


Automating URDU, ARABIC  
&  
Other RTL Scripting Documents  
Using J-ISIS

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January 2015

# Introduction to Urdu

Urdu (اُردُو) ( [listen](#)) as a word is Turkish for 'foreign' or 'horde' and as a language, member of the [Indo-Aryan](#) group within the [Indo-European](#) family of languages. Urdu is spoken by more than 104 million speakers, including those who speak it as a second language, predominantly in [Pakistan](#) and [India](#). It is the [national language](#) and [lingua franca](#) of [Pakistan](#), and an official language of [six Indian states](#). The Urdu language received recognition and patronage under the [British Raj](#) when the British replaced the Persian and local official languages of North Indian states with the Urdu and English language in 1837.<sup>[9]</sup> Urdu is written right-to-left with a version of the [Perso-Arabic script](#) since the 12th century. It is normally written in [Nastaliq style](#) in an extension of the [Persian alphabet](#), which is itself an extension of the [Arabic alphabet](#). It has 39 characters, each then has two to four different shapes depending upon its position in the word, i.e. initial, medial, final or isolated. This characteristic of having multiple shapes makes it [Context Sensitive](#).

## J-ISIS & Urdu

This document expresses the way, how can be a RTL language Database created & configured using [J-ISIS](#). The article will help the [RTL language scripting communities](#) to automate their bibliographic library data from creation to deployment in easy sequential steps. **J-ISIS New DB** creation wizard will be used to create “URDU (RTL)” database with only four fields on Windows 8.1 x64 machine with English (United States) as default & URDU as second language through Control Panel Language option. For field headings URDU & for subfields delimiters English will be used.

## Step-1. Database Creation

### i. FDT (Field Definition Table)

FDT will be created according to following table

Tag	Name	Type	Indicators	Rep.	First Subfield	Subfields/Pattern
1	طلب تغير	ALPHANUMERIC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	cdea
<div>Add/Update Delete</div>						
Tag	Name	Type	Indicators	Rep.	1st Subfield	Subfields/Pattern
1	طلب تغير	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	cdea
2	اندرج تغير	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3	مصنف	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4	عنوان	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

- 1- Classification Number
- 2- Accession Number
- 3- Author
- 4- Title
- 5- cde subfield delimiters will be used to control and properly acclimate mixed notation Classification Numbers. (This will be explained thoroughly while data entry)

## ii. Data Entry Worksheet

URDU (RTL) worksheet have been created with fields as defined in FDT. A pick list also designated in **"iis suite 16 September 2014\iis suite\home example db\URDU (RTL)\iwks"** named **"URDU (RTL).val"** referring **"delim.txt"** to facilitate data entry process in طلب نمبر (classification Number) field by picking subfield delimiters.

Data Entry Worksheet (DEF\_HOME/URDU (RTL)) x

Select Worksheet: URDU (RTL) [New] [Delete] [Restore] [Save] [Close]

**Fields Defined in the FDT:**

Tag	Name	Type	Indicators	Rep.	1st Subfield	Subfields/Pattern
1	طلب نمبر	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	cdea
2	اندراج نمبر	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3	مصنف	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4	عنوان	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Worksheet Definition**

Tag	Description	Display	Default	Help Message	Validation	Pick List
1	طلب نمبر					
2	اندراج نمبر					
3	مصنف					
4	عنوان					

Delim.txt - Notepad

```
File Edit Format View Help
Classification Delimiters
^c^d^e^a
```

URDU (RTL).val - Notepad

```
File Edit Format View Help
1:choice:files:firstdescribe::'Classification Delimiters'/'Delim.txt'
```

### iii. FST (Field Select Table)

URDU (RTL) FST is designed as in subsequent table.

Tag	Name	Type	Indicators	Rep.	1st Subfield	Subfields/Pattern
1	طلب_نمبر	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	cdea
2	اندراج_نمبر	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3	مصنف	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4	عنوان	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

ID	Name	Technique	Format
1	طلب_نمبر	1 - Subfields & lines	mpu(v1^c,v1^d,v1^e)
2	اندراج_نمبر	1 - Subfields & lines	mpu(v2/)
3	مصنف	4 - Each word in extracte...	mpu(v3/)
4	عنوان	1 - Subfields & lines	mpu(v4)
4	عنوان	4 - Each word in extracte...	v4

Indexing technique used for Tag ID # 1 (i.e. 'طلب\_نمبر' 'Classification Number') is **“1 – Subfields & lines”** which will index/Invert the field as a line & subfields separately. The format **“mpu(v1^c,v1^d,v1^e)”** will control the inverted data in the patron exercised. This format will authorize the J-ISIS to index the mixed notation classification numbers in structure as they were inserted in the data field using sequence of subfields. If we use only mpu(v1) or v1 here the data will not be indexed in required shape and formation due to the character layout problem. This problem happens due to the universal rule that numerals are always written from LTR, and system confuses to opt which direction when we use combination of both numerals & RTL alphabets to produce mixed notation classification numbers. For example **ب ن 929 (549.1)** will be entered in data entry worksheet as **ب ن 929 (549.1)**, & will be indexed according to their occurrence position according to FST.

