

Revision on variables:

There are **four main variable types** available for use in Matillion. They are as follows:

1. Job Variables:
2. Environment Variables
3. Automatic Variables
4. Grid Variables

Job Variables:

- Job variables are defined within an individual job.
- override environment variables of the same name within that specific job.
- They will be included when jobs are imported and exported.

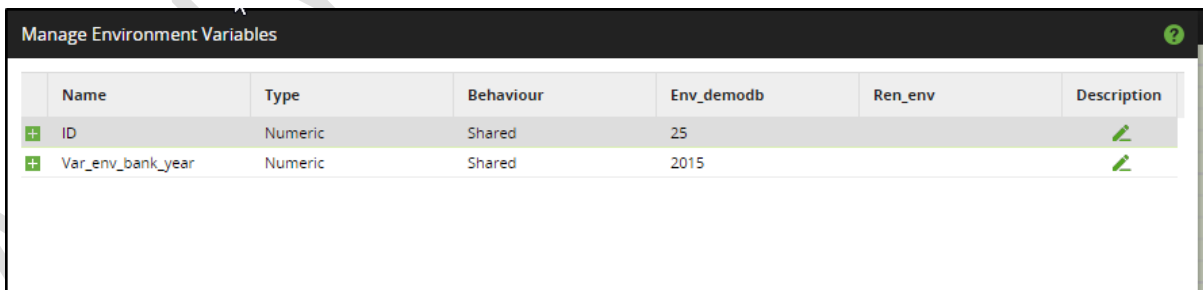


| Name | Type | Behaviour | Visibility | Value | Description |
|-----------------|------|-----------|------------|---------|-------------|
| dictionary_name | Text | Shared | Public | txn | |
| file_name | Text | Shared | Public | trnx_16 | |

NOTE: Visibility: When a variable is private, it cannot be discovered or overwritten

Environment Variables:

- Environment Variables are defined across a given environment.
- For each of these columns, an additional default value can be set. This can be particularly useful if you have Matillion jobs consistent across environments, such as Development, QA, and Production.



| Name | Type | Behaviour | Env_demo db | Ren_env | Description |
|-------------------|---------|-----------|-------------|---------|-------------|
| ID | Numeric | Shared | 25 | | |
| Var_env_bank_year | Numeric | Shared | 2015 | | |

Automatic Variables (Subset of environment variables):

- These are pre-defined in Matillion, and their values cannot be changed.
- We used these in SNS failure message
`detailed_error` , `job_id`
- <https://docs.matillion.com/met/docs/2943424/#environment-variables-video-guide>



ALL ABOUT GRID VARIABLES

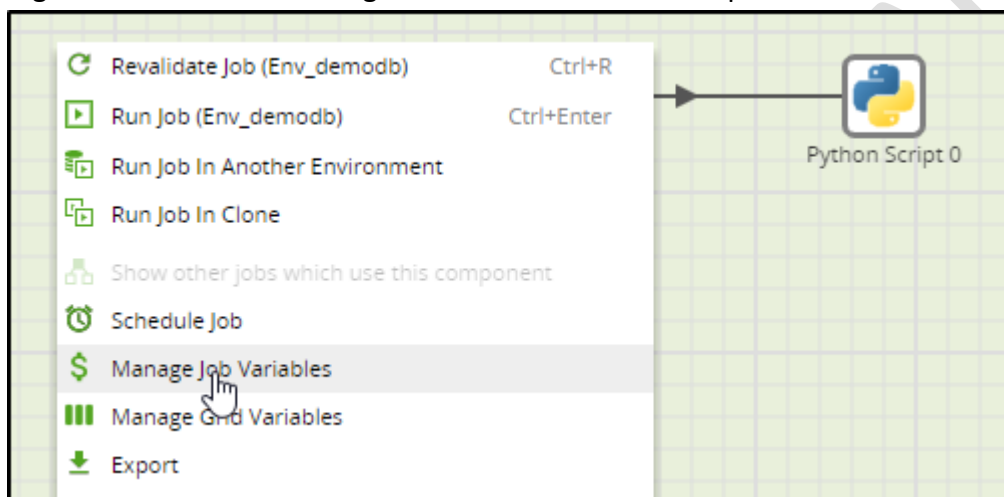
Grid Variables:

- Grid Variables are a special type of job variable.
- They are 2D arrays that hold scalar values in named columns.
- They can be used in many different components, mainly using the “Use Grid Variable” checkbox in the component property menu.

