SQUARE MOON
En del av Aderian Group

Managing Large Data Sets & Smart Archiving

Johan Hedman
Square Moon

Johan Hedman

Lead Developer at Square Moon

and curious adventurer!

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Do you archive data

Join at menti.com | use code 2384 1381

Mentimeter

JH

Menti

What archive technique...

Choose a slide to present

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Understanding the Problem

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What Slow FileMaker down

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Large record sets

Many **fields**

Calculations, especially Unstored Calculations

Index on non-critical fields

Complex **relationships graph** (TOGs)

Field Level Bottlenecks

Too many fields

Unstored Calculations – recalculated on every load or find

Auto-Enter Calculations – trigger to often

Index fields - large indexes grow exponentially with more data

Summary Fields – slows down list views and reports

Table Occurrency Group (TOG)

Every layout and calc linked to a TOG add **processing costs**

Complex joins – more data evaluated at once

Performance hits grow as more TOs are **linked** to one anchor

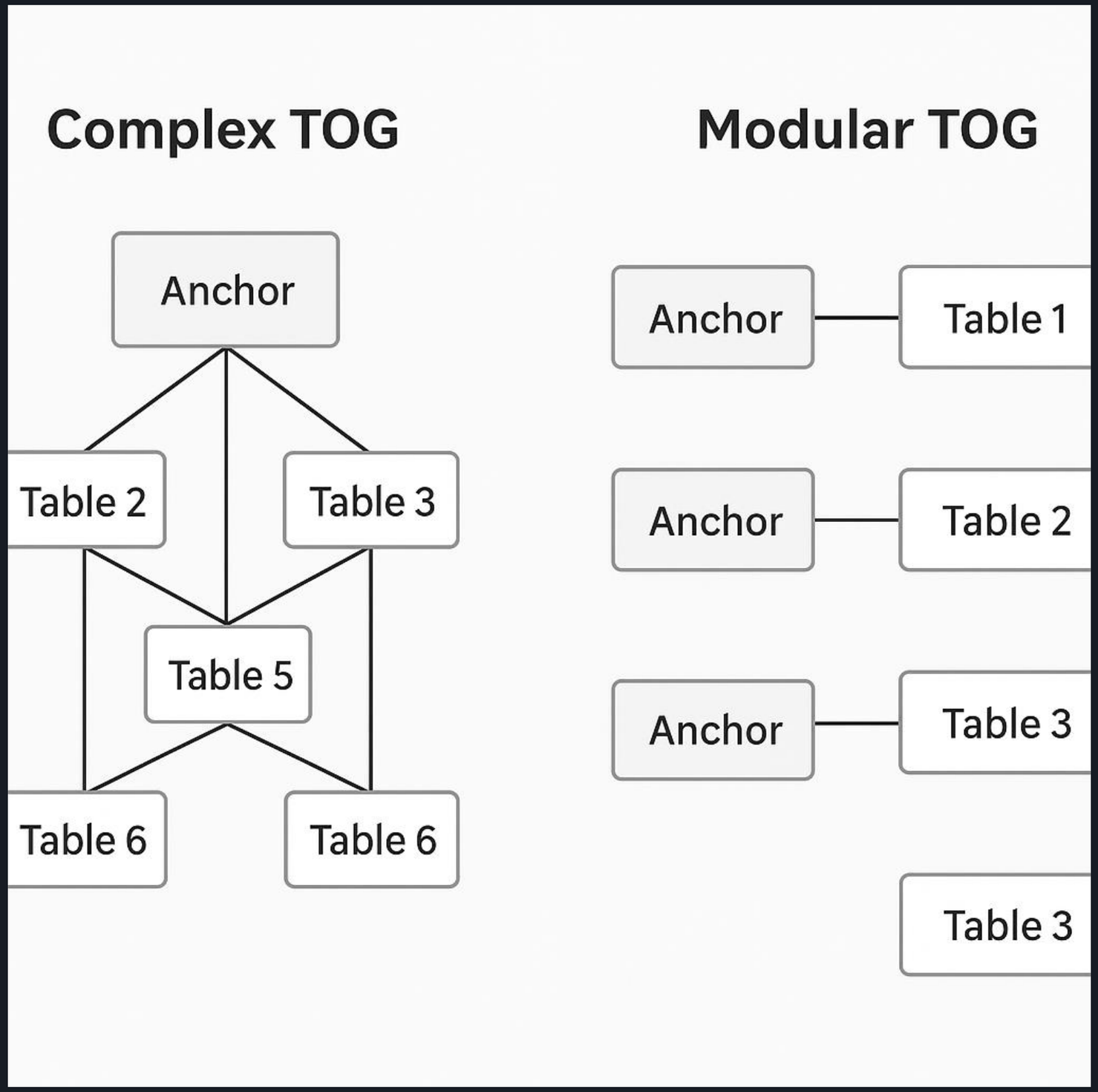
How to Work Smarter with Large Data sets

Minimize number of fields shown on high-traffic layouts

When possible, use stored calculcations instead of unstored

Watch your TO relationship like a performance budget

Archive rarely used data



When to start taking action

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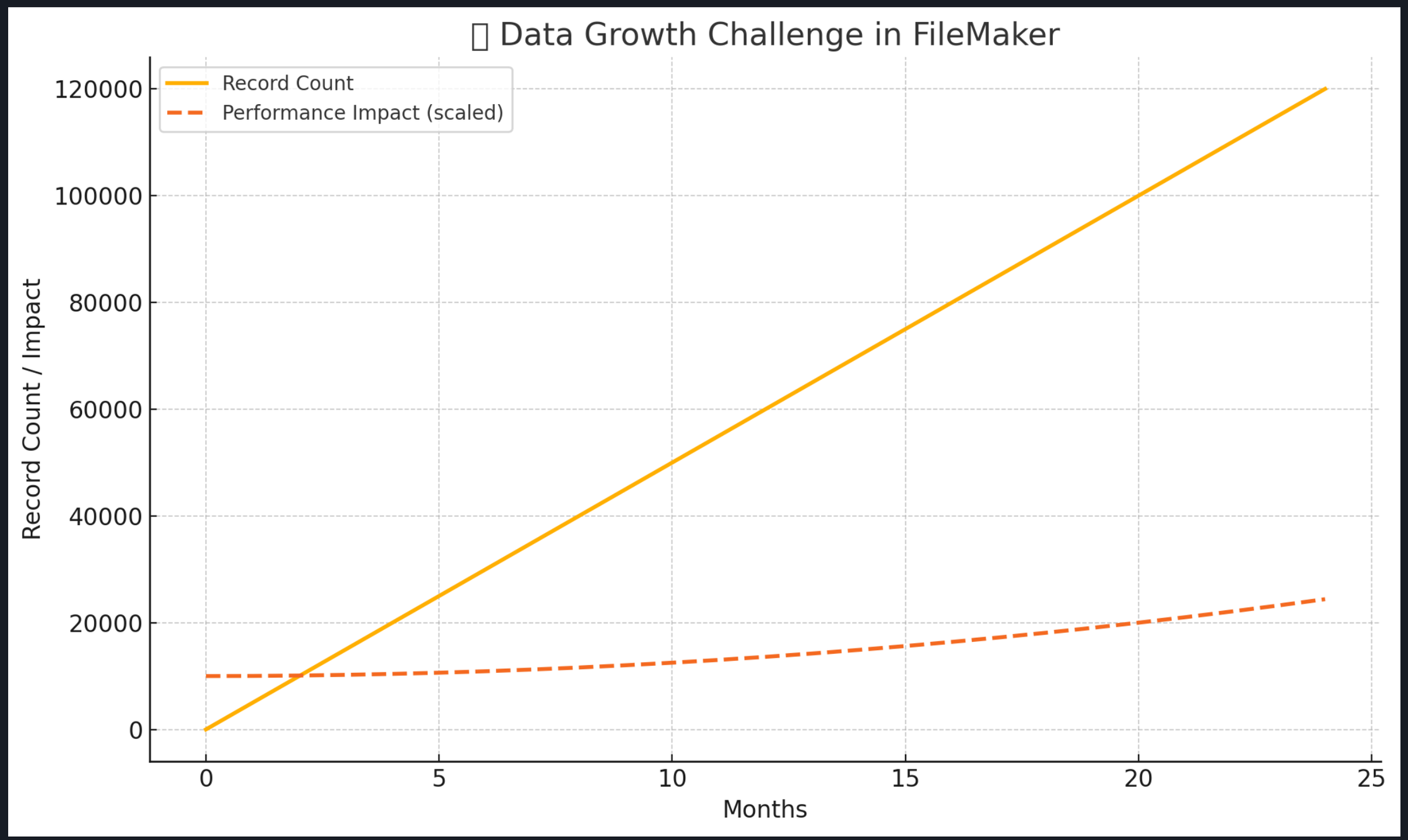

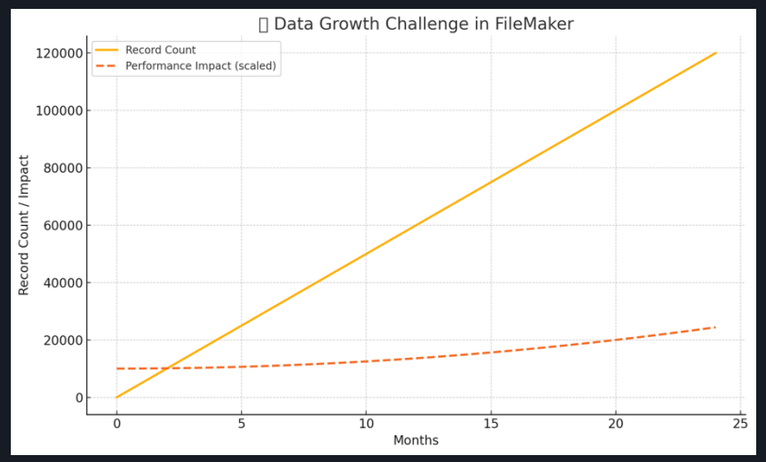

100,000+ - Slower finds, indexing lag, especially with unstored calcs and noticeable UI slowdown, especially in list views and unoptimized layouts.

