

APEX World, 21st of march 2024

# Smart Filters, Faceted Search, IR, IG or Classic Report

Oliver Lemm

code of change

 **Hyand** by  
GOD | MT

# about me

Deputy Head of Business Unit Low Code architect, project manager and developer



GOD III

# Two become Hyand Ranked among the top 15 IT service providers in Germany

Cologne

Frankfurt

Dortmund

Ratingen

Wolfsburg  
Braunschweig

Hamburg

Berlin

Ingolstadt

Munich

Wrocław

Kaunas

Vilnius

Pune

> 900

Employees  
(of which 160 in  
shoring locations)

> 150

Clients

> 10

Industries

16






















Locations

1. Classic Report
2. Interactive Report
3. Faceted Search
4. Smart Filters
5. Interactive Grid
6. Different Scenarios
7. Pagination, Optimizer Hints, Lazy loading, Collections
8. Conclusion

# Classic Report



- since HTMLDB 1.5 in 2004
- no integrated filtering
- no end user customization
- no editing

	Name	Nationality	Country Code	Capital	Population	Area	Region	Sub Region	Intermediate Region	Orgnaization Region
	Canada	Canadian	CAN	Ottawa	37411047	9984670	America	Northern America		North America
	United States of America	American	USA	Washington, D.C.	329064917	9372610	America	Northern America		North America
	Albania	Albanian	ALB	Tirana	2880917	28748	Europe	Southern Europe		Europe, Middle East, and Africa
	Algeria	Algerian	DZA	Algiers	43053054	2381741	Africa	Northern Africa		Europe, Middle East, and Africa
	Andorra	Andorran	AND	Andorra la Vella	77142	468	Europe	Southern Europe		Europe, Middle East, and Africa
	Angola	Angolan	AGO	Luanda	31825295	1246700	Africa	Sub-Saharan Africa	Middle Africa	Europe, Middle East, and Africa
	Austria	Austrian	AUT	Vienna	8955102	83871	Europe	Western Europe		Europe, Middle East, and Africa
	Belarus	Belarusian	BLR	Minsk	9452411	207600	Europe	Eastern Europe		Europe, Middle East, and Africa
	Belgium	Belgian	BEL	Brussels	11539328	30528	Europe	Western Europe		Europe, Middle East, and Africa
	Benin	Beninese	BEN	Porto-Novo	11801151	112622	Africa	Sub-Saharan Africa	Western Africa	Europe, Middle East, and Africa
	Bosnia and Herzegovina	Bosnian or Herzegovinian	BIH	Sarajevo	3301000	51209	Europe	Southern Europe		Europe, Middle East, and Africa
	Botswana	Motswana	BWA	Gaborone	2303697	582000	Africa	Sub-Saharan Africa	Southern Africa	Europe, Middle East, and Africa
	British Indian Ocean Territory	BIOT	IOT	Point Marianne	4000	60	Africa	Sub-Saharan Africa	Eastern Africa	Europe, Middle East, and Africa
	Bulgaria	Bulgarian	BGR	Sofia	7000119	110879	Europe	Eastern Europe		Europe, Middle East, and Africa
	Burkina Faso	Burkinab�	BFA	Ouagadougou	20321378	272967	Africa	Sub-Saharan Africa	Western Africa	Europe, Middle East, and Africa
	Burundi	Burundian	BDI	Bujumbura	11530580	27834	Africa	Sub-Saharan Africa	Eastern Africa	Europe, Middle East, and Africa
	Cabo Verde	Cabo Verdean	CPV	Praia	549935	4033	Africa	Sub-Saharan Africa	Western Africa	Europe, Middle East, and Africa
	Cameroon	Cameroonian	CMR	Yaound�	25876380	475442	Africa	Sub-Saharan Africa	Middle Africa	Europe, Middle East, and Africa
	Central African Republic	Central African	CAF	Bangui	4745185	622984	Africa	Sub-Saharan Africa	Middle Africa	Europe, Middle East, and Africa
	Chad	Chadian	TCD	N'Djamena	15946876	1284000	Africa	Sub-Saharan Africa	Middle Africa	Europe, Middle East, and Africa
	Comoros	Comoran	COM	Moroni	850886	1862	Africa	Sub-Saharan Africa	Eastern Africa	Europe, Middle East, and Africa

# Classic Report

- power of many templates
- easy integration in any layout
- highly customizable
- supporting
  - partial page refresh
  - lazy loading
  - break formatting (1, 2 or 3 columns and sum)
  - heading (columns, custom, pl/sql, none)

Region

Attributes

Layout

Number of Rows TypeStatic Value

Number of Rows50

Appearance

Template TypeTheme

TemplateStandard

Template OptionsUse Template Defaults, Stretch Report, Disable, Enable, No Outer Borders, Hide when all rows displayed

CSS Classes

Show Null Values as

Pagination

TypeRow Ranges X to Y (with next)

Display PositionBottom - Right

Partial Page Refresh

Performance

Lazy Loading

Maximum Rows to Process500

Messages

When No Data Foundno data found

When More Data Found

Break Formatting

Report Sum Label

Break ColumnsNo Break

Advanced

Custom Attributes

Strip HTML

Sort NullsLast

Heading

TypeCustom Headings

Download

CSV Export Enabled

Supplemental Text

Printing

Enabled

 Hyand






















Smart Filters, Faceted Search, IR, IG or Classic Report – Oliver Lemm

# Interactive Report





- since APEX 3.1 in 2008
- integrated search bar
- end user customization
- no editing