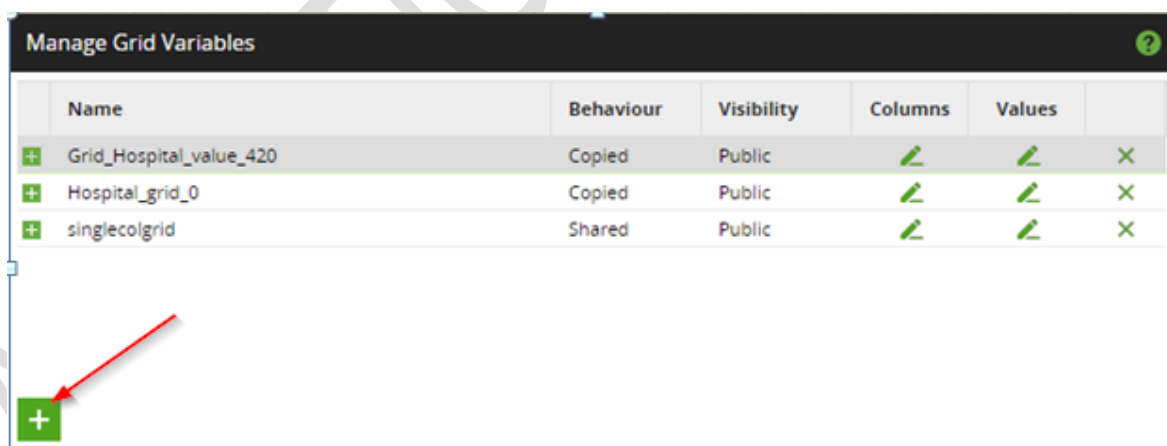
Working with GRID variables:

How to setup Grid variables:

1. Create a transformation job,
2. Right-click and select Manage Grid Variables on the dropdown menu.



3. This is the Grid Variables management section. Click the “+” sign to set up a new grid variable.



4. Fill in the details and click next

In text mode:

PATIENT_ID Numeric

PATIENT_NAME Text

BILLING_ADDRESS Text



ALL ABOUT GRID VARIABLES

DIAGNOSIS Text
TREATMENT Text
COST Numeric

Update Grid Variable

Name: *

Hospital_grid_0

Behaviour:

Copied

Visibility:

Public

Description:

| Column Name | Column Type |
|-----------------|-------------|
| PATIENT_ID | Numeric |
| PATIENT_NAME | Text |
| BILLING_ADDRESS | Text |
| DIAGNOSIS | Text |
| TREATMENT | Text |
| COST | Numeric |

+

-

☐ Text Mode

Next

Cancel

5. Fill the defaults and click OK. The variables are saved as List of list.



Update Grid Variable

Default Values:

| PATIENT_ID | PATIENT_NAME | BILLING_ADDRESS | DIAGNOSIS |
|------------|--------------|-----------------|-------------|
| 1 | Test_name | Test_add | Test_diag |
| 25 | Test25_name | Test25_add | Test25_diag |

+

-

☐ Text Mode

Back

OK

Cancel

In text mode:

| | | | | | |
|----|-------------|------------|-------------|------------------|----|
| 1 | Test_name | Test_add | Test_diag | Test_treatment | 0 |
| 25 | Test25_name | Test25_add | Test25_diag | Test25_treatment | 25 |

You have configured your first Grid variable

Populating Grid variables:

I. Set default values like other variable types

- We just performed this step, wherein we added default variables
- To verify the values we will use python script:
 - Add python script component
 - Similar to how we used python script for job variables, we do the same for GRID variables using `getGridVariable`
 - `print (context.getGridVariable('Hospital_grid_0'))`

Task Message

```
[[Decimal('1'), 'Test_name', 'Test_add', 'Test_diag', 'Test_treatment', Decimal('0')], [Decimal('25'), 'Test25_name', 'Test25_add', 'Test25_diag', 'Test25_treatment', Decimal('25')]]
```