500,000+ - Portals load slowly, sorting becomes sluggish, script execution slows. Reports and searches take longer

1 million+ - Backup times increase, UI becomes clunky, multi-user stress grows

5 GB+ file size - File recovery becomes risky, longer downtime in case of corruption

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The Cost of Holding Everything

Slower Performance

Bigger Backups

Complex UI for Users

Higher Hosting Costs

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Delete vs Archive

Legal rules

Operational needs

Historical insights

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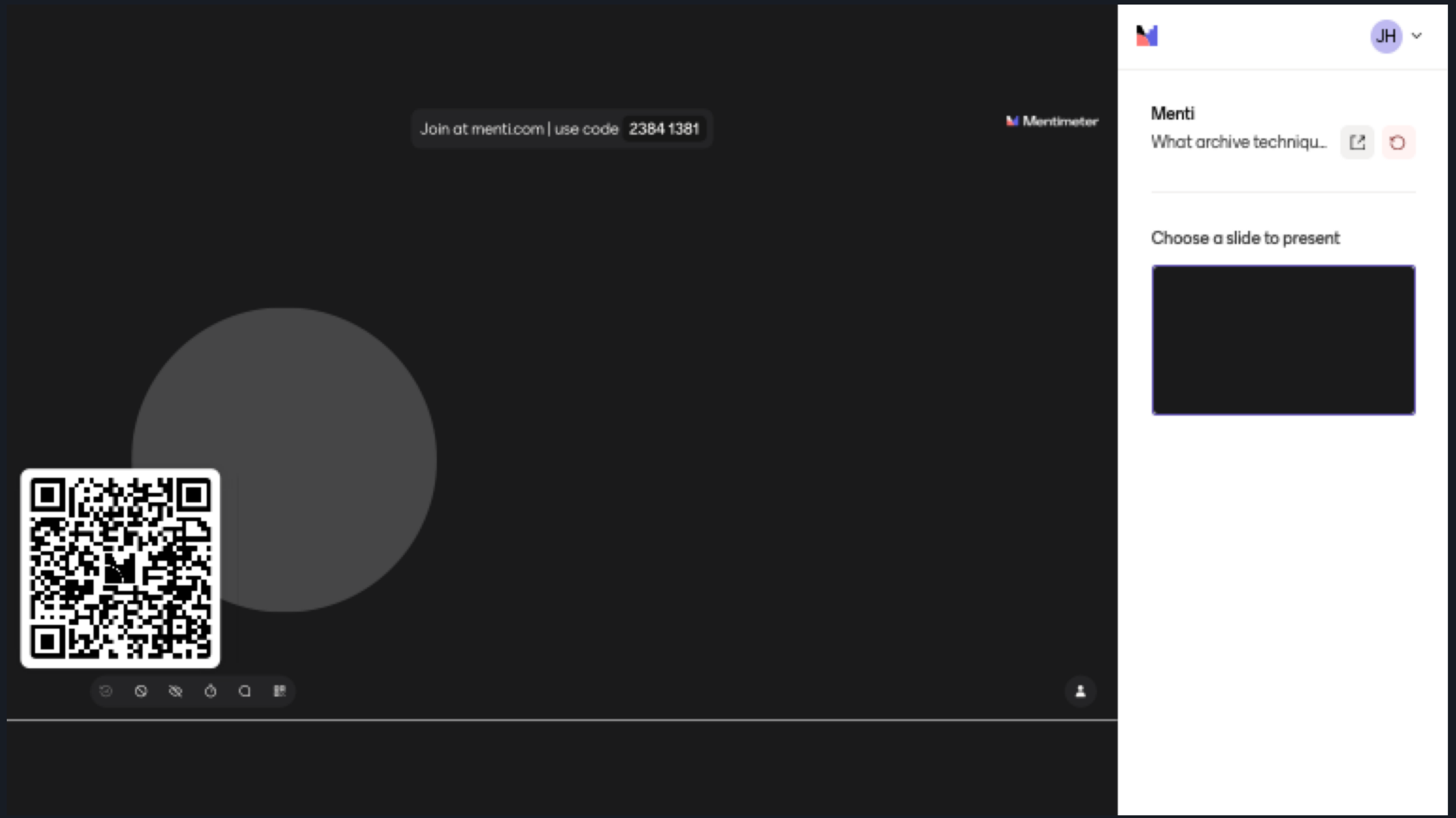

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Introducing Smart Archiving

Contacts

CONTACT

Name
Johan Hedman

Company
Gekko&CoLLC

Photo

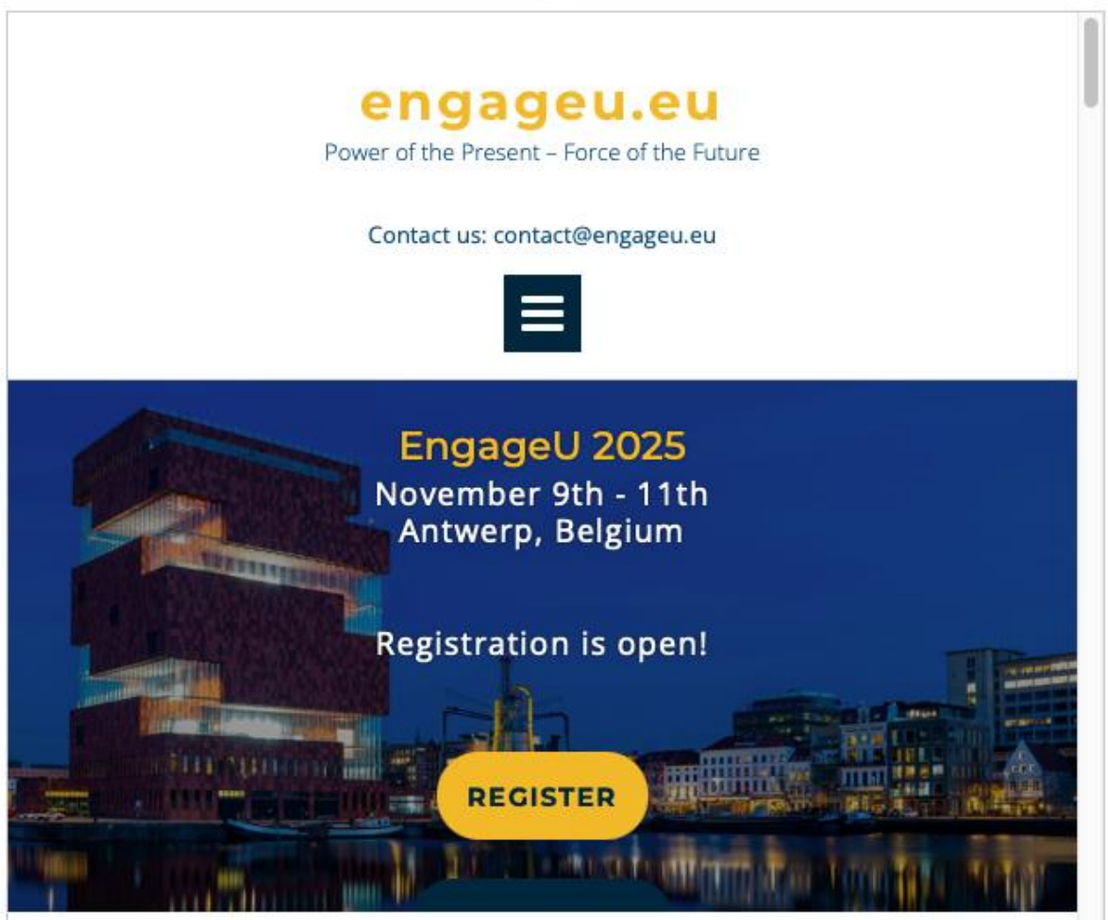
Company | Phone/Fax | Email | Address | JSON