## Step-2. Data Entry, Searching & Displaying

When we enter plain data in DB, it returns no problem while data insertion as well as in indexing/searching. Problem arises when data consists a combination of numerals and alphabets. Combination of numerals & alphabets are commonly used in classification numbers. Here in this step only one sub-field will be used for classification numbers.

### i. Simple Data (Without RTL Button Pressed)

When we enter simple data in DB, it returns desired output while data insertion as well as in indexing/searching. Problem arose when data consists a combination of numerals and RTL alphabets. Combination of numerals & alphabets are commonly used in classification numbers. In Tag # 1 that will be used to store classification numbers for the documents both single & multiple sub-fielded techniques will be exercised to accumulate simple as well as mixed notation classification numbers.

### Data Entry (Without RTL Button Pressed)

Data entry is as simple as it was in WinISIS. All the entries are done using RTL (URDU) keyboard.

The screenshot shows a software window titled 'Data Entry (DEF\_HOME//URDU (RTL))'. It has a 'Worksheet: Default worksheet' dropdown and an 'MFN: 1' field. Below these are buttons: 'Reload', 'Create a copy', 'Clear', 'Copy', 'Paste', and 'Show/Hide Empty Fields'. The main area contains two input fields. The first field, labeled 'طلب نمبر (1)', contains the text '821.214.22-311.6'. The second field, labeled 'اندراج نمبر (2)', contains the number '6291'.

### Terms indexed in Dictionary (Without RTL Button Pressed)

Index Content			
iTerm	Field	Term	Freq
0	اندراج_نمبر	6291	1
1	طلب_نمبر	821.214.22-311.6	1
2	عنوان	خیام	1
3	عنوان	عمر	1
4	عنوان	عمر خیام	1
5	مصنف	لیم	1
6	مصنف	بیراٹ	1

Figure 1 Terms are accurately indexed i.e. Numerals from LTR & Alphabets from RTL

## Searching in Terms Dictionary (Without RTL Button Pressed)

Search Window (DEF\_HOME//URDU (RTL))

Match all of the following ☒ Match any of the following ☐ Dictionary Options

<All Searchable Fields> matching 821.214.22-311.6

طلب\_نامبر [1] 821.214.22-311.6

1 records ☐ Sort By MFN

MFN

[ 1] 1

Select F

Record N. 000000001	
821.214.22-311.6	(1)
6291	(2)
ایم، بیر اللہ	(3)
عمر خیام	(4)

Numeric Term is accurately indexed / searched but drop down selection is slightly disturbed as compared to previous slide but according to RTL rule it is correct.

Search Window (DEF\_HOME//URDU (RTL))

Match all of the following ☒ Match any of the following ☐ Dictionary Options

<All Searchable Fields> matching عمر خیام

عنوان [1] عمر خیام

1 records ☐ Sort By MFN

MFN

[ 1] 1

Select F

Record N. 000000001	
821.214.22-311.6	(1)
6291	(2)
ایم، بیر اللہ	(3)
عمر خیام	(4)

Urdu Term is accurately indexed / searched & drop down selection is absolutely correct.

## PFT for Searched Term (Without RTL Button Pressed)

PFT Generated through PFT Manager & slightly modified for RTL Display

Data Viewer (DEF\_HOME//URDU (RTL)) x Search Window (DEF\_HOME//URDU (RTL)) x PFT Manager (DEF\_HOME//URDU (RTL)) x

PFT: HTML Tabulated (RTL) New Save Delete Generate HTML Quote Syntax Convert Find/Replace Apply

This is a FmtManager window

```

1 mhl,'<span style="font-family: Arial; font-size:14pt"><TABLE width="70%" dir="rtl"><TR><TD><TABLE WIDTH="70%" BORDER="0" bgcolor="#aabbcc">
2 mhl,'<TR><TD WIDTH="70%"><strong>Record N. ',mfn(9),'</strong></TD></TR></TABLE>'mhl,'<TABLE WIDTH="70%" BORDER bgcolor="white">
3 if p(v1) then '<TR><TD WIDTH="30%"><I>طلب نمبر</I></TD><TD>','v1','</TD></TR>'fi,
4 if p(v2) then '<TR><TD WIDTH="30%"><I>اندرج نمبر</I></TD><TD>','v2+|:'</TD></TR>'fi,/
5 if p(v3) then '<TR><TD WIDTH="30%"><I>مصنف</I></TD><TD>','v3+|:'</TD></TR>'fi,/
6 if p(v4) then '<TR><TD WIDTH="30%"><I>عنوان</I></TD><TD>','v4','</TD></TR>'fi,
7 '</TABLE></TR></TABLE>'</span>'
8

```

WebOutput Window x

HTML Source

Format: HTML Tabulated (RTL)

Record N. 000000001	
طلب نمبر (1)	821.214.22-311.6
اندرج نمبر (2)	6291
مصنف (3)	لیم، بیرالڈ
عنوان (4)	عصر خیام

## ii. Simple Data (with RTL button Pressed)

### Data Entry (with RTL button Pressed)

Analyze the delimiters' position when data was entered in “^c”. Delimiters got disturbed by their position.