<div><div><div><div><div></div><div>Q</div></div><div></div></div><div>Go</div><div>Actions</div></div></div> <div>Create</div>										
	Name	Nationality	Country Code	Capital	Population	Area	Region	Sub Region	Intermediate Region	Orгнаization Region
	Canada	Canadian	CAN	Ottawa	37411047	9984670	America	Northern America		North America
	United States of America	American	USA	Washington, D.C.	329064917	9372610	America	Northern America		North America
	Albania	Albanian	ALB	Tirana	2880917	28748	Europe	Southern Europe		Europe, Middle East, and Africa
	Algeria	Algerian	DZA	Algiers	43053054	2381741	Africa	Northern Africa		Europe, Middle East, and Africa
	Andorra	Andorran	AND	Andorra la Vella	77142	468	Europe	Southern Europe		Europe, Middle East, and Africa
	Angola	Angolan	AGO	Luanda	31825295	1246700	Africa	Sub-Saharan Africa	Middle Africa	Europe, Middle East, and Africa
	Austria	Austrian	AUT	Vienna	8955102	83871	Europe	Western Europe		Europe, Middle East, and Africa
	Belarus	Belarusian	BLR	Minsk	9452411	207600	Europe	Eastern Europe		Europe, Middle East, and Africa
	Belgium	Belgian	BEL	Brussels	11539328	30528	Europe	Western Europe		Europe, Middle East, and Africa
	Benin	Beninese	BEN	Porto-Novo	11801151	112622	Africa	Sub-Saharan Africa	Western Africa	Europe, Middle East, and Africa
	Bosnia and Herzegovina	Bosnian or Herzegovinian	BIH	Sarajevo	3301000	51209	Europe	Southern Europe		Europe, Middle East, and Africa
	Botswana	Motswana	BWA	Gaborone	2303697	582000	Africa	Sub-Saharan Africa	Southern Africa	Europe, Middle East, and Africa
	British Indian Ocean Territory	BIOT	IOT	Point Marianne	4000	60	Africa	Sub-Saharan Africa	Eastern Africa	Europe, Middle East, and Africa
	Bulgaria	Bulgarian	BGR	Sofia	7000119	110879	Europe	Eastern Europe		Europe, Middle East, and Africa
	Burkina Faso	Burkinab�	BFA	Ouagadougou	20321378	272967	Africa	Sub-Saharan Africa	Western Africa	Europe, Middle East, and Africa
	Burundi	Burundian	BDI	Bujumbura	11530580	27834	Africa	Sub-Saharan Africa	Eastern Africa	Europe, Middle East, and Africa
	Cabo Verde	Cabo Verdean	CPV	Praia	549935	4033	Africa	Sub-Saharan Africa	Western Africa	Europe, Middle East, and Africa
	Cameroon	Cameroonian	CMR	Yaound�	25876380	475442	Africa	Sub-Saharan Africa	Middle Africa	Europe, Middle East, and Africa
	Central African Republic	Central African	CAF	Bangui	4745185	622984	Africa	Sub-Saharan Africa	Middle Africa	Europe, Middle East, and Africa
	Chad	Chadian	TCD	N'Djamena	15946876	1284000	Africa	Sub-Saharan Africa	Middle Africa	Europe, Middle East, and Africa
	Comoros	Comoran	COM	Moroni	850886	1862	Africa	Sub-Saharan Africa	Eastern Africa	Europe, Middle East, and Africa

# Interactive Report

- Best integration in Universal Theme
- declarative customization (by developer)
- supporting
  - partial page refresh
  - lazy loading
  - break formatting (x columns)
  - optimizer hints
  - saved reports (developer, enduser, public)
  - Icon, Chart, Detail Views
  - Oracle Text
  - heading (fixed to page or region)

Link

Link Column

Link to Custom Target

Target

Page 21

Link Icon

<span role="img" aria-label="Edit" class="fa fa-edit" title="Edit"></span>

Link Attributes

Authorization Scheme

- Select -

Condition Type

- Select -

Appearance

Show Null Values as

Pagination

Type

Row Ranges X to Y

Display Position

Bottom - Right

Performance

Lazy Loading

Maximum Rows to Process

Messages

When No Data Found

No data found.

When More Data Found

The maximum row count for this report is #MAX\_ROW\_COUNT# rows. Please apply a filter to reduce the number of records in your query.

Search Bar

Include Search Bar

Search Field

Finder Drop Down

Reports Select List

Rows Per Page Selector

Search Button Label

Maximum Rows

Actions Menu

Include Actions Menu

Filter

Select Columns

Rows Per Page

Sort

Control Break

Highlight

Compute

Aggregate

Chart

Group By

Pivot

Flashback

Save Report

Save Public Report

Reset

Help

Download

Subscription

Download

Authorization

- Select -

Formats

CSV

HTML

Excel

PDF

Send as Email

CSV Separator

CSV Enclosed By

Filename

Supplemental Text

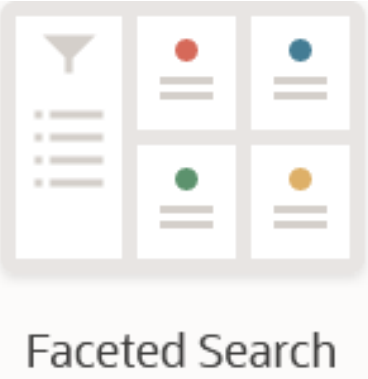
Heading

Fixed To

Page

Icon View

# Faceted Search



- since APEX 19.2 in 2019
- integrated search fields
- no end user customization
- no editing

Q Search...