ALL ABOUT GRID VARIABLES

II. Append to Grid:

You can append defaults using 'append to Grid' component in 2 ways:

- Using fixed values
- Using another GRID variable

Using fixed values

- Create an Orchestration job
- Add python script to check what is the values currently in the GRID

```
array = context.getGridVariable('Hospital_grid_0')  
for data in array:  
    print(data)
```

- Add 'Append to grid ' component

| Name | Value | Status |
|-------------------|--|--------|
| Name | Append To Grid 0 | OK |
| Append/Prepe... | Append | OK |
| Target Grid Va... | Hospital_grid_0 | OK |
| Fixed/Grid | Fixed | OK |
| Values Grid | 100, Append_patientname, Append_add, ... | OK |

- Values Grid - enter values of your choice

Values Grid

| PATIENT_ID | PATIENT_NAME | BILLING_ADDRESS | DIAGNOSIS | TREATMENT | COST |
|------------|--------------------|-----------------|-------------|--------------|------|
| 100 | Append_patientname | Append_add | Append_diag | Append_treat | 1100 |

TEXT MODE:

100Append_patientname Append_add Append_diag Append_treat 1100

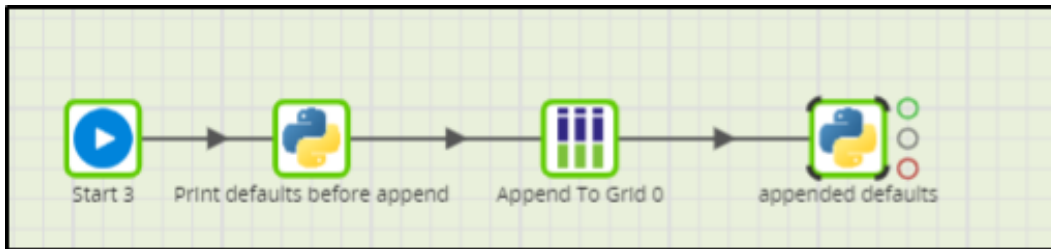
- Add one more python script component to check values after append:
Script:



ALL ABOUT GRID VARIABLES

```
array = context.getGridVariable('Hospital_grid_0')  
for data in array:  
    print(data)
```

Finally jobs will look like below:



- Run the job

| Task | Environment | Version | Job | Queued | Completed |
|------|-------------|---------|---------------|----------|-----------|
| Run | Env_demo0b | default | 2-Append T... | 00:22:21 | 00:22:21 |

| Environment: Env_demo0b | | Version: default | Queued: 00:22:21 | | Duration: 0.25 | | View Jobs |
|-------------------------|---------------------|------------------|------------------|----------|----------------|-----------|--|
| Job | Component | Duration | Queued | Started | Completed | Row Co... | Message |
| 2-Append To Grid | | 0.25 | 00:22:21 | 00:22:21 | 00:22:21 | | |
| 2-Append To Grid | Start 3 | 0.05 | 00:22:21 | 00:22:21 | 00:22:21 | | |
| 2-Append To Grid | Print defaults b... | 0.15 | 00:22:21 | 00:22:21 | 00:22:21 | | [Decimal('1'), 'Test_name', 'Test_add', 'Test_diag', 'Test_treatment', Decimal('0')] [Decimal('25'), ... |
| 2-Append To Grid | Append To Gri... | 0.05 | 00:22:21 | 00:22:21 | 00:22:21 | 3 | |
| 2-Append To Grid | appended defa... | 0.15 | 00:22:21 | 00:22:21 | 00:22:21 | | [Decimal('1'), 'Test_name', 'Test_add', 'Test_diag', 'Test_treatment', Decimal('0')] [Decimal('25'), ... |