Data Entry (DEF\_HOME//URDU (RTL)) x Dictionary (DEF\_HOME//URDU (RTL)) x

Worksheet: Default worksheet MFN: 2

Reload Create a copy Clear Copy Paste Show/Hide Empty Fields

RTL VAL

c821.214.22-311.8 (RTL Pressed)^d^e^a^

طلب نمبر (1)

5616

اندرج نمبر (2)

صديقي، رشوان

مصنف (3)

### Terms in Dictionary (with RTL button Pressed)

Indexing is quite accurate although data entry GUI is disturbed

Index Content			
iTerm	Field	Term	Freq
0	اندراج_نمبر	5616	1
1	اندراج_نمبر	6291	1
2	مطلب_نمبر	821.214.22-311.6	1
3	مطلب_نمبر	821.214.22-311.8 (RTL PRESSED)	1
4	عنوان	اندھیرے	1
5	عنوان	خیام	1

### Searching in Terms Dictionary (with RTL button Pressed)

Term is accurately indexed / searched but drop down selection & Display is minor disturbed. According to RTL drop down suggestion is true.

Data Viewer (DEF\_HOME//URDU (RTL)) x Search Window (DEF\_HOME//URDU (RTL)) x

☒ Match all of the following ☐ Match any of the following Dictionary Options

<All Searchable Fields> matching 821.214.22-311.8

(RTL PRESSED) 311.8-821.214.22 [1] مطلب\_نمبر

1 records Sort By MFN

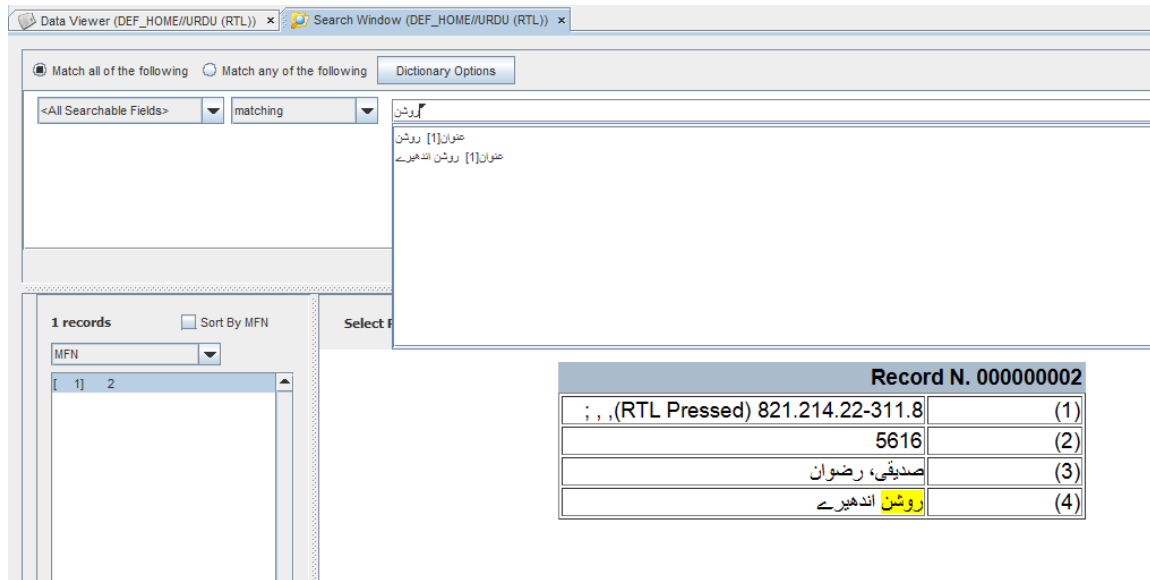