Nationality

☐ American (2)

☐ Channel Island (2)

☐ Congolese (2)

☐ Dominican (2)

☐ Afghan (1)

☐ Albanian (1)

☐ Algerian (1)

Show All

Region

☐ Africa (60)

☐ America (57)

☐ Asia (51)

☐ Europe (51)

☐ Oceania (30)

Show All

Sub Region

☐ Sub-Saharan Africa (53)

☐ Latin America and the Caribbean (52)

☐ Western Asia (18)

☐ Northern Europe (16)

☐ Southern Europe (16)

☐ South-eastern Asia (11)

☐ Eastern Europe (10)

Show All

Intermediate Region

☐ Caribbean (27)

☐ Eastern Africa (21)

☐ South America (16)

☐ Western Africa (16)

☐ Central America (8)

☐ Middle Africa (8)

☐ Southern Africa (5)

☐ Channel Islands (2)

Orgnaization Region

☐ Europe, Middle East, and Africa (112)

☐ Asia Pacific (81)

☐ Latin America (54)

☐ North America (2)

Total Row Count 249

Reset

Country Id	Name	Nationality	Country Code	Capital	Population	Area	Region	Sub Region	Intermediate Region
1	Afghanistan	Afghan	AFG	Kabul	38041754	652230	Asia	Southern Asia	
2	Albania	Albanian	ALB	Tirana	2880917	28748	Europe	Southern Europe	
3	Algeria	Algerian	DZA	Algiers	43053054	2381741	Africa	Northern Africa	
4	American Samoa	American Samoan	ASM	Pago Pago	55312	199	Oceania	Polynesia	
5	Andorra	Andorran	AND	Andorra la Vella	77142	468	Europe	Southern Europe	
6	Angola	Angolan	AGO	Luanda	31825295	1246700	Africa	Sub-Saharan Africa	Middle Africa
7	Anguilla	Anguillan	AIA	The Valley	14869	91	America	Latin America and the Caribbean	Caribbean
8	Antarctica	Antarctic	ATA	McMurdo Station	1106	14200000	Oceania		
9	Antigua and Barbuda	Antiguan or Barbudan	ATG	St. John's	97118	442	America	Latin America and the Caribbean	Caribbean
10	Argentina	Argentine	ARG	Buenos Aires	44780677	2780400	America	Latin America and the Caribbean	South America
11	Armenia	Armenian	ARM	Yerevan	2957731	29743	Asia	Western Asia	
12	Aruba	Aruban	ABW	Oranjestad	106314	180	America	Latin America and the Caribbean	Caribbean
13	Australia	Australian	AUS	Canberra	25203198	7692024	Oceania	Australia and New Zealand	
14	Austria	Austrian	AUT	Vienna	8955102	83871	Europe	Western Europe	
15	Azerbaijan	Azerbaijani	AZE	Baku	10047718	86600	Asia	Western Asia	
16	Bahamas	Bahamian	BHS	Nassau	389482	13943	America	Latin America and the Caribbean	Caribbean
17	Bahrain	Bahraini	BHR	Manama	1641172	765	Asia	Western Asia	
18	Bangladesh	Bangladeshi	BGD	Dhaka	163046161	147570	Asia	Southern Asia	
19	Barbados	Barbadian	BRB	Bridgetown	287025	430	America	Latin America and the Caribbean	Caribbean
20	Belarus	Belarusian	BLR	Minsk	9452411	207600	Europe	Eastern Europe	
21	Belgium	Belgian	BEL	Brussels	11539328	30528	Europe	Western Europe	
22	Belize	Belizean	BLZ	Belmopan	390353	22966	America	Latin America and the Caribbean	Central America
23	Benin	Beninese	BEN	Porto-Novo	11801151	112622	Africa	Sub-Saharan Africa	Western Africa
24	Bermuda	Bermudian	BMU	Hamilton	62506	54	America	Northern America	
25	Bhutan	Bhutanese	BTN	Thimphu	763092	38394	Asia	Southern Asia	
26	Bolivia (Plurinational State of)	Bolivian	BOL	Sucre	11513100	1098581	America	Latin America and the Caribbean	South America
27	Bonaire, Sint Eustatius and Saba	Sint Eustatius and Saba	BES	Kralendijk	25711	328	America	Latin America and the Caribbean	
28	Bosnia and Herzegovina	Bosnian or Herzegovinian	BIH	Sarajevo	3301000	51209	Europe	Southern Europe	
29	Botswana	Motswana	BWA	Gaborone	2303697	582000	Africa	Sub-Saharan Africa	Southern Africa
								Latin America and the	

# Faceted Search

- same report features as Classic Report
- facet region
- „facets“
  - Checkbox Group, Input Field, Radio Group, Range, Search, Select List
  - „faster“ usable search fields
  - information about amount of entries

Settings

Batch Facet Changes

Compact Numbers Threshold

10000

Show Current Facets

Selector

Current Facets Selector

#active\_facets

Show Total Row Count

Yes

Total Row Count Label

Show Charts

Dialog

Display Chart for Top N Values

10

Advanced

Initialization JavaScript Function

## Sub Region

- ☐ Sub-Saharan Africa (53)
- ☐ Latin America and the Caribbean (52)
- ☐ Western Asia (18)
- ☐ Northern Europe (16)
- ☐ Southern Europe (16)
- ☐ South-eastern Asia (11)
- ☐ Eastern Europe (10)