COMPANY

Gekko&CoLLC

WEBSITE

www.engageu.eu



Tickets | Group rates | Add-ons | YouTube

Johan Hedman

Lead Developer

Layout: Contact Details | View As: | Preview | Edit Layout

< Contacts

CONTACT

Name
Johan Hedman

Company
Gekko&CoLLC

Photo

Johan Hedman

Lead Developer

Company | Phone/Fax | Email | Address | JSON

Home	+46276572409
Mobile	+6998876333
Fax	+1234234234
Something	+6923423422
Mobile	+47234234112
Work	+3234214324
Fax	+45654624523
Mobile	+34523234324
Home	+34524234324
Mobile	+34542353453
Type	Number

Layout: Contact Details | View As: | Preview | Edit Layout

Contacts

CONTACT

Name
Johan Hedman

Company
Gekko&CoLLC

Photo

Johan Hedman

Lead Developer

Company | Phone/Fax | Email | Address | JSON

Work — pidxebjeuz@wwijz.no

Personal — something@email.com

Personal — email2@email.com

Type — Email Address

Layout: Contact Details | View As: | Preview | Edit Layout

Contacts

CONTACT

Name
Johan Hedman

Company
Gekko&CoLLC

Photo

Johan Hedman

Lead Developer

Company | Phone/Fax | Email | Address | JSON

Home

Dalgränden 97 | Address Line 2

12898 | PERSTORP | Sweden

Work

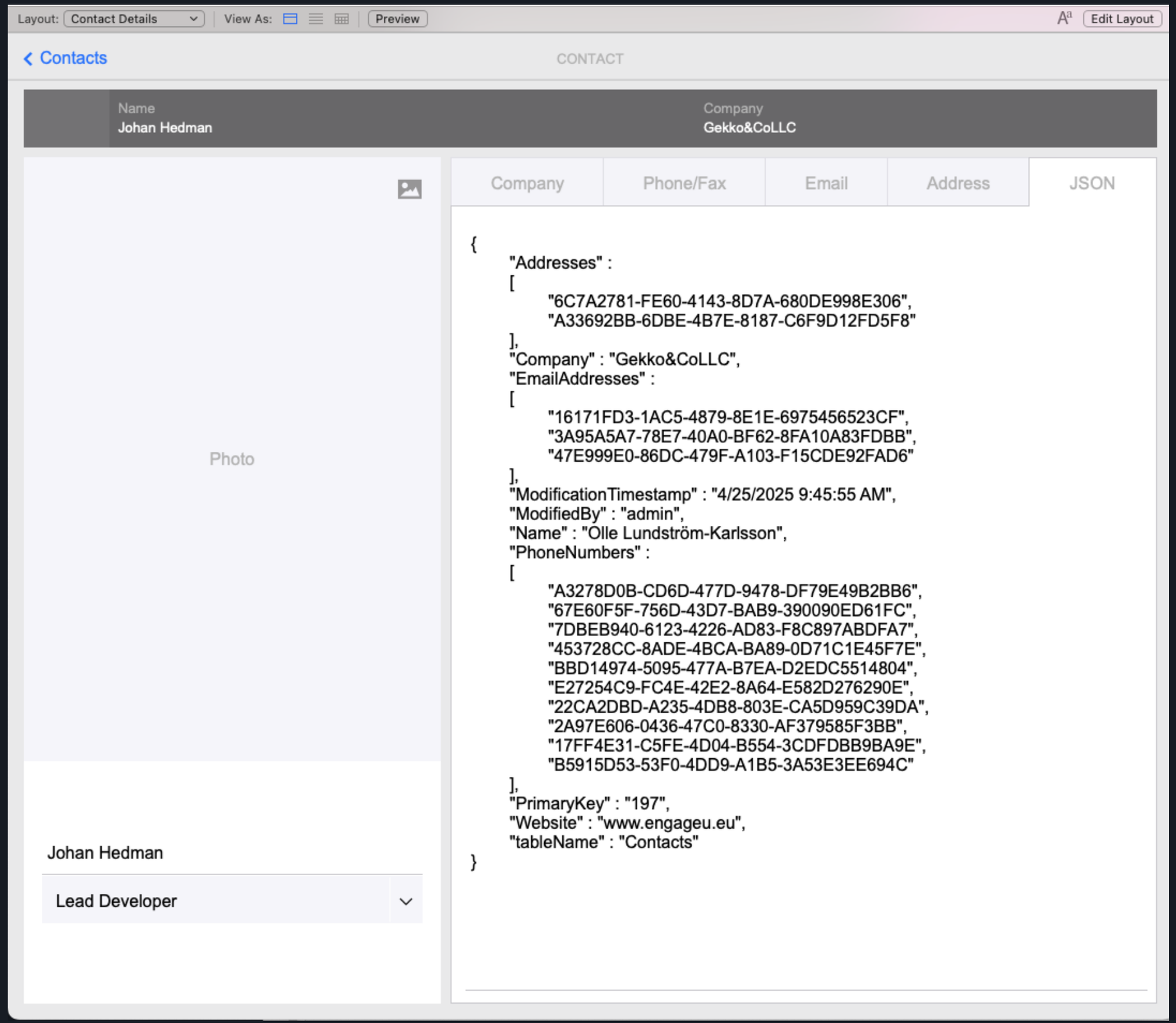
Line 1 | Address Line 2

Postal Code | STOCKHOLM | Sweden

Type

Address Line 1 | Address Line 2

Postal Code | City | Country



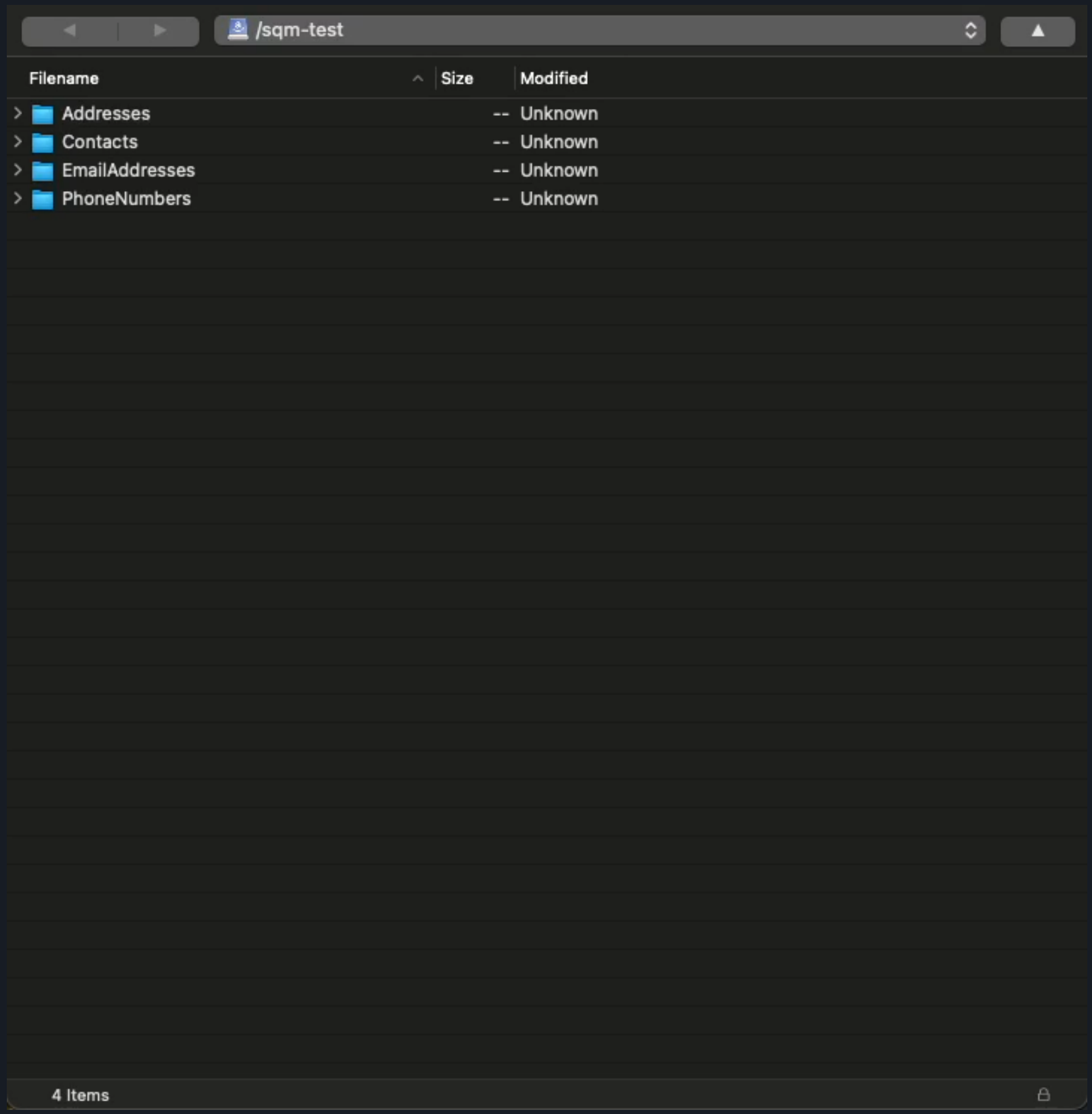
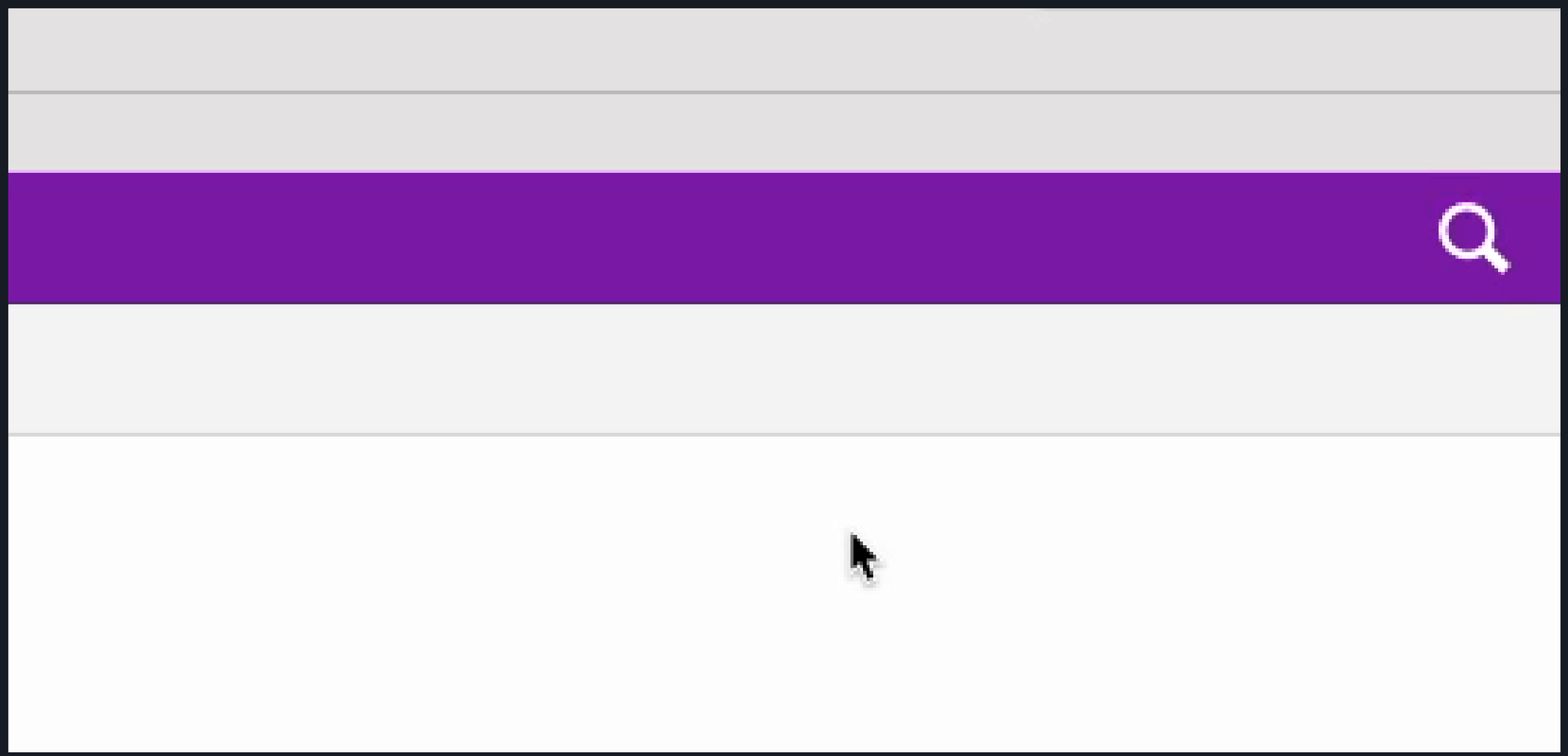


Table: ArchiveData 12 fields

Field Name	Type
PrimaryKey	Text
CreationTimestamp	Timestamp
CreatedBy	Text
ModificationTimestamp	Timestamp
ModifiedBy	Text
Type	Text
Value1	Text
Value2	Text
Value3	Text
Value4	Text
Value5	Text
Value6	Text



Sök

MEDLEM

[redacted]	Björn Hedman	Permanent Bilskydd PBS AB
[redacted]	KARL INGVAR HEDMAN	Permanent Bilskydd PBS AB
[redacted]	Peter Hedman	Neuroförbundet
[redacted]	David Hedman Heidami	Neuroförbundet
[redacted]	Hans-Olov Hedman	Skattebetalarna
[redacted]	Josefin Hedman	OBM-gruppen

... och ytterligare 21 poster

PERSON

[redacted]	Björn Hedman	Permanent Bilskydd PBS AB
[redacted]	KARL INGVAR HEDMAN	Permanent Bilskydd PBS AB
[redacted]	Peter Hedman	Neuroförbundet
[redacted]	David Hedman Heidami	Neuroförbundet
[redacted]	Hans-Olov Hedman	Skattebetalarna
[redacted]	Josefin Hedman	OBM-gruppen

... och ytterligare 26 poster

FÖRETAG

[redacted]	Hedmans Schakt i Åsarna AB	Småföretagarna

FÖRSÄKRING

[redacted]	Peder Hedman	Skattebetalarna Olycksfall Privatvård
[redacted]	Greger Hedman	Skattebetalarna Olycksfall Privatvård
[redacted]	Hedmans i Västra Götaland AB	Såifa Liv & Hälsa
[redacted]	PER GÖRAN HEDMAN	PBS Självriskreducering
[redacted]	Folke Emanuel Hedman	PBS Självriskreducering
[redacted]	PER GÖRAN HEDMAN	PBS Självriskreducering