MFN [ 1] 2

Select

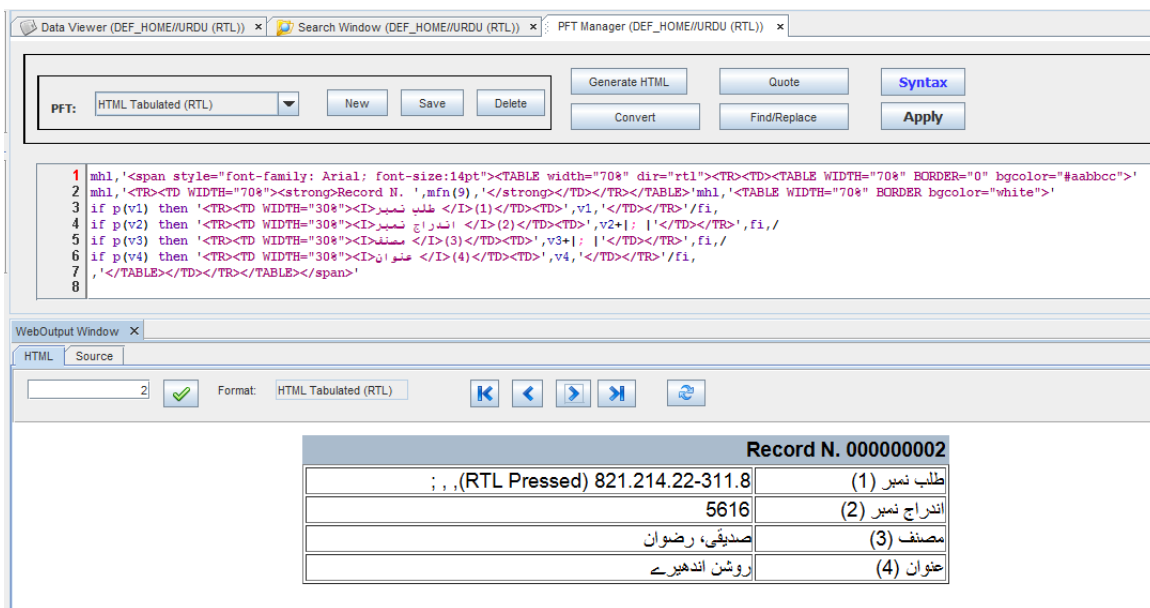
Record N. 000000002	
; , (RTL Pressed) 821.214.22-311.8	(1)
5616	(2)
صدیقی، رضوان	(3)
روشن اندھیرے	(4)

Term is accurately indexed / searched & drop down selection is absolutely correct





### PFT for Searched Term (With RTL Button Pressed)

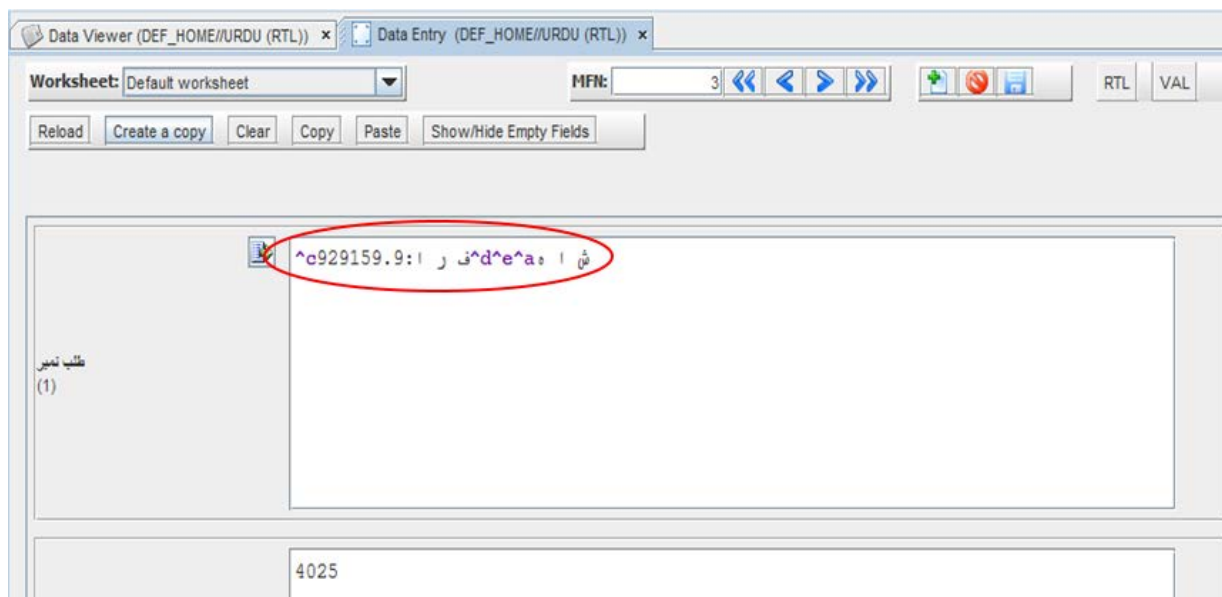


### iii. Complex Data (Without RTL Button Pressed)

Complex data entry is being performed using both single & multiple subfields for classification number with mix notation (combination of numerals & characters). This entry will be done without using RTL button.

### Data entry (using single subfield delimiter)

Data become disturbed when we use mixed notation classification with in one sub-field. Classification number “929 ف ر ا: 159.9” will be entered. Notice the sequence of the classification number from Left To Right (LTR) that is absolutely correct in MS Word.



### Term in Dictionary (using single subfield delimiter)

Term indexed is correct from search point of view starting from 929 but its sequence is RTL.

