? undefined"
11  :customActions="customActions"
12  :onAddItem="config.isAddEnabled ? onAddItem : undefined"
13  @selectItem="onSelectItem">
```

Person List							57 of 59 People		🔍	+	⋮
<input type="checkbox"/>	Name	Birth Date	Age	Email Active	Campus	Connection Status					
<input type="checkbox"/>	 Giver Anonymous			✓	Main Campus	Participant					
<input type="checkbox"/>	 Presence Presence			✓	Main Campus	Visitor					
<input type="checkbox"/>	 Ted Decker	2/10/1986	38	✓ ted@rocksolidchurchdemo.com	Main Campus	Member					
<input type="checkbox"/>	 Cindy Decker	3/10/1987	37	✓	Main Campus	Member					
<input type="checkbox"/>	 Noah Decker	3/10/2014	10	✓	Main Campus	Attendee					



Grid Definition

- Custom Actions...





















```
1 <Grid :definition="config.gridDefinition ?? undefined"
2   :data="gridDataSource"
3   keyField="guid"
4   personKeyField="guid"
5   itemTerm="Person"
6   tooltipField="email"
7   stickyHeader
8   liveUpdates
9   :entityTypeGuid="EntityType.Person"
10  :expectedRowCount="config.expectedRowCount ?? undefined"
11  :customActions="customActions"
12  :onAddItem="config.isAddEnabled ? onAddItem : undefined"
13  @selectItem="onSelectItem">
```



Person List

57 of 59 People



<input type="checkbox"/>	Name	Birth Date	Age	Email Active	Campus	Connection Status			
<input type="checkbox"/>	 Giver Anonymous			✓	Main Campus	Participant			
<input type="checkbox"/>	 Presence Presence			✓	Main Campus	Visitor			
<input type="checkbox"/>	 Ted Decker	2/10/1986	38	✓	Main Campus	Member			
<input type="checkbox"/>	 Cindy Decker	3/10/1987	37	✓	Main Campus	Member			
<input type="checkbox"/>	 Noah Decker	3/10/2014	10	✓	Main Campus	Attendee			



Custom Actions

- (from financialBatchList.obs)

```
1  /**
2   * The custom actions supported by this grid.
3   */
4  const customActions = computed(): GridAction[] => {
5    return [
6      {
7        title: "Open Selected Batches",
8        iconCssClass: "fa fa-folder-open",
9        disabled: !hasSelectedRows.value,
10       handler: onOpenSelectedBatches
11     },
12     {
13       title: "Close Selected Batches",
14       iconCssClass: "fa fa-folder",
15       disabled: !hasSelectedRows.value,
16       handler: onCloseSelectedBatches
17     }
18   ];
19 };
```

Batch List						598 Batches 2				
<input type="checkbox"/>	Name	Date	Accounts	Variances	Status					
<input checked="" type="checkbox"/>	My Well Pending Transactions #598 Transaction Count: 1	7/31/2024	General Fund: \$10.00		Pending					
<input checked="" type="checkbox"/>	SampleData1721545200000 #583 Transaction Count: 1	7/21/2024	General Fund: \$110.00 Mission Fund: \$50.00		Closed					
<input type="checkbox"/>	SampleData1720940400000 #415 Transaction Count: 2	7/14/2024	General Fund: \$155.00 Mission Fund: \$50.00		Closed			\$205.00	x	

- Merge Template i
- Export to Excel
- Export to CSV
- Launch Workflow
- Open Selected Batches
- Close Selected Batches



Grid Definition

- (Continued.)

```
1 <Grid :definition="config.gridDefinition ?? undefined"  
2     :data="gridDataSource"  
3     keyField="guid"  
4     personKeyField="guid"  
5     itemTerm="Person"  
6     tooltipField="email"  
7     stickyHeader  
8     liveUpdates  
9     :entityTypeGuid="EntityType.Person"  
10    :expectedRowCount="config.expectedRowCount ?? undefined"  
11    :customActions="customActions"  
12    :onAddItem="config.isAddEnabled ? onAddItem : undefined"  
13    @selectItem="onSelectItem">
```




Column Types

- BooleanColumn
- CurrencyColumn
- DateColumn
- DateTimeColumn
- LabelColumn
- NumberColumn
- PersonColumn



Column Types

(cont.)

- TextColumn
- DeleteColumn
- ButtonColumn
- SelectColumn
- ReorderColumn
- AttributeColumns
- Column



Columns

- Lots of properties to control most columns

```
1      <DateColumn name="birthDate"  
2                title="Birth Date"  
3                field="birthDate"  
4                :filter="dateValueFilter"  
5                visiblePriority="md" />
```




Columns

- Great filtering capabilities

The image illustrates the filtering capabilities of a column in a data application. It features three overlapping components:

- Code Editor:** A dark-themed editor showing the configuration for a `<DateColumn>` component. The code is as follows:


```
1 <DateColumn name="birthDate"
2           title="Birth Date"
3           field="birthDate"
4           :filter="dateValueFilter"
5           visiblePriority="md" />
```
- Data Table:** A table with a header 'Birth Date' and three data rows:


Birth Date
2/10/1980
3/10/1981
3/10/2008
- Filter Menu:** A dropdown menu for the 'Birth Date' column. It shows the 'Equals' operator selected. Below the operator is a date picker icon. At the bottom are 'Apply' and 'Clear' buttons. A secondary menu is shown below the first, listing various time-based filters: 'Before', 'After', 'Between', 'This Week', 'Last Week', 'Next Week', 'This Month', and 'Last Month'.



Tons of column & filter types to choose from!


- BooleanColumn w/**booleanValueFilter**


Email Active 

All 

- All
- No
- Yes

- LabelColumn w/**pickExistingValueFilter**

Connection Status 

Any 

Search

☐ Attendee

☐ Member


☐ Participant


☐ Prospect

☐ Visitor

Apply Clear

- NumberColumn w/**numberValueFilter**

Age 

Top N 

- Greater Than
- Greater Than Or Equal
- Less Than
- Less Than Or Equal
- Between
- Top N
- Above Average
- Below Average








Rows

- Row data can be supplied to the grid one of two ways:
- Either as a direct array of objects
- or as a function that returns a promise containing the array of objects.

```
63  /// <inheritdoc/>
64  protected override IQueryable<Person> GetListQueryable( RockContext rockContext )
65  {
66      return base.GetListQueryable( rockContext )
67          .Include( p => p.PrimaryCampus )
68          .Take( RequestContext.GetPageParameter( "count" ).AsIntegerOrNull() ?? 1_000 );
69  }
```



All the Rows







Batches

[Home](#) > [Batches](#)

Batch List

598 Batches

 Search



<input type="checkbox"/>	Name	Date	Variances	Status	Total Amount	
<input type="checkbox"/>	My Well Pending Transactions #598 Transaction Count: 1	7/31/2024		Pending	\$10.00	×
<input type="checkbox"/>	SampleData172154520000 #583 Transaction Count: 1	7/21/2024		Closed	\$160.00	×
<input type="checkbox"/>	SampleData172094040000 #415 Transaction Count: 2	7/14/2024		Closed	\$205.00	×
<input type="checkbox"/>	SampleData172033560000 #582 Transaction Count: 1	7/7/2024		Closed	\$160.00	×
<input type="checkbox"/>	SampleData171973080000 #414 Transaction Count: 2	6/30/2024		Closed	\$205.00	×
<input type="checkbox"/>	SampleData171912600000 #413 Transaction Count: 2	6/23/2024		Closed	\$205.00	×
<input type="checkbox"/>	SampleData171852120000 #412 Transaction Count: 2	6/16/2024		Closed	\$205.00	×





























- Designed to do client-side filtering and sorting

- All data sent down at once
 - So, if you have a grid of 10,000 rows with paging set to 500, you aren't just dealing with 500 rows.
 - All 10,000 rows must be sent down to the browser before anything will render.



Let there be “light”

- A lighter weight grid
- To be used with small grids.

Person List							64 People	🔍	+	⋮
<input type="checkbox"/>	Name	Birth Date	Age	Email Active	Campus	Connection Status				
<input type="checkbox"/>	 Admin Admin			✓	Main Campus	Visitor				
<input type="checkbox"/>	 Ted Decker	2/10/1986	38	✓	Main Campus	Member				
<input type="checkbox"/>	 Cindy Decker	3/10/1987	37	✓	Main Campus	Member				
<input type="checkbox"/>	 Noah Decker	3/10/2014	10	✓	Main Campus	Attendee				
<input type="checkbox"/>	 Alex Decker	2/10/2017	7	✓	Main Campus	Attendee				
<input type="checkbox"/>	 Ben Jones	7/10/1988	36	✓	Main Campus	Member				
<input type="checkbox"/>	 Brian Jones	6/9/2018	6	✓	Main Campus	Member				
50 ▾							< 1 2 >			



```
1 <Grid :definition="config.gridDefinition ?? undefined"  
2     :data="gridDataSource"  
3     light  
4     keyField="guid"  
5     ...
```


FYI



Block Actions

A call to block action CalculateLength becomes a URL request.

POST `https://www.rockrms.com/api/v2/<pageguid>/<blockguid>/CalculateLength`

```
1 [BlockAction]
2 public BlockActionResult CalculateLength( string str )
3 {
4     if ( str == null )
5     {
6         return BadRequest( "The string must be specified." );
7     }
8
9     return ActionOk( str.Length );
10 }
```



We Now Resume Our
Regularly Scheduled
Program

How to: C#

ObsidianListGallery.cs