Show All

List of Values

Type

Distinct Values

Sort Direction

Ascending

Include Null Option

List Entries

Compute Counts

Show Counts

Zero Count Entries

Hide

Sort By Top Counts

Show Selected First

Maximum Displayed Entries

7

Display Filter Initially

Actions Menu

Filter

Chart

Advanced

Show Chart Initially

Display Toggling

Collapsible

CSS Classes

Source

Database Column

SUB\_REGION

Data Type

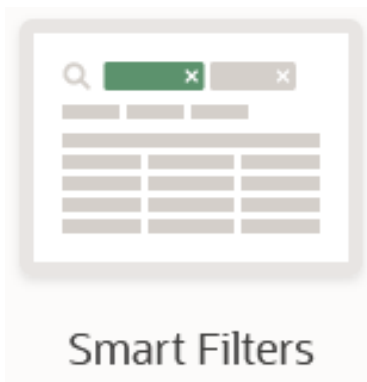
VARCHAR2

Multiple Values

Type

No

# Smart Filters



- since APEX 21.2 in 2021
- integrated search fields
- no end user customization
- no editing

Q Search...

Name **Mexico (1)** Nationality **Congolese (2)** Country Code **PHL (1)** Capital **Kingston (2)** Region **Africa (60)**

Country Id ↑	Name	Nationality	Country Code	Capital	Population	Area	Region	Sub Region	Intermediate Region
1	Afghanistan	Afghan	AFG	Kabul	38041754	652230	Asia	Southern Asia	
2	Albania	Albanian	ALB	Tirana	2880917	28748	Europe	Southern Europe	
3	Algeria	Algerian	DZA	Algiers	43053054	2381741	Africa	Northern Africa	
4	American Samoa	American Samoan	ASM	Pago Pago	55312	199	Oceania	Polynesia	
5	Andorra	Andorran	AND	Andorra la Vella	77142	468	Europe	Southern Europe	
6	Angola	Angolan	AGO	Luanda	31825295	1246700	Africa	Sub-Saharan Africa	Middle Africa
7	Anguilla	Anguillan	AIA	The Valley	14869	91	America	Latin America and the Caribbean	Caribbean
8	Antarctica	Antarctic	ATA	McMurdo Station	1106	14200000	Oceania		
9	Antigua and Barbuda	Antiguan or Barbudan	ATG	St. John's	97118	442	America	Latin America and the Caribbean	Caribbean
10	Argentina	Argentine	ARG	Buenos Aires	44780677	2780400	America	Latin America and the Caribbean	South America
11	Armenia	Armenian	ARM	Yerevan	2957731	29743	Asia	Western Asia	
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13	Australia	Australian	AUS	Canberra	25203198	7692024	Oceania	Australia and New Zealand	
14	Austria	Austrian	AUT	Vienna	8955102	83871	Europe	Western Europe	
15	Azerbaijan	Azerbaijani	AZE	Baku	10047718	86600	Asia	Western Asia	
16	Bahamas	Bahamian	BHS	Nassau	389482	13943	America	Latin America and the Caribbean	Caribbean
17	Bahrain	Bahraini	BHR	Manama	1641172	765	Asia	Western Asia	
18	Bangladesh	Bangladeshi	BGD	Dhaka	163046161	147570	Asia	Southern Asia	
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22	Belize	Belizean	BLZ	Belmopan	390353	22966	America	Latin America and the Caribbean	Central America
23	Benin	Beninese	BEN	Porto-Novo	11801151	112622	Africa	Sub-Saharan Africa	Western Africa
24	Bermuda	Bermudian	BMU	Hamilton	62506	54	America	Northern America	
25	Bhutan	Bhutanese	BTN	Thimphu	763092	38394	Asia	Southern Asia	
26	Bolivia (Plurinational State of)	Bolivian	BOL	Sucre	11513100	1098581	America	Latin America and the Caribbean	South America

# Smart Filters

- Same report features as Classic Report
- Smart Filters region
- „filters“
  - Checkbox Group, Input Field, Radio Group, Range, Search
  - „faster“ usable search fields
  - Information about amount of entries
  - „Unlimited“ amount of search field
  - Search fields not „visible“ at beginning

Settings

Maximum Suggestion Chips

More Filters Suggestion Chip

Compact Numbers Threshold

10000

Show Total Row Count

No

Advanced

Initialization JavaScript Function

List of Values

Type

Distinct Values

Sort Direction

Ascending

Include Null Option

List Entries

Compute Counts

Show Counts

Zero Count Entries

Hide

Sort By Top Counts

Show Selected First

Client-Side Filtering

Suggestions

Type

Dynamic

Show Label

Advanced

CSS Classes

Source

Database Column

NAME

Data Type

VARCHAR2

Multiple Values

Type

No

Default

Type

- Select -

Depending On

Filter

- Select -

Sub Region Sub-Saharan Africa

+1

Name Zambia (1)

Nationality Congolese (2)

Country Code NER (1)

Capital Monrovia (1)

Intermediate Region Eastern Africa (21)



# Interactive Grid



Interactive Grid

- since APEX 5.1 in 2016
- integrated search fields
- end user customization
- editing