The screenshot shows the 'Dictionary' window for 'DEF\_HOME//URDU (RTL)'. The 'Index Content' table lists terms and their frequencies. The table has four columns: 'iTerm', 'Field', 'Term', and 'Freq'. The term '929 ف ر ا: 159.9' is highlighted with a red circle in the 'Term' column.

iTerm	Field	Term	Freq
0	اندرج...	4025	1
1	اندرج...	5616	1
2	اندرج...	6291	1
3	طلب_نمبر	821.214.22-311.6	1
4	طلب_نمبر	821.214.22-311.8 (RTL PRESSED)	1
5	طلب_نمبر	929 ف ر ا: 159.9	1
6	عنوان	اندرج...	1
7	عنوان	جدید	1

## Searching in Terms Dictionary (using single subfield delimiter)

Data Viewer (DEF\_HOME/URDU (RTL)) x Search Window (DEF\_HOME/URDU (RTL)) x

Match all of the following Match any of the following Dictionary Options

<All Searchable Fields> matching 929 ف ر ا ه  
طلب نمبر [1] 929 ف ر ا ه 159.9

1 records Sort By MFN

MFN

[ 1 ] 3

Select PFT: HTML Tabulated (RTL)

**Record N. 000000003**

طلب نمبر (1)	929 ف ر ا ه 159.9
(2)	4025
(3)	شاپدہ ارشد
(4)	سگمنڈ فرانیڈ : جدید نفسیات کا روح رواں

## PFT & Display (using single subfield delimiter)

Data Viewer (DEF\_HOME/URDU (RTL)) x PFT Manager (DEF\_HOME/URDU (RTL)) x

PFT: HTML Tabulated (RTL) New Save Delete

Generate HTML Quote Syntax

Convert Find/Replace Apply

```

1 $hl,'<span style="font-family: Arial; font-size:14pt"><TABLE width="70%" dir="rtl"><TR><TD><TABLE WIDTH="70%" BORDER="0" bgcolor="#aabbcc">
2 $hl,'<TR><TD WIDTH="70%"><strong>Record N. ',mf(9),'</strong></TD></TR></TABLE>'<TABLE WIDTH="70%" BORDER="0" bgcolor="white">
3 if p(v1) then '<TR><TD WIDTH="30%"><I>طلب نمبر</I></TD><TD>',v1,'</TD></TR>'</TD></TR>'/f1,
4 if p(v2) then '<TR><TD WIDTH="30%"><I>اندرج نمبر</I></TD><TD>',v2+1:'</TD></TR>'</TD></TR>'/f1,
5 if p(v3) then '<TR><TD WIDTH="30%"><I>مصنف</I></TD><TD>',v3+1:'</TD></TR>'</TD></TR>'/f1,
6 if p(v4) then '<TR><TD WIDTH="30%"><I>عنوان</I></TD><TD>',v4,'</TD></TR>'</TD></TR>'/f1,
7 '</TABLE></TD></TR></TABLE></span>'
8

```

WebOutput Window x

HTML Source

Format: HTML Tabulated (RTL)

**Record N. 000000003**

طلب نمبر (1)	929 ف ر ا ه 159.9
(2)	4025
(3)	شاپدہ ارشد
(4)	سگمنڈ فرانیڈ : جدید نفسیات کا روح رواں

#### iv. Complex -- Controlled Data Entry & Display (Without RTL Button Pressed)

In this step, Mixed Notation Data as discussed earlier which is normally used in Classification Numbers will be automated using multiple subfields. Use of subfields enables the data entry as well as J-ISIS managing individuals to control the inserted data to their local library requirements.

#### Data entry (using multiple subfield delimiters)

Here the data is being inserted using multiple subfield delimiters

The screenshot shows the 'Data Entry' window for a library system. The 'Worksheet' is 'Default worksheet'. The 'MFN' field is empty. The 'RTL' button is visible. The 'VAL' button is also visible. The 'Data Entry' field contains the text: 'ج ی م ا (517) ن 929'. This text is circled in red. Below the 'Data Entry' field, there are two other fields: 'طلب نمبر (1)' and 'تاریخ نمبر (2)'. The 'طلب نمبر (1)' field contains the value '6022'. The 'تاریخ نمبر (2)' field is empty. The 'Data Entry' field is labeled 'ج ی م ا (517) ن 929'.

#### Terms in Dictionary (using multiple subfield delimiters)

Term's indexing is absolutely correct from Right To Left (RTL)

The screenshot shows the 'Dictionary' window. The 'Index Content' table is displayed. The table has four columns: 'Term', 'Field', 'Term', and 'Freq'. The table contains 11 rows of data. The 7th row is circled in red, showing the term 'ج ی م ا (517) ن 929' in the 'Term' column and '1' in the 'Freq' column. The 6th row shows the term '929: 159.9' in the 'Term' column and '1' in the 'Freq' column. The 5th row shows the term '821.214.22-311.8 (RTL PRESSED)' in the 'Term' column and '1' in the 'Freq' column. The 4th row shows the term '821.214.22-311.6' in the 'Term' column and '1' in the 'Freq' column. The 3rd row shows the term '6291' in the 'Term' column and '1' in the 'Freq' column. The 2nd row shows the term '6022' in the 'Term' column and '1' in the 'Freq' column. The 1st row shows the term '5616' in the 'Term' column and '1' in the 'Freq' column. The 0th row shows the term '4025' in the 'Term' column and '1' in the 'Freq' column.