```
37 [DisplayName( "Obsidian Gallery List" )]
38 [Category( "Example" )]
39 [Description( "Demonstrates the various parts of the Obsidian List blocks." )]
40 [IconCssClass( "fa fa-list" )]
41 [SupportedSiteTypes( Model.SiteType.Web )]
42
43 [Rock.SystemGuid.EntityTypeGuid( "4315fd92-f9f1-4038-abdc-a2d661b9dedf" )]
44 [Rock.SystemGuid.BlockTypeGuid( "121eec5e-f8aa-4cd8-a61d-9c99c269280e" )]
45 [CustomizedGrid]
46 public class ObsidianGalleryList : RockEntityListBlockType<Person>
47 {
48     #region Methods
49
50     /// <inheritdoc>
51     public override object GetObsidianBlockInitialization()
52     {
53         var builder = GetGridBuilder();
54
55         return new ListBlockBox<Dictionary<string, object>>
56         {
57             IsAddEnabled = true,
58             IsDeleteEnabled = true,
59             GridDefinition = builder.BuildDefinition()
60         };
61     }
```

GetObsidianBlockInitialization()

Just returns a ListBlockBox

How to: C#

ObsidianListGallery.cs

```
71     /// <summary>
72     /// Gets the grid builder that will be used to construct the definition
73     /// and the final row data.
74     /// </summary>
75     /// <returns>A <see cref="GridBuilder{T}"> instance that will handle building
76     protected override GridBuilder<Person> GetGridBuilder()
77     {
78         return new GridBuilder<Person>()
79             .WithBlock( this )
80             .AddField( "guid", p => p.Guid.ToString() )
81             .AddTextField( "nickName", p => p.NickName )
82             .AddTextField( "lastName", p => p.LastName )
83             .AddTextField( "photoUrl", p => p.PhotoUrl )
84             .AddTextField( "email", p => p.Email )
85             .AddField( "isEmailActive", p => p.IsEmailActive )
86             .AddDateTimeField( "birthDate", p => p.BirthDate )
87             .AddField( "campus", p => p.PrimaryCampus?.Name )
88             .AddField( "connectionStatus", p => GetConnectionStatus( p ) )
89             .AddField( "age", p => p.Age )
90             .AddAttributeFields( GetGridAttributes() );
91     }
```

GetGridBuilder()

Just returns a GridBuilder that you configure.

How to: C#

ObsidianListGallery.cs

```
1  /// <summary>
2  /// Gets the connection status as a <see cref="ListItemBag"/>. This
3  /// is a special format used by the Label column to handle the color.
4  /// </summary>
5  /// <param name="person">The person whose connection status we want.</param>
6  /// <returns>A <see cref="ListItemBag"/> that represents the connection status.
7  private ListItemBag GetConnectionStatus( Person person )
8  {
9      if ( !person.ConnectionStatusValueId.HasValue )
10     {
11         return null;
12     }
13
14     var connectionStatus = DefinedValueCache.Get( person.ConnectionStatusValueId );
15     if ( connectionStatus == null )
16     {
17         return null;
18     }
19
20     var color = connectionStatus.GetAttributeValue( "Color" );
21     return new ListItemBag
22     {
23         Value = color.IsNullOrEmpty() ? "#c3c3c3" : color,
24         Text = connectionStatus.Value
25     };
26 }
```

Special Function Methods ()

Used when you need to build a custom value (ListItemBag) that holds your **Value** and **Text**.



How to: Obsidian/TypeScript

obsidianListGallery.obs

<template>

Obsidian. This is where your UI is defined.

```
1 <template>
2   <Grid :definition="config.gridDefinition ?? undefined"
3     :data="gridDataSource"
4     keyField="guid"
5     personKeyField="guid"
6     itemTerm="Person"
7     tooltipField="email"
8     stickyHeader
9     liveUpdates
10    :entityTypeGuid="EntityType.Person"
11    :expectedRowCount="config.expectedRowCount ?? undefined"
12    :customActions="customActions"
13    :onAddItem="config.isAddEnabled ? onAddItem : undefined"
14    @selectItem="onSelectItem">
15
```



How to: Obsidian/TypeScript

obsidianListGallery.obs

Columns

Then you define your columns.

```
16      <SelectColumn />
```





How to: Obsidian/TypeScript

obsidianListGallery.obs

Columns
More...

```
18     <PersonColumn name="leader"
19         title="Campus Leader"
20         field="leader"
21         :filter="pickExistingValueFilter"
22         visiblePriority="sm" />
```


 This requires that the field be added to the grid with the `.AddPersonField()` method so that all the required values are available.



How to: Obsidian/TypeScript

obsidianListGallery.obs

After all the columns...
We start the code part.