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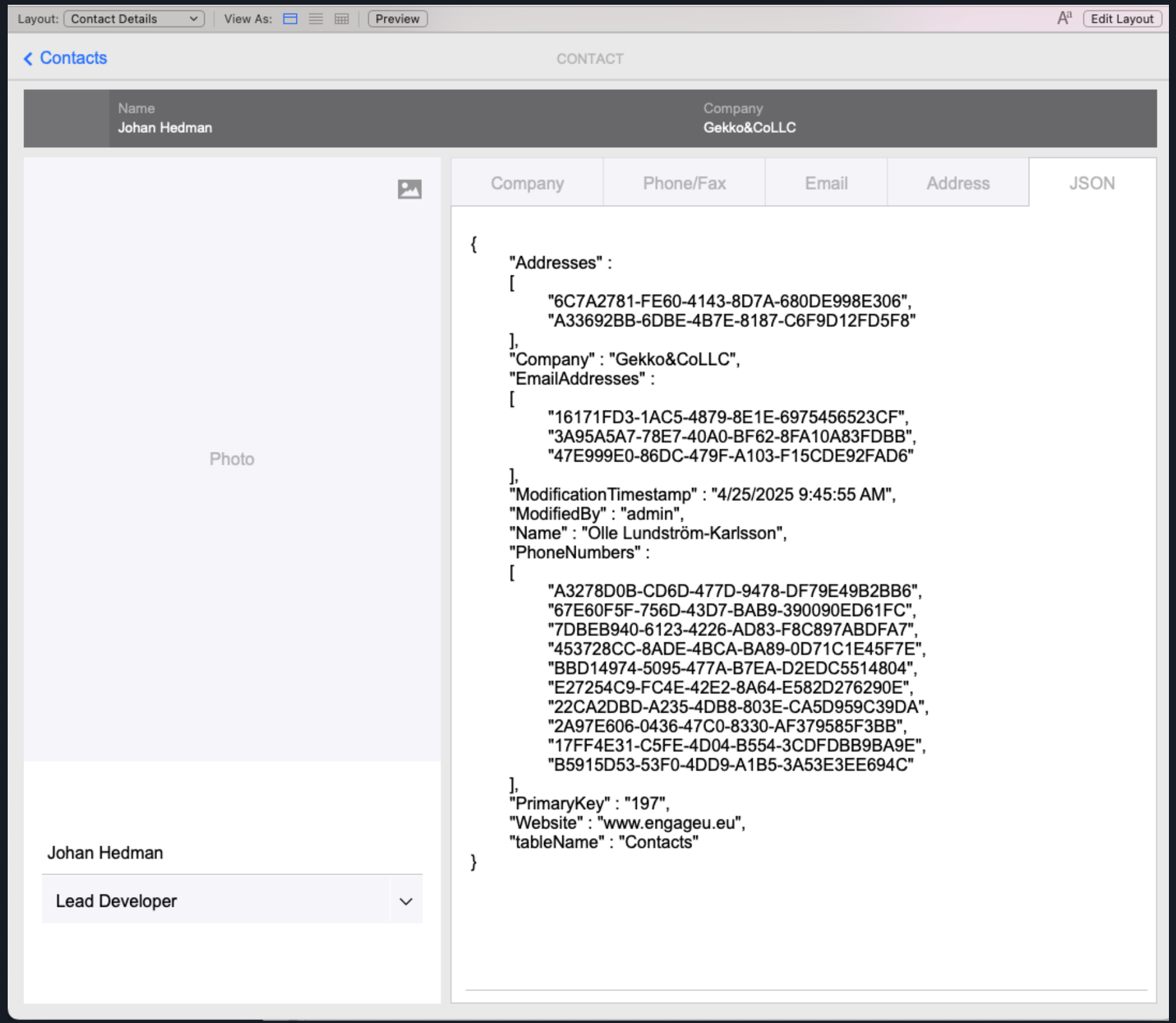
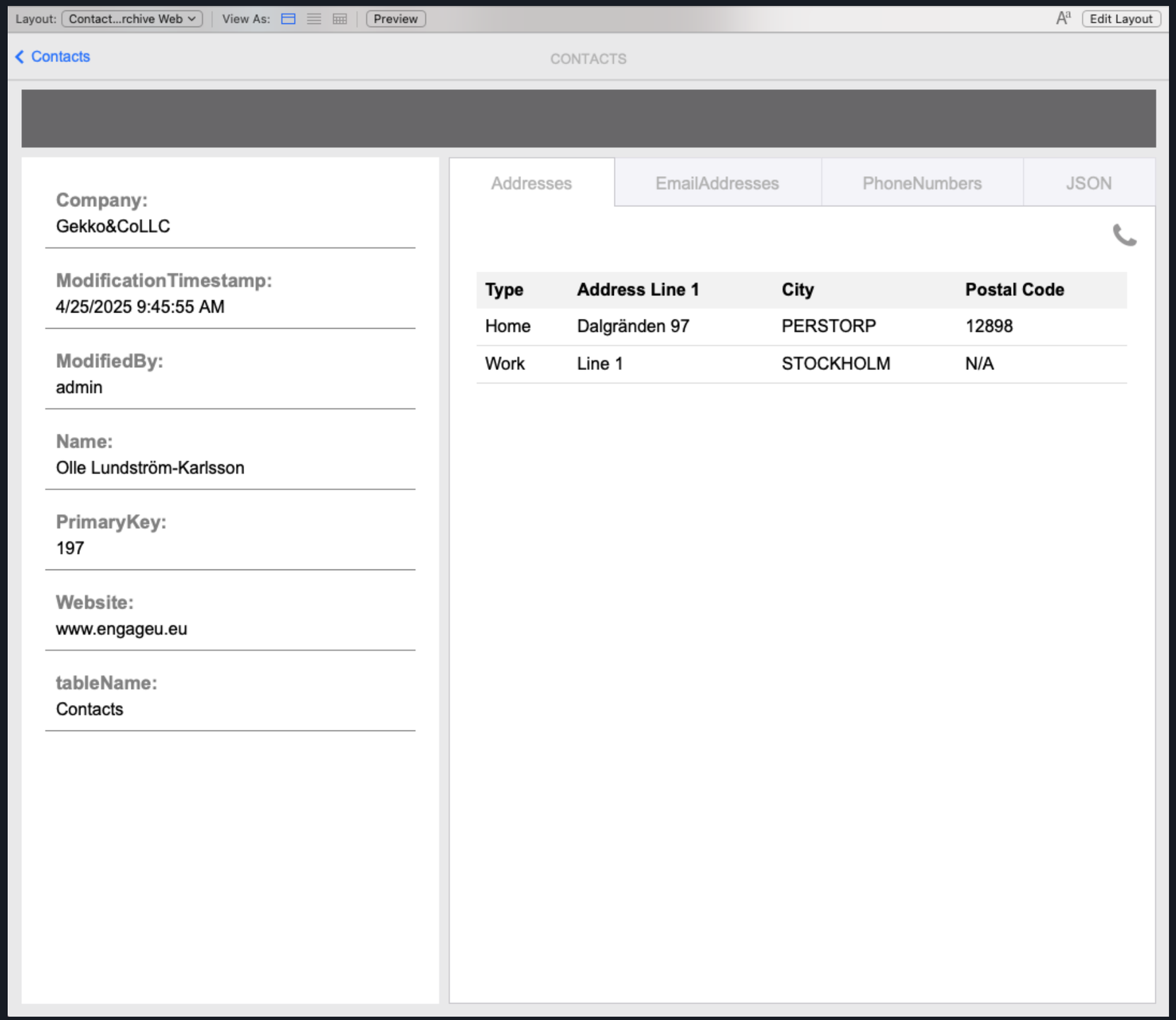
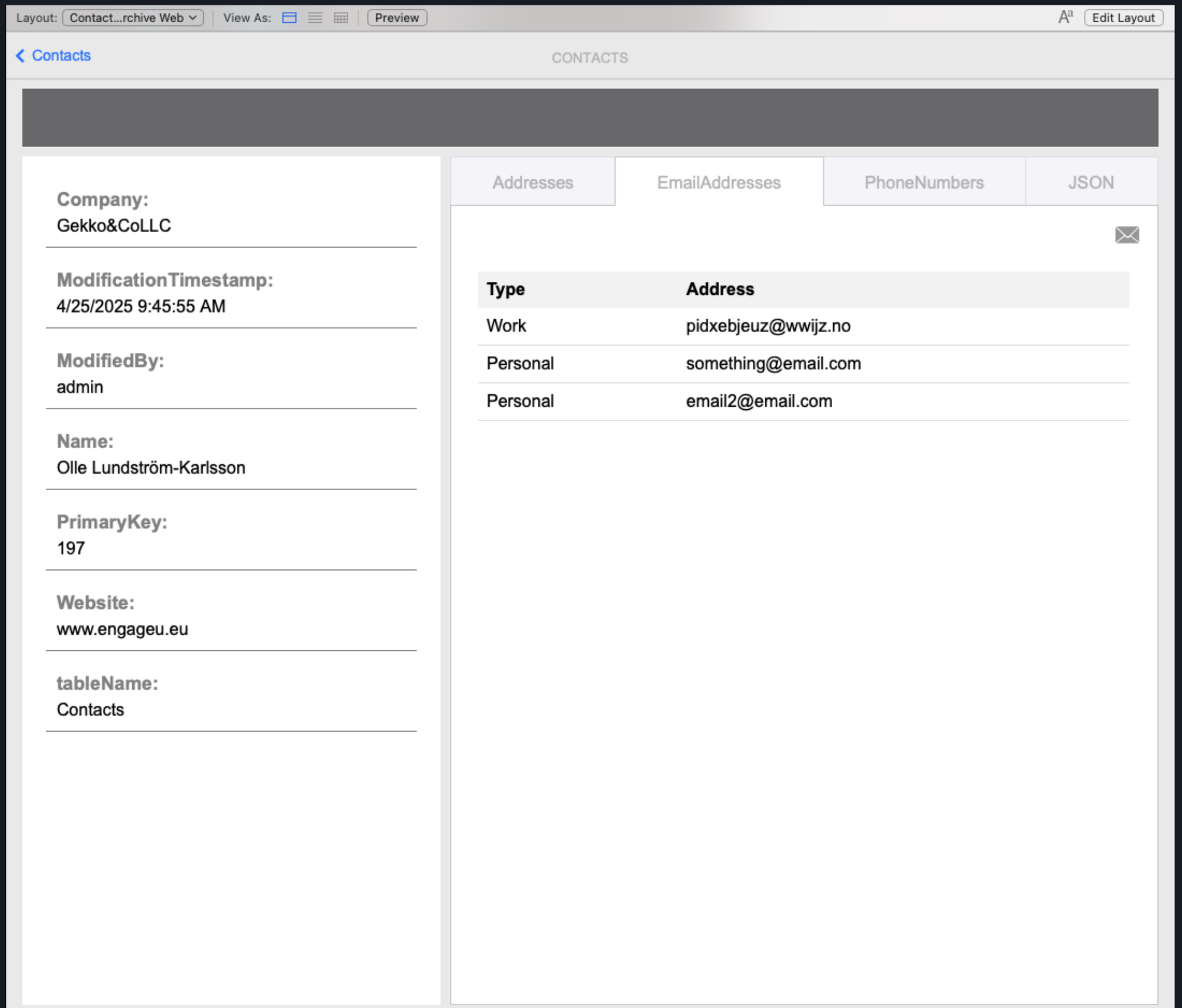
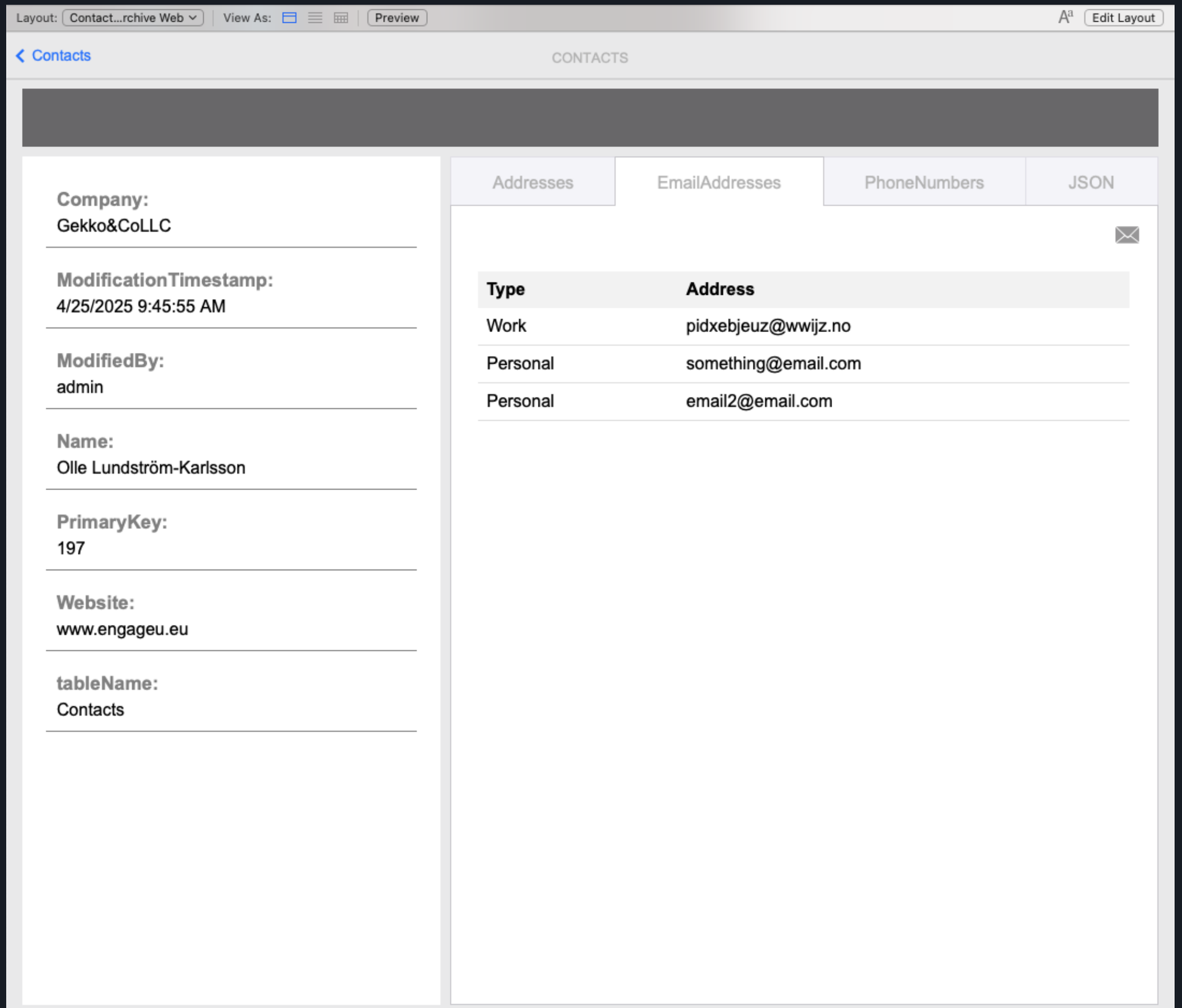