Term	Field	Term	Freq
ج ی م ا (517) ن 929			1
929: 159.9			1
821.214.22-311.8 (RTL PRESSED)			1
821.214.22-311.6			1
6291			1
6022			1
5616			1
4025			1

Search Window (DEF\_HOME/URDU (RTL)) x

Dictionary Options

چ ن گ 929

چ [1] نمبر 929

Select

Record N. 000000004

(517) چ ن گ 929; ل ی م	(1)
6022	(2)
لیم، بیرلڈ	(3)
تاتاریوں کی بلغار	(4)

PFT is modified to display the data to meet local library requirements. Display of Tag#1, first line is from LTR & second line is from RTL.

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## Print Sort Examples

### i. Sorting by Accession Numbers

1892	انجم، خلیق	مولانا ابوالکلام آزاد: شخصیت اور کارنامے	32: اب و 92	خ ل ی - م
4025	شایدہ ارشد	سگمنڈ فرانیٹ: جدید نفسیات کا روح رواں	929159.9: ا ف ر	ش ا ہ
5385	احمد عقیل روبی	علی یور کا مفتی	891.433: م ف ت	ع ق ی - ع
5616	صدیقی، رضوان	روشن اندھیرے	821.214.22-311.8 (RTL Pressed)	
6022	لیم، بیرلٹ	نٹاریوں کی بلغار	(517) چ ن گ 929	ل ی م
6217	غزالہ اطہر	لا تفرقو	297(091)	غ ز ا - ل
6291	لیم، بیرلٹ	عمر خیام	821.214.22-311.6	ل ی م - ع
684	انورالسادات	انورالسادات کی آپ بیتی	(62) م ا د 929	م ا د - ا
688	قاسمی نوراللہ	جنگیز خان	(512) چ ن گ 929	ق ا ض - چ

Don't Confuse with the last two accession numbers. It is because that the field type for accession numbers is 'Alphanumeric' and it is being handled as alphabet, when we add leading alphabet followed by Zeros as "B00.." it will be sorted accurately.

### ii. Sorting by Author

5385	احمد عقیل روبی	علی یور کا مفتی	891.433: م ف ت	ع ق ی - ع
1892	انجم، خلیق	مولانا ابوالکلام آزاد: شخصیت اور کارنامے	32: اب و 92	خ ل ی - م
684	انورالسادات	انورالسادات کی آپ بیتی	(62) م ا د 929	م ا د - ا
4025	شایدہ ارشد	سگمنڈ فرانیٹ: جدید نفسیات کا روح رواں	929159.9: ا ف ر	ش ا ہ
5616	صدیقی، رضوان	روشن اندھیرے	821.214.22-311.8 (RTL Pressed)	
6217	غزالہ اطہر	لا تفرقو	297(091)	غ ز ا - ل
688	قاسمی نوراللہ	جنگیز خان	(512) چ ن گ 929	ق ا ض - چ
6291	لیم، بیرلٹ	عمر خیام	821.214.22-311.6	ل ی م - ع
6022	لیم، بیرلٹ	نٹاریوں کی بلغار	(517) چ ن گ 929	ل ی م

### iii. Sorting by Title



ID	Author	Title	Classification Number	Publisher
684	انور السادات	انور السادات کی آپ بیتی	929 د س (62)	س ا د - ا
6022	ایم، پیرلڈ	تاکاریوں کی بلغار	929 ج ن گ (517)	ل ی م
5616	صدیقی، رمضان	روشن اندھیرے	821.214.22-311.8 (RTL Pressed)	
4025	شاہدہ ارشد	سگمٹڈ فرائیڈ : جدید نفسیات کا روح رواں	929 ف ر ا: 159.9	ف ر ا
5385	احمد عقیل روی	علی پور کا مکتی	891.433 م ف ت: 92	ع ق ی - ع
6291	ایم، پیرلڈ	عمر خیام	821.214.22-311.6	ل ی م - ع
6217	غزالہ امیر	لا تفرق	297(091)	غ ز ا - ل
1892	انجم، خلیق	مولانا ابوالکلام آزاد: شخصیت اور کارنامے	32 ا ب و: 92	خ ل ی - م
688	قاسمی نوراللہ	چنگیز خان	929 ج ن گ (512)	ق ا ص - ج