```
85     </Grid>
86   </template>
87
88   <script setup lang="ts">
89     import { useConfigurationValues, useInvokeBlockAction } from "@Obsidian/Utility/bu
90     import { EntityType } from "@Obsidian/SystemGuids/entityType";
91     import { ListBlockBox } from "@Obsidian/ViewModels/Blocks/listBlockBox";
92     import { GridDataBag } from "@Obsidian/ViewModels/Core/Grid/gridDataBag";
93     import Grid, { AttributeColumns, BooleanColumn, Column, DateColumn, dateValueFilter
94     import { alert } from "@Obsidian/Utility/dialogs";
95     import { GridAction } from "@Obsidian/Types/Controls/grid";
96     import { reactive, ref } from "vue";
97
98     const config = useConfigurationValues<ListBlockBox<Record<string, string>>>>();
99     const invokeBlockAction = useInvokeBlockAction();
100
101     // #region Values
102
103     const gridDataSource = ref<Promise<GridDataBag>>>();
104     let gridData: GridDataBag | undefined;
105
106     const customActions: GridAction[] = [
107       {
108         title: "Custom Action",
109         tooltip: "This is an example of a custom block action.",
110         iconCssClass: "fa fa-key"
111       }
112     ]
113   </script>
```




Functions

How to: Obsidian/TypeScript

obsidianListGallery.obs

```
117     /**
118      * Called when the grid is requesting the row data be loaded.
119      */
120     async function loadGridData(): Promise<GridDataBag> {
121         const result = await invokeBlockAction<GridDataBag>("GetGridData");
122
123         if (result.isSuccess && result.data) {
124             gridData = reactive(result.data);
125             return gridData;
126         }
127         else {
128             throw new Error(result.errorMessage ?? "Unknown error while trying to load
129         }
130     }
```



Event Handlers

How to: Obsidian/TypeScript

obsidianListGallery.obs

```
137     /**
138      * Called when a row has been selected by the person.
139      *
140      * @param key The key of the row that was selected.
141      */
142     function onSelectItem(key: string): void {
143         window.location.href = `/Person/${key}`;
144     }
145
146     /**
147      * Called when a row's edit button has been clicked by the person.
148      *
149      * @param key The key of the row that should be edited.
150      */
151     function onEditClick(key: string): void {
152         window.location.href = `/Person/${key}`;
153     }
```




How to: Obsidian/TypeScript

obsidianListGallery.obs

Event Handlers

...continued.

```
155     /**
156      * Called when a row's delete button has been clicked by the person. This
157      * happens only if they have confirmed the delete action.
158      *
159      * @param key The key of the row that should be deleted.
160      */
161     async function onDeleteClick(key: string): Promise<void> {
162         await alert("Deleting is not supported for this sample grid, it will only be s
163
164         if (gridData) {
165             const index = (gridData.rows ?? []).findIndex(r => r["guid"] === key);
166
167             if (index !== -1) {
168                 gridData.rows?.splice(index, 1);
169             }
170         }
171     }
172
173     /**
174      * Called when the Add button has been clicked by the person.
175      */
176     function onAddItem(): void {
177         window.location.href = "/NewFamily";
178     }
```



How to: Obsidian/TypeScript

obsidianListGallery.obs

Bind and Finished

```
180     // #endregion
181
182     gridDataSource.value = loadGridData();
183 </script>
```




Goals & Guidelines

- Clean Consistency
- (whenever possible)

Batch List

2 Batches

<div></div>	Name	Date	Variances	Status	Total Amount
<div></div>	Online Giving VMD #856 Transaction Count: 1	8/2/2024		<div>Open</div>	\$23.00 <div>×</div>
<div></div>	Event Registration VMD #855 Transaction Count: 1	8/2/2024		<div>Open</div>	\$10.00 <div>×</div>

50

▼

Totals

Show all

General Fund

\$23.00

Event Registration

\$10.00

Total

\$33.00



Grid Settings

- (from financilBatchList.obs)

```
2 <template>
3   <Grid ref="gridElement"
4     :definition="config.gridDefinition ?? undefined"
5     :data="gridDataSource"
6     keyField="idKey"
7     :customActions="customActions"
8     itemTerm="Batch"
9     :entityTypeGuid="EntityType.FinancialBatch"
10    stickyHeader
11    gridSettings
12    :gridSettingsActive="hasSettingsFilters"
```

Settings

Filters

☐ Date Range: Last 90 days

☐ Contains Transaction Type: Event Registration

☐ Contains Source Type: Kiosk

☐ Accounts: General Fund, Building ...

Save **Cancel**

<input type="checkbox"/>	SampleData1698537600000	10/29/2023	Closed	\$204.00	×
#656 Transaction Count: 2					