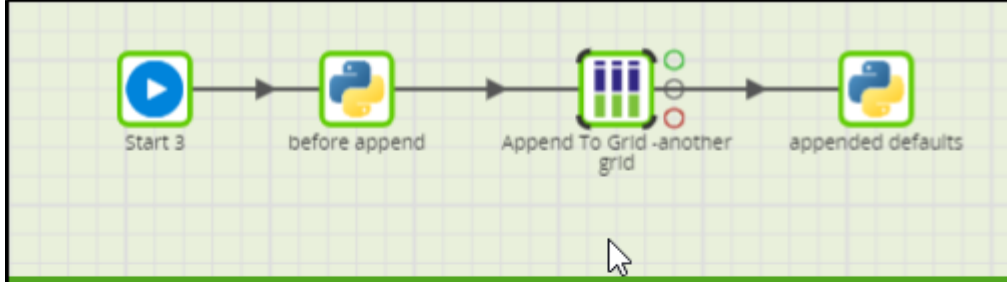
Task Message

```
[Decimal('1'), 'Test_name', 'Test_add', 'Test_diag', 'Test_treatment', Decimal('0')]  
[Decimal('25'), 'Test25_name', 'Test25_add', 'Test25_diag', 'Test25_treatment', Decimal('25')]  
[Decimal('100'), 'Append_patientname', 'Append_add', 'Append_diag', 'Append_treat', Decimal('1100')]
```

Notices (2)

ALL ABOUT GRID VARIABLES

Using another GRID variable instead of fixed:



Workflow diagram showing a sequence of steps: Start 3, before append, Append To Grid -another grid, and appended defaults.

Properties | Export | Help

Append To Grid OK

| Name | Value | | Status |
|-------------------|---|-----|--------|
| Name | Append To Grid -another grid | ... | OK |
| Append/Prepe... | Append | ... | OK |
| Target Grid Va... | Hospital_grid_0 | ... | OK |
| Fixed/Grid | Grid | ... | OK |
| Source Grid Va... | Grid_Hospital_value_420 | ... | OK |
| Column Mappi... | PATIENT_ID, PATIENT_NAME, BILLING_AD... | ... | OK |