### PFT Used for Print Sort Output

```
'<!doctype html>'
'<html>'
'<head>'
'<meta charset="utf-8">'
'<Title> Print Sort List </Title>'
'</head>'

'<body>'
'<table width="1140" border="1" bordercolor="Grey" align="center" cellspacing="0" cellpadding="4">'
'<tr>'
/** Author Mark */
'<td width="111"><div align="right" dir="RTL">'
if p(v1^a) then v1^a, fi
'</div></td>'

/** Classification Number */
'<td width="215"><div align="right">'
'<table>'
if p(v1) then

'<tr>'
    if p(v1^c) then
'<td>'
        v1^c
'</td>'
    fi
if p(v1^d) then
'<td>'
    v1^d
```

```

        '</td>'
    fi
    if p(v1^e) then
        '<td>'
        v1^e
        '</td>'
    fi
    '</tr>'
fi
'</table>'
'</div></td>'

/** Title */
'<td width="473"><div align="right">'
if p(v4) then v4, fi
'</div></td>'

/** Author */
'<td width="199"><div align="right">'
if p(v3) then v3+|; |, fi
'</div></td>'

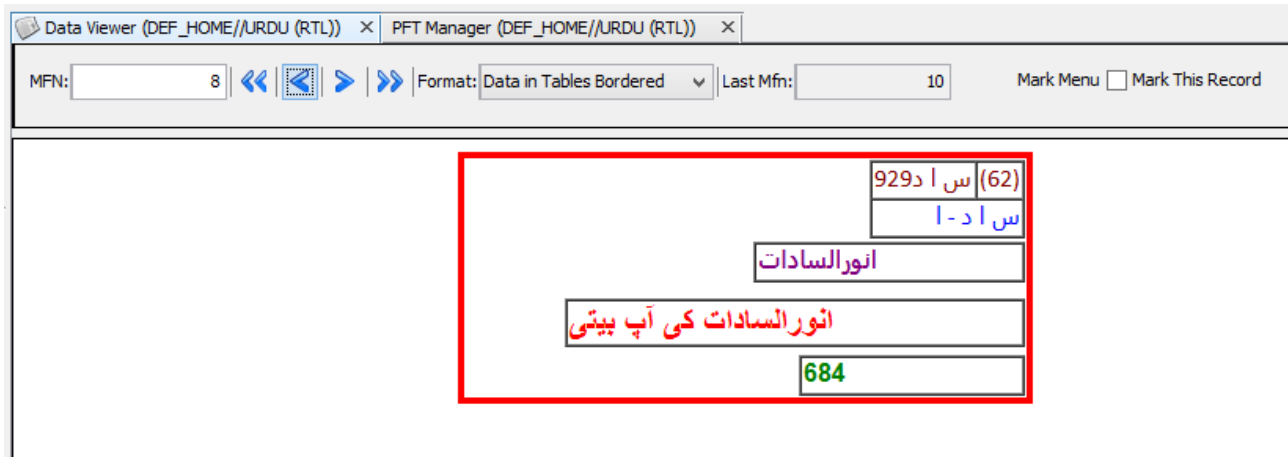
/** Accession Number */
'<td width="108"><div align="right">'
if p(v2) then v2+|; |, fi
'</div></td>'
'</tr>'
'</table>'
'</body>'
'</html>'

```



## More PFTs for Customized Output

### i. Tabulated Colorful Output with Borders



```
'<!doctype html>'
'<html>'
'<head>'
'<meta charset="utf-8">'
'<title>Data in Tables Bordered</title>'
'</head>'
'<body>'
'<span style="font-family:calibri">'
'<table width="40%" border="3" bordercolor="red" valign="top" align="center" cellpadding="0" cellspacing="1">'
'<tr>'
'<td>'
'<!-- *** Classification Portion Starts *** -->'
if p(v1) then

/** Here for Numbers we Will not use RTL -->*/

'<table border="1" valign="top" align="right" cellpadding="0" cellspacing="1">'
'<tr>'
'<td>'
if p(v1^c) then
'<td>'
'<span style="color:Maroon">'v1^c'</span>'
'</td>'
fi
if p(v1^d) then
'<td>'
'<span style="color:Maroon">'v1^d'</span>'
'</td>'