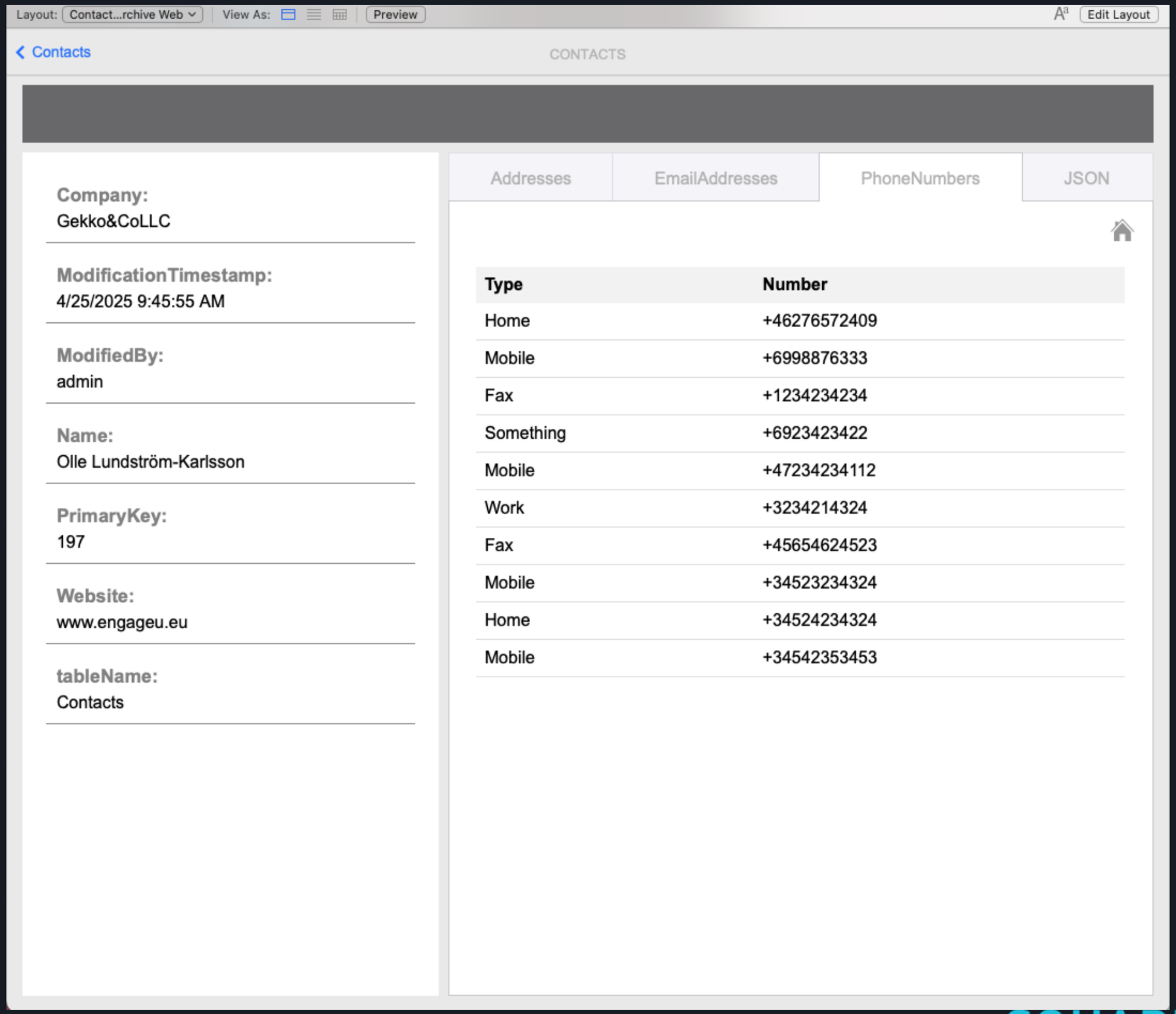


```
/Contacts/
    └── 0ab45c2d-1fd3-4f7b-b07a-5f02d99123aa.json
/Projects/
    └── 6dc77e94-fd4e-44ac-b5e6-c07e109e3ab8.json
```