Column Mapping

PATIENT_ID: PATIENT_ID

PATIENT_NAME: PATIENT_NAME

BILLING_ADDRESS: BILLING_ADDRESS

DIAGNOSIS: DIAGNOSIS

TREATMENT: TREATMENT

COST: COST

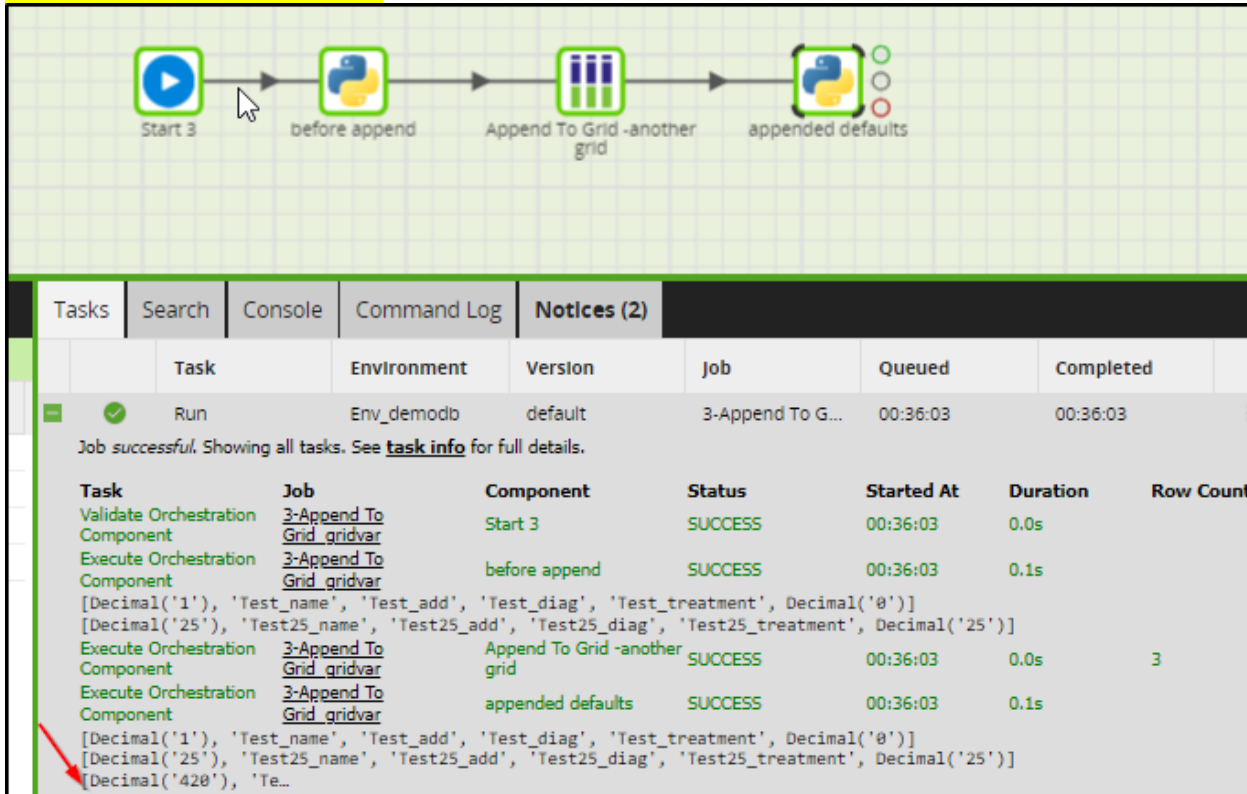
☐ Use Grid Variable

OK

Cancel

Run the job:

ALL ABOUT GRID VARIABLES



| Task | Job | Component | Status | Started At | Duration | Row Count |
|----------------------------------|--------------------------|------------------------------|---------|------------|----------|-----------|
| Validate Orchestration Component | 3-Append To Grid_gridvar | Start 3 | SUCCESS | 00:36:03 | 0.0s | |
| Execute Orchestration Component | 3-Append To Grid_gridvar | before append | SUCCESS | 00:36:03 | 0.1s | |
| Execute Orchestration Component | 3-Append To Grid_gridvar | Append To Grid -another grid | SUCCESS | 00:36:03 | 0.0s | 3 |
| Execute Orchestration Component | 3-Append To Grid_gridvar | appended defaults | SUCCESS | 00:36:03 | 0.1s | |

Task Message

```
[Decimal('1'), 'Test_name', 'Test_add', 'Test_diag', 'Test_treatment', Decimal('0')]
```

```
[Decimal('25'), 'Test25_name', 'Test25_add', 'Test25_diag', 'Test25_treatment', Decimal('25')]
```

```
[Decimal('420'), 'Test420_name', 'Test420_ADD', 'Test420_DIAG', 'Test420_TREAT', Decimal('4200')]
```

III. Query result to Grid

We will be querying a database and the result of it can be fed into the GRID

- Create an orchestration job
- Add 'query result to grid' component
 - We will be using the HOSPITAL TABLE we created last class. If not created already, use the below scripts:

```
-- create database
CREATE DATABASE `HOSPITAL`;

-- create table
CREATE TABLE `RN_HOSPITAL_TABLE` (
  `PATIENT_ID` int DEFAULT NULL,
  `PATIENT_NAME` varchar(30) DEFAULT NULL,
  `BILLING_ADDRESS` varchar(50) DEFAULT NULL,
  `DIAGNOSIS` varchar(20) DEFAULT NULL,
  `TREATMENT` varchar(50) DEFAULT NULL,
```


ALL ABOUT GRID VARIABLES



```
`COST` float DEFAULT NULL
);
```

```
-- insert records
```

```
insert into RN_hospital_table
```

```
(patient_id, patient_name, billing_address, diagnosis, treatment, cost)
values
```

```
(1, 'Mark Knopfler', '1982 Telegraph Road', 'Industrial Disease', 'a week of peace and
quiet', 2000.00),
```

```
(2, 'Guido van Rossum', '37 Florida St.', 'python bite', 'anti-venom', 70000.00),
```

```
(3, 'Devin', '197 Brigade Road Texas', 'dog bite', 'Rabies Injection', 40000.00),
```

```
(4, 'Mark', '38 denver St Chicago', 'Dengue', 'Malaria', 50000.00),
```

```
(5, 'Peter', '78 New Yor City', 'Accident', 'Operation', 340000.00);
```