<div>Q</div> Search: All Text Columns		<div>Go</div>	<div>Actions</div>		<div>Reset</div>	
	Name	Nationality	Country Code	Capital	Population	
<div></div>	Canada	Canadian	CAN	Ottawa	37411047	
<div></div>	United States of America	American	USA	Washington, D.C.	329064917	
<div></div>	Malta	Maltese	MLT	Valletta	440372	
<div></div>	Mauritania	Mauritanian	MRT	Nouakchott	4525696	
<div></div>	Mauritius	Mauritian	MUS	Port Louis	1269668	
<div></div>	Mayotte	Mahoran	MYT	Mamoudzou	266150	
<div></div>	Moldova, Republic of	Moldovan	MDA	Chisinau	4043263	
<div></div>	Monaco	Mon�gasque	MCO	Monaco	38964	
<div></div>	Montenegro	Montenegrin	MNE	Podgorica	627987	
<div></div>	Morocco	Moroccan	MAR	Rabat	36471769	
<div></div>	Mozambique	Mozambican	MOZ	Maputo	30366036	
<div></div>	Namibia	Namibian	NAM	Windhoek	2494530	
<div></div>	Netherlands	Dutch	NLD	Amsterdam	17097130	
<div></div>	Niger	Nigerien	NER	Niamey	23310715	
<div></div>	Nigeria	Nigerian	NGA	Abuja	200963599	
<div></div>	North Macedonia	Macedonian	MKD	Skopje	2083459	
<div></div>	Norway	Norwegian	NOR	Oslo	5378857	
<div></div>	Poland	Polish	POL	Warsaw	37887768	
<div></div>	Portugal	Portuguese	PRT	Lisbon	10226187	
<div></div>	Romania	Romanian	ROU	Bucharest	19364557	
<div></div>	Russian Federation	Russian	RUS	Moscow	145872256	
<div></div>	Rwanda	Rwandan	RWA	Kigali	12626950	
<div></div>	R�union	R�unionese	REU	Saint-Denis	888927	
<div></div>	Saint Helena, Ascension and Tr...	Ascension and Tristan da Cunha	SHN	Jamestown	5633	
<div></div>	San Marino	Sammarinese	SMR	San Marino	33860	
<div></div>	Sao Tome and Principe	S�o Tom��an	STP	Sao Tome	215056	
<div></div>	Senegal	Senegalese	SEN	Dakar	16296364	
<div></div>	Serbia	Serbian	SRB	Belgrade	8772235	
<div></div>	Seychelles	Seychellois	SYC	Victoria	97739	
<div></div>	Sierra Leone	Sierra Leonean	SLE	Freetown	7813215	

# Interactive Grid

- Best integration in Universal Theme
- declarative & by code customization (by developer)
- supporting
  - partial page refresh
  - lazy loading
  - break formatting (x columns)
  - saved reports (developer, enduser, public)
  - Icon, Chart, Detail Views
  - Oracle Text
  - heading (fixed to page or region)
  - Edit mode

▼ Edit

Enabled ☐

▼ Performance

Lazy Loading ☐

▼ Appearance

Show Null Values as

Select First Row ☒

Fixed Row Height ☒

▼ Pagination

Type

Show Total Count ☒

▼ Messages

When No Data Found

▼ Toolbar

Show ☒

Controls

- ☒ Search Column Selection
- ☒ Search Field
- ☒ Actions Menu
- ☒ Reset Button
- ☒ Save Button

▼ Enable Users To

Save Public Report ☐

Flashback ☒

Define Chart View ☒

Download ☒

▼ Download

Authorization

Formats

- ☒ CSV
- ☒ HTML
- ☒ PDF
- ☒ Excel

Send as Email ☒

CSV Separator

CSV Enclosed By

Filename

Supplemental Text

▼ Heading

Fixed To

▼ Icon View

Show ☐

▼ Detail View

Show ☐

▼ Advanced

Oracle Text Index Column

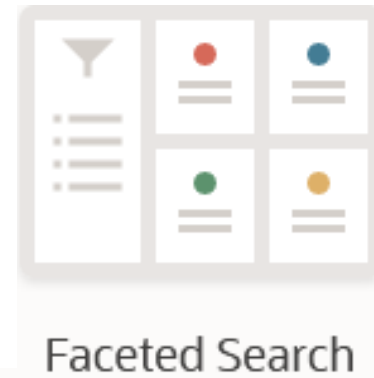
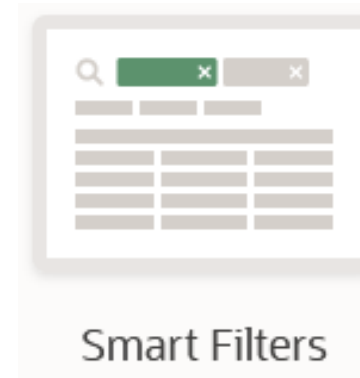
Email From Address