Top Na...

Calculation

CALCULATION

Body

htmlGridOneColumnNoArrays (Contacts::JsonDataObject)

Calculation | Calculation | Calculation | JSON

htmlTableMappedColumns ($$JSONArrayData ;

While (
[
_counter = 1 ;
_json = Contacts::JsonDataObject ;
_listElements = JSONListKeys (_json ; "") ;
_buttonNames = ""
] ;

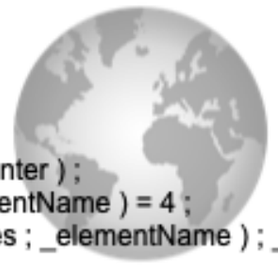
_counter ≤ ValueCount (_listElements) ;

[
_elementName = GetValue (_listElements ; _counter) ;
_isArray = JSONGetElementType (_json ; _elementName) = 4 ;
_buttonNames = If (_isArray ; List (_buttonNames ; _elementName) ; _buttonNames) ;
_counter = _counter + 1
] ;

JSONGetElement (WebViewerConfigTable::JsonConfig ; GetValue (_buttonNames ; 1))

)

)



Calculation

CALCULATION

htmlGridOneColumnNoArrays (Contacts::JsonDataObject)

Calculation | Calculation | Calculation | JSON

htmlTableMappedColumns ($$JSONArrayData ;

While (
[
_counter = 1 ;
_json = Contacts::
_listElements = JS
_buttonNames = ""
] ;

_counter ≤ ValueC

[
_elementName = (
_isArray = JSONG
_buttonNames = If
_counter = _counte
] ;

JSONGetElement

)

)

Set Script Triggers

Specify a script to be run for an event

Event	Script
☐ OnObjectEnter	
☐ OnObjectKeystroke	
☐ OnObjectModify	
☐ OnObjectValidate	
☐ OnObjectSave	
☐ OnObjectExit	
☑ OnPanelSwitch	"Tab trigger"
☐ OnObjectAVPlayerChange	

Script Trigger Properties

Event: OnPanelSwitch
The script will be run before panel is switched.