- Fill in snowflake details in 'query result to grid' component

| Name | Value | Status |
|----------------------|--|--------|
| Name | Query Result To Grid | OK |
| Basic / Advanced | Basic | OK |
| Database | HOSPITAL | OK |
| Schema | PUBLIC | OK |
| Target Table | RN_HOSPITAL_TABLE | OK |
| Table Columns | PATIENT_ID, PATIENT_NAME, BILLING_ADDRESS, DI... | OK |
| Order By | | OK |
| Sort | Ascending | OK |
| Limit | 10 | OK |
| Grid Variable | Hospital_grid_0 | OK |
| Grid Variable Map... | PATIENT_ID, PATIENT_NAME, BILLING_ADDRESS, DI... | OK |
| Filter Conditions | | OK |
| Combine Conditio... | AND | OK |

ALL ABOUT GRID VARIABLES



Grid Variable Mapping

PATIENT_ID:

PATIENT_NAME:

BILLING_ADDRESS:

DIAGNOSIS:

TREATMENT:

COST:

☐ Use Grid Variable

OK **Cancel**

- Add a python job to print the GRID variables
array = context.getGridVariable('Hospital_grid_0')
for data in array:
 print(data)
- Run the job

Tasks | Search | Console | Command Log | **Notices (2)**

| Task | Environ... | Version | Job | Queued | Comple... |
|------|------------|---------|-------------|----------|-----------|
| Run | Env_dem... | default | 4-Query ... | 00:52:00 | 00:52:03 |

Job successful. Showing all tasks. See [task info](#) for full details.

| Task | Job | Component | Status | Started At | Duration | Row Count |
|----------|--|------------|---------|------------|----------|-----------|
| Validate | 4-Query Result To Grid | Start 1 | SUCCESS | 00:52:00 | 0.0s | |
| Execute | 4-Query Result To Query Result To Grid | Grid | SUCCESS | 00:52:00 | 2.9s | 5 |
| Execute | 4-Query Result To Print Grid | Print Grid | SUCCESS | 00:52:03 | 0.1s | |

Query result processing to grid successful.

```
[Decimal('1'), 'Mark Knopfler', '1982 Telegraph Road', 'Industrial Disease', 'a week of...  
[Decimal('2'), 'Guido van Rossum', '37 Florida St.', 'python bite', 'anti-v...
```



ALL ABOUT GRID VARIABLES

| Environment: Env_demoadb | Version: default | Queued: 00:52:00 | Duration: 3.0s | View Jobs | | | |
|--------------------------|-------------------|------------------|----------------|---------------------------|-----------|-----------|---------------------------------|
| Job | Component | Duration | Queued | Started | Completed | Row Co... | Message |
| 4-Query Result To Grid | | 3.0s | 00:52:00 | 00:52:00 | 00:52:03 | | |
| 4-Query Result To Grid | Start 1 | 0.0s | 00:52:00 | 00:52:00 | 00:52:00 | | |
| 4-Query Result To Grid | Query Result T... | 2.9s | 00:52:00 | 00:52:00 | 00:52:03 | 5 | Query result processing to gr |
| 4-Query Result To Grid | Print Grid | 0.1s | 00:52:03 | 00:52:03 | 00:52:03 | | [Decimal('1'), 'Mark Knopfler', |

IV. Remove from Grid

Remove few of the records in GRID.

Properties | Export | Help

Remove From Grid OK

| Name | Value | Status |
|----------------------|--------------------|--------|
| Name | Remove From Grid 0 | ... |
| Target Grid Varia... | Hospital_grid_0 | ... |
| Fixed/Grid | Fixed | ... |
| Operation | Not In | ... |
| Key Columns | PATIENT_ID | ... |
| Values Grid | 25 | ... |