Initialization JavaScript Function

▼ Help

Help Text

# *report with user customization features?*



# Interactive Report

1

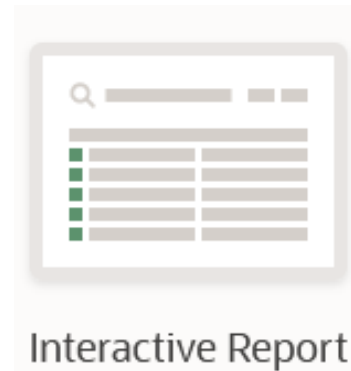
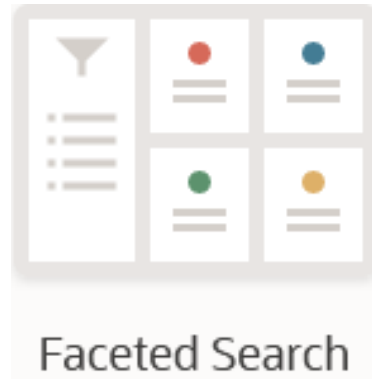
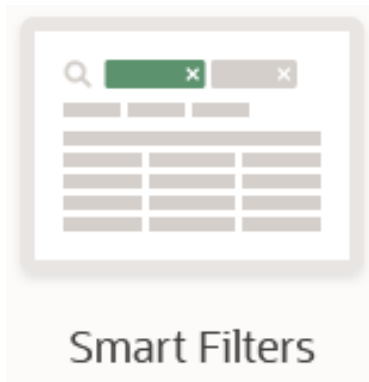
- Action Menu for customization
- column groups
- lazy loading
- all columns full searchable
- long text visible
- columns sized automatically
- all options declarative
- pivot

2

# Interactive Grid

- Action Menu for customization
- column groups
- lazy loading
- only VARCHAR2 columns „searchable“
- long text shorted\*
- column width can be defined
- declarative and custom options by JS
- drag and drop columns
- pagination scroll

# *report with easy and fast search*

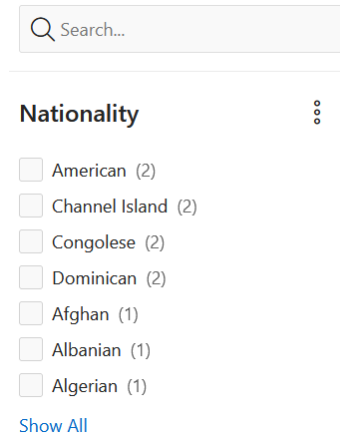


Report for easy and fast search

# Faceted Search

1

- classic report for result
- facets for search
- all columns for search
- values by facet visible
- every facet needs space



Search...

Nationality

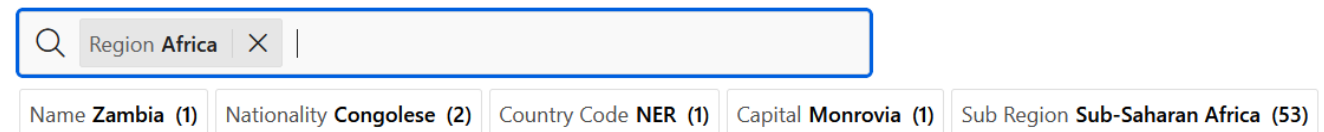
- ☐ American (2)
- ☐ Channel Island (2)
- ☐ Congolese (2)
- ☐ Dominican (2)
- ☐ Afghan (1)
- ☐ Albanian (1)
- ☐ Algerian (1)

[Show All](#)

2

# Smart Filters

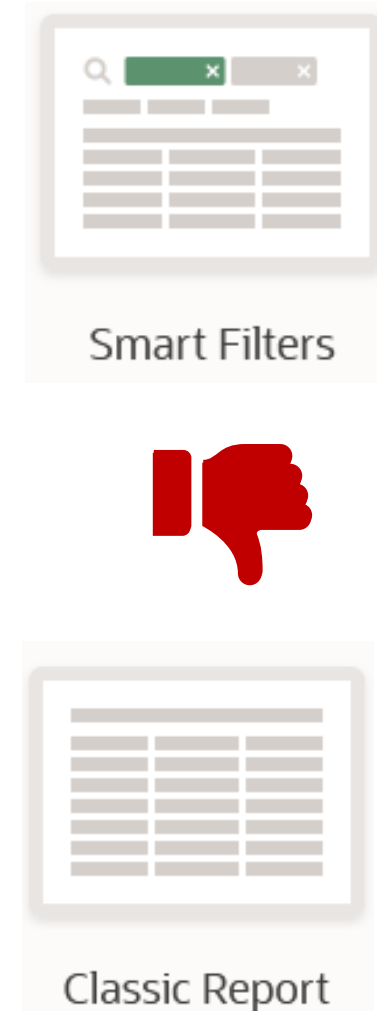
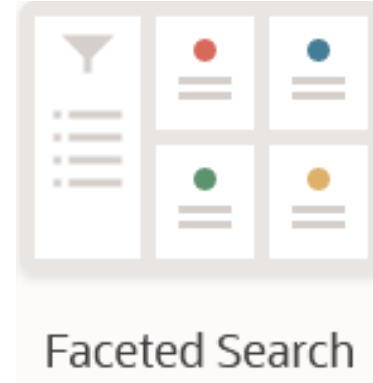
- classic report for result
- filters for search
- columns by click in search field visible
- only some values visible
- small search bar



Search Region Africa X

Name Zambia (1) Nationality Congolese (2) Country Code NER (1) Capital Monrovia (1) Sub Region Sub-Saharan Africa (53)

# *report with edit functionality?*





## Interactive Grid

- edit data inside report
- fine granular rights by column or by line possible
- fast editing for multiple rows
- only useful for 10 or less columns
- large text not full visible
- fields which are related or conditional not supported



## Report with Form

- edit data in dialog, drawer or new page
- full APEX features by item to define rights
- row by row editing
- useful for any amount of values
- every text visible
- every combination of different fields are supported