Script: Select... "Tab trigger"

Enable in: ☑ Browse ☐ Find

Result: If the script returns true, the original event proceeds normally, otherwise the event is canceled.

Cancel OK

Tab trigger

```
Set Variable [ $Param ; Value: GetValue ( Get(TriggerTargetPanel) ; 2 ) ]
If [ $Param = "Phone" or $Param = 3 ]

    Set Variable [ $$JsonArrayData ; Value: "" ]
    Set Variable [ $counter ; Value: 1 ]

    # Save all Phone data into same variable
    Loop [ Flush: Always ]

        Perform Script [ Specified: From list ; “Get JSON Object” ; Parameter: JSONSetElement ( "" ; [ "type" ; "PhoneNu… ]
        Set Variable [ $PhoneJSON ; Value: Get(ScriptResult) ]

        If [ not IsEmpty ( $PhoneJSON ) ]
            Set Variable [ $$JsonArrayData ;
            Value: JSONSetElement ( $$JsonArrayData ; "[" & $counter - 1 & "]" ; $PhoneJson ; 3 ) ]
        End If

        Exit Loop If [ ValueCount ( JSONListValues ( Contacts::JsonDataObject ; "PhoneNumbers" ) ) = $Counter ]
        Exit Loop If [ $Counter = 10 ]

        Set Variable [ $counter ; Value: $counter + 1 ]

    End Loop

Else If [ $Param = "Email" or $Param = 2 ]

    Set Variable [ $$JsonArrayData ; Value: "" ]
    Set Variable [ $counter ; Value: 1 ]

    # Save all Phone data into same variable
    Loop [ Flush: Always ]

        Perform Script [ Specified: From list ; “Get JSON Object” ; Parameter: JSONSetElement ( "" ; [ "type" ; "EmailAd… ]
        Set Variable [ $EmailJSON ; Value: Get(ScriptResult) ]

        If [ not IsEmpty ( $EmailJSON ) ]
            Set Variable [ $$JsonArrayData ;
```

Get JSON Object

```
1
2   #  JSONSetElement ( "" ;
      [ "type" ; "PhoneNumbers" ; 1 ] ;
      [ "id" ; "A3278D0B-CD6D-477D-9478-DF79E49B2BB6" ; 1 ]
      )
3
4   #  {"id":"A3278D0B-CD6D-477D-9478-DF79E49B2BB6","type":"PhoneNumbers"}
5
6   Set Variable [ $param ; Value: Get(ScriptParameter) ]
7   If [ 0 ]
8       Set Variable [ $param ;
        Value:  JSONSetElement ( "" ; [ "type" ; "PhoneNumbers" ; 1 ] ; [ "id" ; "A3278D0B-CD6D-477D-9478-DF79E49B2BB6"…  ]
9   End If
10
11  Set Variable [ $type ; Value: JSONGetElement ($param ; "type" ) ]
12  Set Variable [ $id ; Value: JSONGetElement ($param ; "id" ) ]
13
14  Set Variable [ $json ;
    Value: ExecuteSQL ( "SELECT JsonDataObject_c FROM " & $type & " WHERE PrimaryKey = ?" ; "" ; "" ; $id  ) ]
15
16  Exit Script [ Text Result: $json ]
```

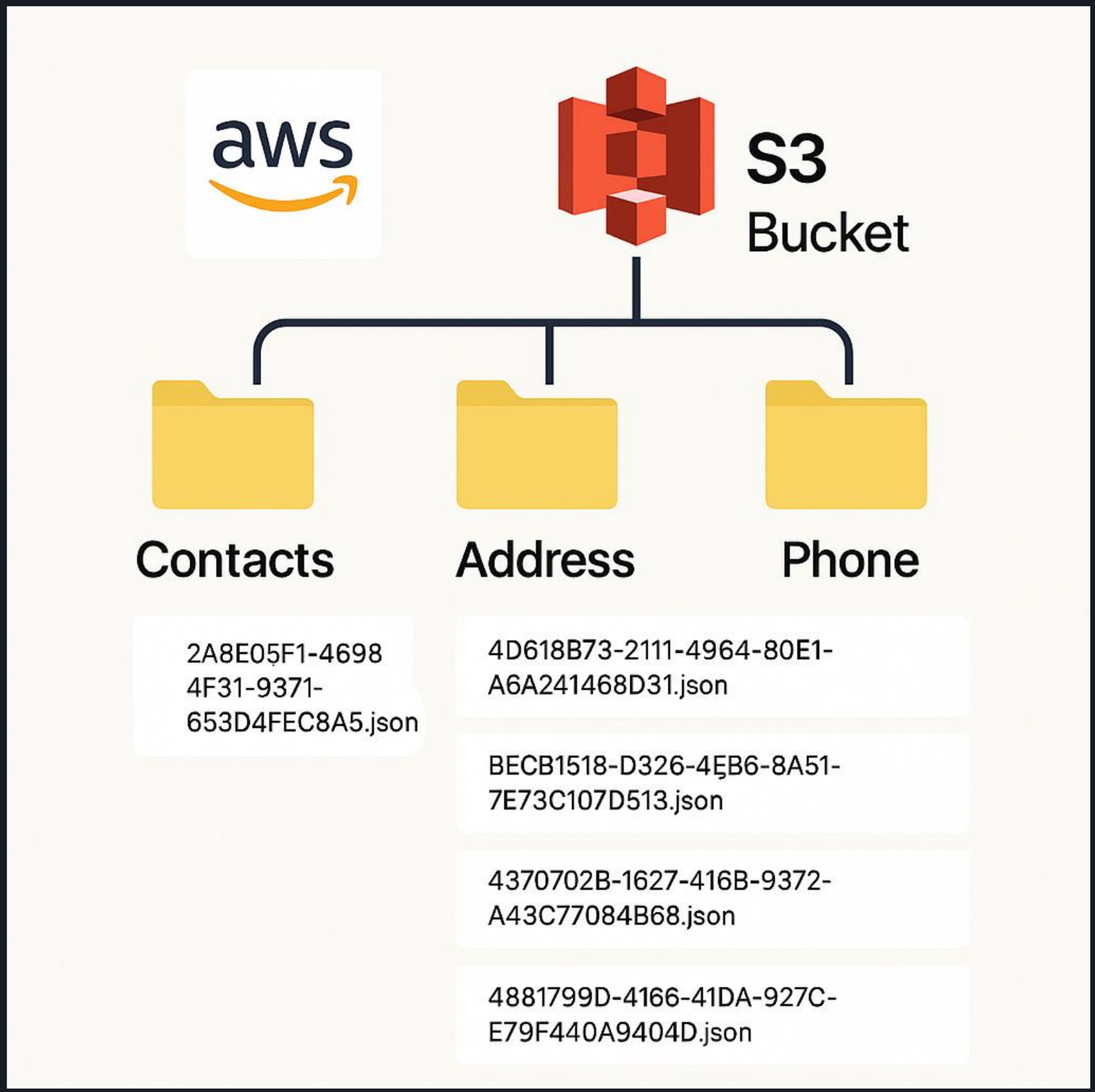
"Set Variable" Options

Names prefixed by "$" are local variables available only within the current script. Prefix the
throughout the current file (global).