| 5-Remove From Grid | Task - 5-Remove From Grid | | | | | | |
|--------------------------|---------------------------|------------------|----------------|---------------------------|-----------|----|---|
| Environment: Env_demoadb | Version: default | Queued: 01:04:37 | Duration: 0.3s | View Jobs | | | |
| Job | Compon... | Dur... | Queued | Started | Completed | R. | Message |
| 5-Remove From Grid | | 0.3s | 01:04:37 | 01:04:37 | 01:04:37 | | |
| 5-Remove From Grid | Start 3 | 0.0s | 01:04:37 | 01:04:37 | 01:04:37 | | |
| 5-Remove From Grid | Print | 0.1s | 01:04:37 | 01:04:37 | 01:04:37 | | [Decimal('1'), 'Test_name', 'Test_add', 'Test_diag', 'Test_treatment', Decimal('0')] [Decimal('25'), Test25 |
| 5-Remove From Grid | Remove F... | 0.0s | 01:04:37 | 01:04:37 | 01:04:37 | | |
| 5-Remove From Grid | print | 0.1s | 01:04:37 | 01:04:37 | 01:04:37 | | [Decimal('1'), 'Test_name', 'Test_add', 'Test_diag', Test_treatment, Decimal('0')] |

V. Table meta data to grid

- Create Orchestration job
- Add 'Table metadata to Grid' component and fill in the details:

ALL ABOUT GRID VARIABLES



Diagram showing a workflow: Start 1 → Table Metadata To Grid 0 → TableFROMGRID.

Properties | Export | Help

Table Metadata To Grid OK

| Name | Value | Status |
|-----------------|---|--------|
| Name | Table Metadata To Grid 0 | ... |
| Database | HOSPITAL | ... |
| Schema | PUBLIC | ... |
| Grid Variable | TableSetUp | ... |
| Grid Variabl... | Name, Type, Size, Precision, Default Value... | ... |
| Target Table | RN_HOSPITAL_TABLE | ... |

Grid Variable Mapping

ColumnName: Name

Datatype: Type

Size: Size

Precision: Precision

default: Default Value

NotNul: Not Null

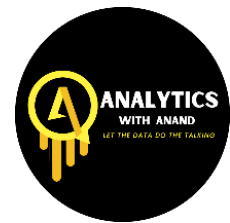
Unique: Unique

☐ Use Grid Variable

OK Cancel

- Add 'create table 'componentrt

ALL ABOUT GRID VARIABLES



The image shows a workflow diagram at the top with three components: 'Start 1' (a blue play button icon), 'Table Metadata To Grid 0' (a blue grid icon), and 'TableFROMGRID' (a blue grid icon with three colored circles on its right). Arrows connect them in sequence. Below the diagram is a 'Create Table' dialog box with tabs for 'Properties', 'SQL', 'Export', and 'Help'. The 'Properties' tab is active, showing a table with configuration options. A mouse cursor is pointing at the 'Columns' row.

| Name | Value | Status |
|-----------------|--|--------|
| Name | TableFROMGRID | ... |
| Create/Repla... | Replace | ... |
| Database | HOSPITAL | ... |
| Schema | PUBLIC | ... |
| New Table N... | FROMGRID | ... |
| Table Type | Permanent | ... |
| Columns | TableSetUp, ColumnName, Datatype, S... | ... |
| Default DDL ... | | ... |
| Primary Keys | | ... |
| Clustering K... | | ... |
| Data Retenti... | | ... |
| Comment | | ... |

Columns:

ALL ABOUT GRID VARIABLES



Columns

Grid Variable:

Column Mapping

Column Name:

Data Type:

Size:

Precision:

Default Value:

Not Null:

Unique:

Comment:

Masking Policy:

☒ Use Grid Variable

Run the component:

Diagram showing the workflow: Start 1 → Table Metadata To Grid 0 → TableFROMGRID

Tasks | Search | Console | Command Log | **Notices (2)**

| Task | Environment | Version | Job |
|------|-------------|---------|--------------|
| Run | Env_demodb | default | Table Metad. |

Job successful. Showing all tasks. See [task info](#) for full details.

| Task | Job | Component | Status |
|----------------------------------|------------------------|--------------------------|---------|
| Validate Orchestration Component | Table Metadata To Grid | Start 1 | SUCCESS |
| Execute Orchestration Component | Table Metadata To Grid | Table Metadata To Grid 0 | SUCCESS |
| Execute Orchestration Component | Table Metadata To Grid | TableFROMGRID | SUCCESS |

Created table ["HOSPITAL"."PUBLIC"."FROMGRID"]



ANALYTICSWITHANAND