# *report with no result before first search*



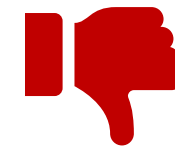
Faceted Search



Smart Filters



Interactive Grid



Interactive Report



Classic Report

# report with no result before first search

- create a Page / Application Item
- add Where Clause
- add After Regions Process
- add set value in Navigation Menu
- alternative 1 – function body returning SQL
- alternative 2 – table function

Source

Location: Local Database

Type: Table / View

Table Owner: Parsing Schema

Table Name: EBA\_COUNTRIES\_V

Include ROWID Column: ☐

Where Clause: :P22\_DO\_SEARCH = 1

Identification

Item Name: P22\_DO\_SEARCH

Execution

Sequence: 10

Point: After Regions

Computation

Target type: Page in this Application

Page: 22

Static Value: 1

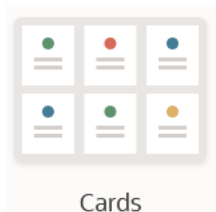
Request

Clear Cache

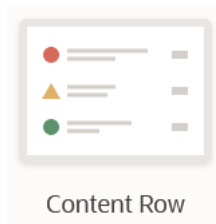
Set these items: P22\_DO\_SEARCH

With these values: 0

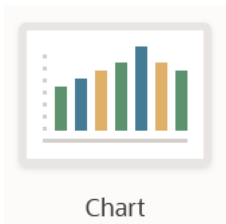
# *report for smartphone usage*



Cards



Content Row



Chart



Faceted Search



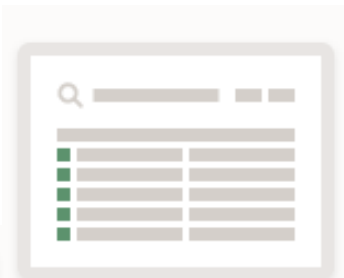
Smart Filters



Interactive Grid



Classic Report



Interactive Report

# Report Optimizer Hints

## INDEX (employees emp\_department\_ix)

When accessing the table `employee` try to use the index `emp_department_ix`

## WITH\_PLSQL

Enable the use of the `WITH plsql_declarations` clause within the SQL query

The following *APEX Pseudo Hints* are available:

## APEX\$USE\_OFFSET\_PAGINATION

Use the **OFFSET m ROWS FETCH n ROWS** (SQL2008) syntax, instead of the **ROW\_NUMBER** analytic function, when generating pagination SQL. The executed query will only return rows of interest for the current component page.

## APEX\$USE\_ROWNUM\_PAGINATION

Use the **ROWNUM** pseudo column, instead of the **ROW\_NUMBER** analytic function, when generating pagination SQL. The executed query will only return rows of interest for the current component page.

## APEX\$USE\_NO\_PAGINATION

Do not build any pagination SQL. The component always starts fetching at the first row; the current page is shown by skipping rows and stopping after fetching the last row of interest.

## APEX\$USE\_NO\_BULK\_FETCH

Do not use bulk fetching for this query.

## APEX\$USE\_NO\_GROUPING\_SETS

Do not use the **GROUPING SETS** SQL clause for Faceted Search or Smart Filters. Instead, compute counts for each facet or filter using an individual query, and combine these with UNION ALL.

Region	Attributes
<input type="text" value="Filter"/>	
<div>&gt; Identification</div>	
<div>Source</div>	
Location	Local Database
Type	Table / View
Table Owner	Parsing Schema
Table Name	EBA_COUNTRIES_V
Include ROWID Column	<input type="checkbox"/>
Where Clause	<input type="text"/>
Page Items to Submit	<input type="text"/>
Optimizer Hint	APEX\$USE_ROWNUM_PAGINATION

# Pagination

- Type
- Number of Rows <-> Pagination
- Performance of Pagination with of „Z“

- Display Position
- problem „right“ with many columns
- problem „bottom“ with many rows
- same Pagination setting for all reports

The screenshot shows the 'Pagination' configuration panel. The 'Type' dropdown is open, displaying a list of options. The first option, 'Row Ranges X to Y (with next and previous links)', is highlighted with a green dashed border. Other options include 'No Pagination (Show All Rows)', 'Row Ranges X to Y (no pagination)', 'Row Ranges X to Y of Z (no pagination)', 'Row Ranges X to Y of Z (with pagination)', 'Row Ranges 1-15 16-30 (with set pagination)', 'Row Ranges 1-15 16-30 in select list (with pagination)', 'Search Engine 1,2,3,4 (set based pagination)', 'Use Externally Created Pagination Buttons', and 'Row Ranges X to Y (with next and previous links)'.

Configuration Item	Value
Pagination Type	Row Ranges X to Y (with next and previous links)
Display Position	No Pagination (Show All Rows)
Partial Page Refresh	Row Ranges X to Y (no pagination)
	Row Ranges X to Y of Z (no pagination)
	Row Ranges X to Y of Z (with pagination)
	Row Ranges 1-15 16-30 (with set pagination)
	Row Ranges 1-15 16-30 in select list (with pagination)
	Search Engine 1,2,3,4 (set based pagination)
	Use Externally Created Pagination Buttons
	Row Ranges X to Y (with next and previous links)

The screenshot shows the 'Display Position' dropdown menu. The 'Bottom - Right' option is highlighted with a green dashed border. Other options include 'Bottom - Left', 'Top - Left', 'Top - Right', 'Top and Bottom - Left', and 'Top and Bottom - Right'.