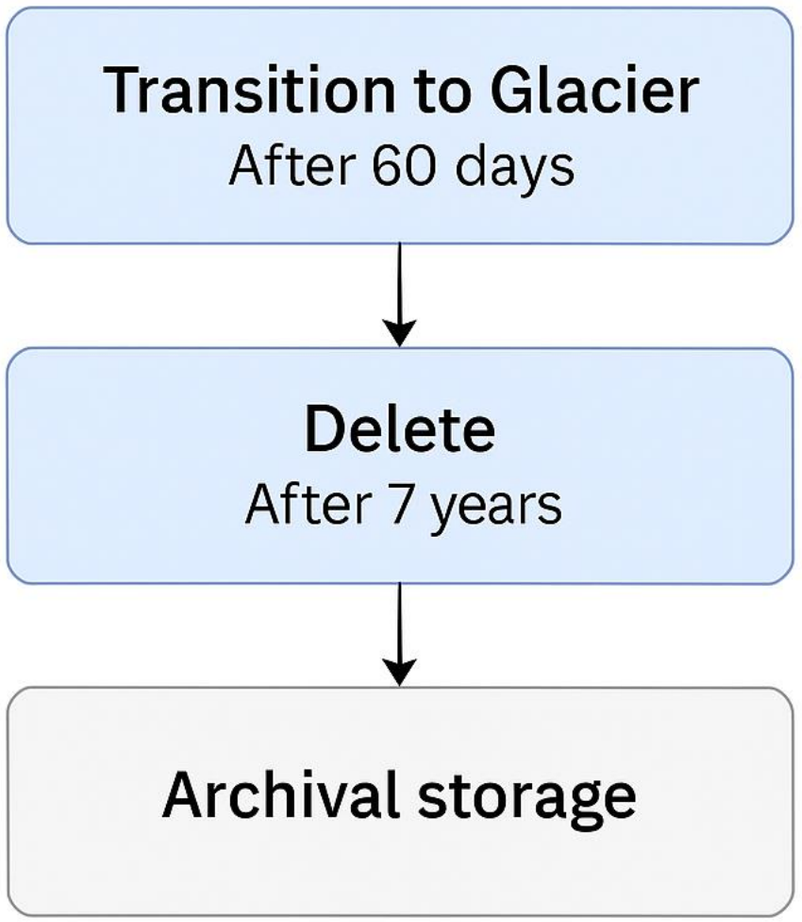
Name: $param

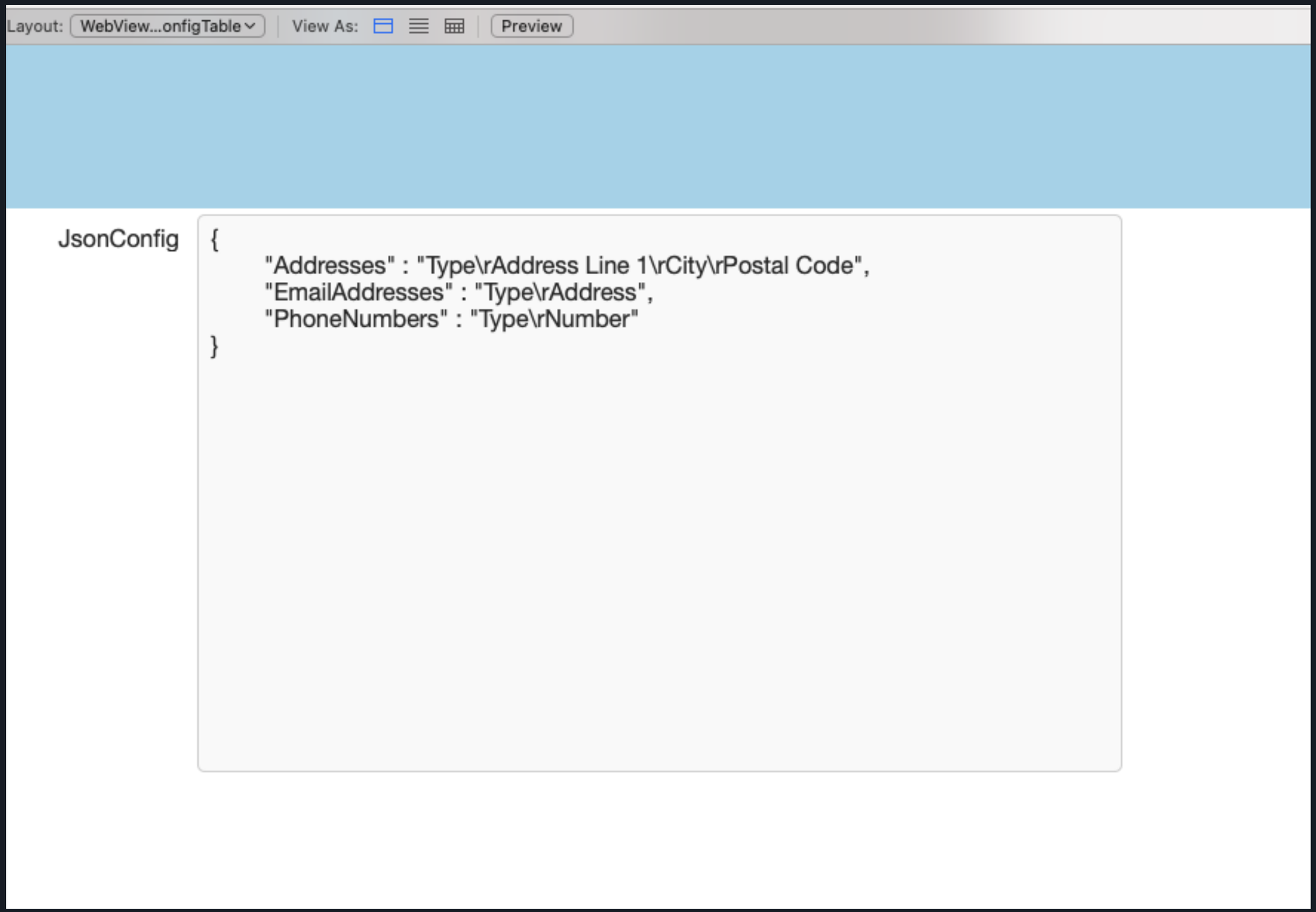
Value:
```
JSONSetElement ( "" ;
[ "type" ; "PhoneNumbers" ; 1 ] ;
[ "id" ; "A3278D0B-CD6D-477D-9478-DF79E49B2BB6" ; 1 ]
)
```

DEMO

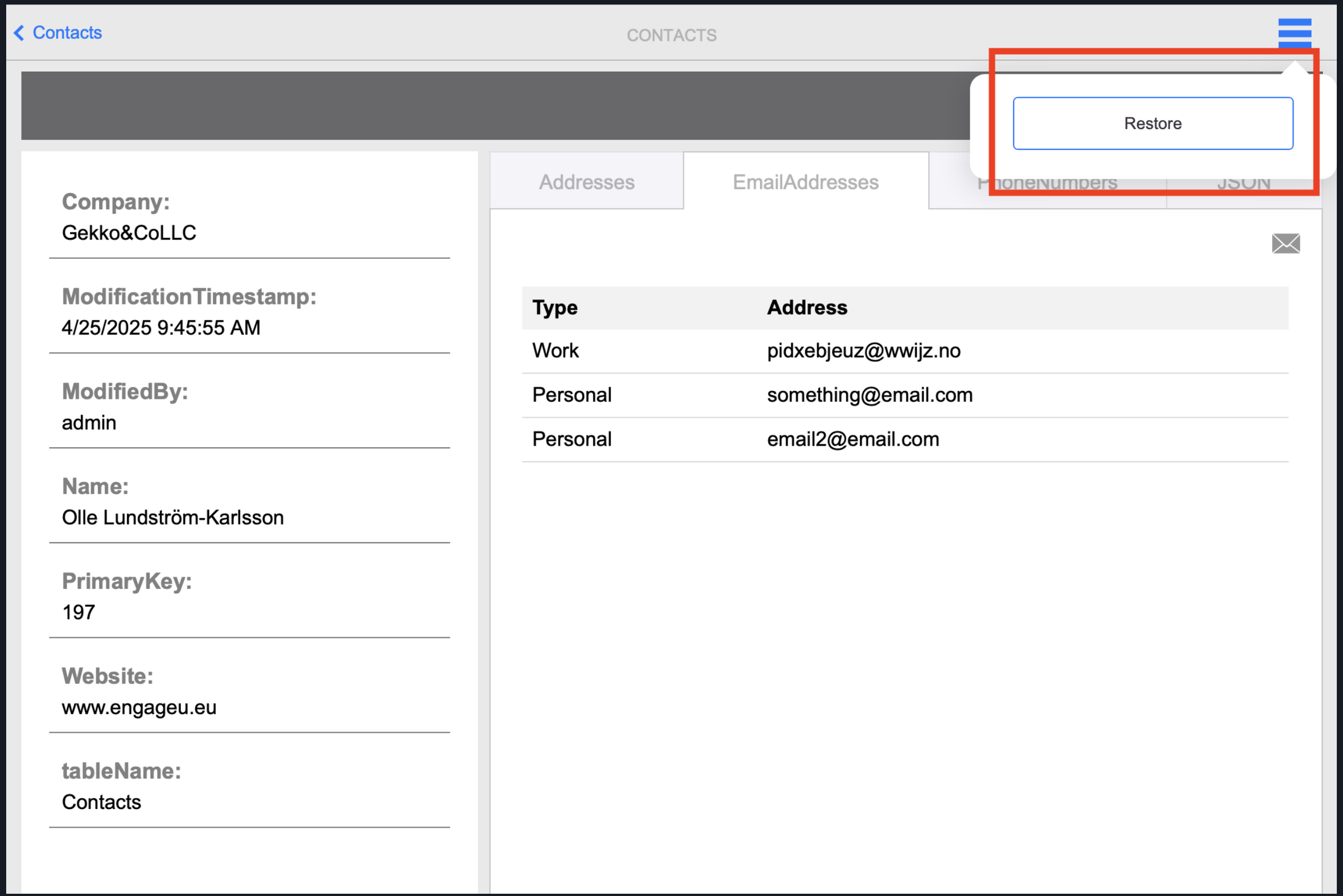


S3 Lifecycle Policies





TableName	DeleteAfterDays	Related
Contact	600	☐
Address	300	☑
Phone	300	☑



Summary

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Summary

Improved performance

Cheaper storage

Easier scaling

Compliance

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Q&A

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