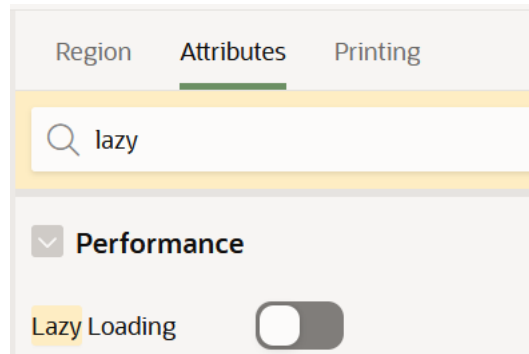
Configuration Item	Value
Display Position	Bottom - Right
	Bottom - Left
	Top - Left
	Top - Right
	Top and Bottom - Left
	Top and Bottom - Right

The screenshot shows the 'Layout' configuration panel. The 'Number of Rows' is set to 'Static Value' and '999999'.

Configuration Item	Value
Number of Rows Type	Static Value
Number of Rows	999999

# Lazy Loading

- supported for alle kinds of reports
- use only if page takes multiple seconds to load



## Lazy Loading

Specify whether to load the region independently of the data for the region.

When lazy loading is specified, the page is rendered immediately, showing an empty region, until the data is loaded. Generally, the page is not displayed until all of the page is loaded and ready to be rendered. Therefore, if it takes 5 seconds to load all of the data for a region, without lazy loading, the end user would have to wait 5 seconds before the page started to render.

Note - Lazy Loading should only be utilized on data sets that take significant time to load, as this adds unnecessary processing overhead on the database for regions that load quickly.

# Collections

- decouple data from „real“ tables
- complex data can be generated into a collection
- attention: Collection is one table for every set of data!
- creation, refresh and deletion inside collection must be defined

## 13 APEX\_COLLECTION

Collections enable you to temporarily capture one or more nonscalar values. You can use a collection to store data for a specific session. You can think of a collection as a bucket in which you temporarily

- [About the APEX\\_COLLECTION API](#)
- [Naming Collections](#)
- [Creating a Collection](#)
- [About the Parameter p\\_generate\\_md5](#)
- [Accessing a Collection](#)
- [Merging Collections](#)
- [Truncating a Collection](#)
- [Deleting a Collection](#)
- [Deleting All Collections for the Current Application](#)
- [Deleting All Collections in the Current Session](#)
- [Adding Members to a Collection](#)
- [About the Parameters p\\_generate\\_md5, p\\_clob001, p\\_blob001, and p\\_xmltype001](#)
- [Updating Collection Members](#)
- [Deleting Collection Members](#)
- [Obtaining a Member Count](#)
- [Resequencing a Collection](#)
- [Verifying Whether a Collection Exists](#)
- [Adjusting a Member Sequence ID](#)
- [Sorting Collection Members](#)
- [Clearing Collection Session State](#)
- [Determining Collection Status](#)
- [ADD\\_MEMBER Procedure](#)
- [ADD\\_MEMBER Function](#)
- [ADD\\_MEMBERS Procedure](#)
- [COLLECTION\\_EXISTS Function](#)
- [COLLECTION\\_HAS\\_CHANGED Function](#)
- [COLLECTION\\_MEMBER\\_COUNT Function](#)
- [CREATE\\_COLLECTION Procedure](#)
- [CREATE\\_OR\\_TRUNCATE\\_COLLECTION Procedure](#)



# Faceted Search - Countries

## Conclusion

- „Best“ report Faceted Search
- fast
- intuitive and easy to use
- most information
- Use IG only for editing data
- IR when user customization is needed
- Standard Reports don't perform with smartphone

<input type="text" value="Search..."/>		Total Row Count 60		
Region <span>Africa</span> <span>×</span>				
Name	Nationality	Code	Capital	Population
Algeria	Algerian	DZA	Algiers	43053054
Egypt	Egyptian	EGY	Cairo	100388073
Libya	Libyan	LBY	Tripoli	6777452
Morocco	Moroccan	MAR	Rabat	36471769
Sudan	Sudanese	SDN	Khartoum	42813238
Tunisia	Tunisian	TUN	Tunis	11694719
Western Sahara	Sahrawi	ESH	Laâyoune	582463
Benin	Beninese	BEN	Porto-Novo	11801151
Burkina Faso	Burkinabè	BFA	Ouagadougou	20321378
Cabo Verde	Cabo Verdean	CPV	Praia	549935
Côte d'Ivoire	Ivorian	CIV	Yamoussoukro	25716544
Gambia	Gambian	GMB	Banjul	2347706
Ghana	Ghanaian	GHA	Accra	30417856
Guinea	Guinean	GIN	Conakry	12771246
Guinea-Bissau	Bissau-Guinean	GNB	Bissau	1920922
Liberia	Liberian	LBR	Monrovia	4937374
Mali	Malian	MLI	Bamako	19658031
Mauritania	Mauritanian	MRT	Nouakchott	4525696
Niger	Nigerien	NER	Niamey	23310715
Nigeria	Nigerian	NGA	Abuja	200963599

Say Hy\_

+49 2102 30 961-164

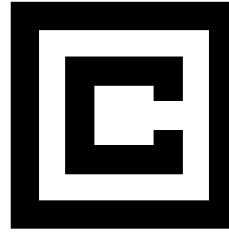
oliver.lemm@hyand.com



@OliverLemm



<https://www.linkedin.com/in/oliverlemm>



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