```

```

fi
if p(v1^e) then
    '<td>'
    '<span style="color:Maroon">'v1^e'</span>'
    '</td>'
fi
    '</tr>'
fi
if p(v1^a) then
    '<tr>'

/** Here for Alphabets we Will use RTL -->*/

    '<td colspan=3 dir="RTL">'
    '<span style="color:blue">'v1^a'</span>'
    '</td>'
    '</tr>'
'</table>'
fi
'<!-- *** Classification Portion ends *** -->/'
'<p>&nbsp;</p>'
'<!-- *** Author Portion Starts *** -->/'
if p(v3) then
'<table border="1" dir="RTL" valign="top" align="right" cellspacing="0" cellpadding="1">'
    '<tr>'
        '<td><span style="font-family:calibri; color:purple; font-size:12pt; font-
weight:bold">'x25,v3+|; |'</span></td>'
    '</tr>'
'</table>'
fi
'<!-- *** Author Portion ends *** -->/'
'<p>&nbsp;</p>'
'<!-- *** Title Portion Starts *** -->/'
if p(v4) then
'<table border="1" dir="RTL" valign="top" align="right" cellspacing="0" cellpadding="1">'
    '<tr>'
        '<td><span style="font-family:arial; color:#FF0000; font-size:16pt; font-
weight:bold">'x20,v4'</span></td>'
    '</tr>'
'</table>'
fi
'<!-- *** Title Portion ends *** -->/'
'<p>&nbsp;</p>'
'<!-- *** Accession Number Portion Starts *** -->/'
if p(v2) then
'<table border="1" dir="RTL" valign="top" align="right" cellspacing="0" cellpadding="1">'
    '<tr>'

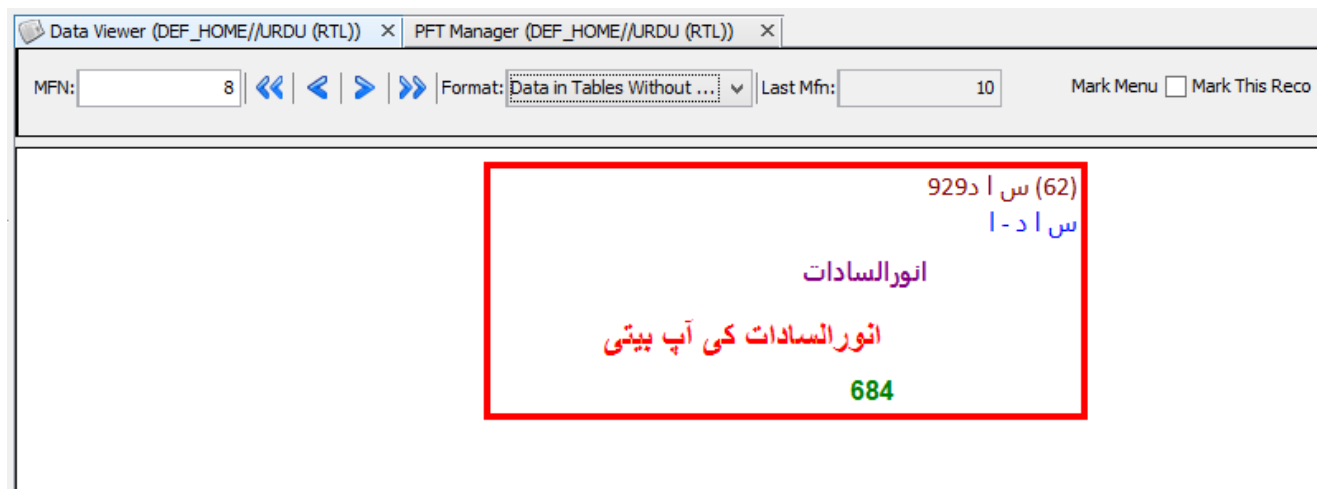
```

```

'<td><span style="font-family:arial; color:Green; font-size:12pt; font-
weight:bold">'x25,v2+|; |'</td>'
'</tr>'
'</table>'
fi
'<!-- *** Accession Number Portion ends *** -->'/
'</td>'
'</tr>'
'</table>'
'</span>'
'</body>'
'</html>'

```

## ii. Tabulated Colorful Output without Borders



```

'<!doctype html>'
'<html>'
'<head>'
'<meta charset="utf-8">'
'<title>Tables Without Border</title>'
'</head>'
'<body>'
'<span style="font-family:calibri">'
'<table width="40%" border="3" bordercolor="red" valign="top" align="center" cellspacing="0"
cellpadding="1">'
'<tr>'
'<td>'
'<!-- *** Classification Portion Starts *** -->'/
if p(v1) then

/** Here for Numbers we Will not use RTL -->*/

```

```

'<table border="0" valign="top" align="right" cellspacing="0" cellpadding="1">'
    '<tr>'
        if p(v1^c) then
            '<td>'
                '<span style="color:Maroon">'v1^c'</span>'
            '</td>'
        fi
        if p(v1^d) then
            '<td>'
                '<span style="color:Maroon">'v1^d'</span>'
            '</td>'
        fi
        if p(v1^e) then
            '<td>'
                '<span style="color:Maroon">'v1^e'</span>'
            '</td>'
        fi
    '</tr>'
fi
if p(v1^a) then
    '<tr>'

        /** Here for Alphabets we Will use RTL -->*/

        '<td colspan=3 dir="RTL">'
            '<span style="color:blue">'v1^a'</span>'
        '</td>'
    '</tr>'
'</table>'
fi
'<!-- *** Classification Portion ends *** -->/'
'<p>&nbsp;  </p>'
'<!-- *** Author Portion Starts *** -->/'
if p(v3) then
'<table border="0" dir="RTL" valign="top" align="right" cellspacing="0" cellpadding="1">'
    '<tr>'
        '<td><span style="font-family:calibri; color:purple; font-size:12pt; font-
weight:bold">'x25,v3+|; |'</span></td>'
    '</tr>'
'</table>'
fi
'<!-- *** Author Portion ends *** -->/'
'<p>&nbsp;  </p>'
'<!-- *** Title Portion Starts *** -->/'
if p(v4) then
'<table border="0" dir="RTL" valign="top" align="right" cellspacing="0" cellpadding="1">'
    '<tr>'

```

```

'<td><span style="font-family:arial; color:#FF0000; font-size:16pt; font-
weight:bold">'x20,v4'</span></td>'
'</tr>'
'</table>'
fi
'<!-- *** Title Portion ends *** -->'/
'<p>&nbsp;</p>'
'<!-- *** Accession Number Portion Starts *** -->'/
if p(v2) then
'<table border="0" dir="RTL" valign="top" align="right" cellspacing="0" cellpadding="1">'
'<tr>'
'<td><span style="font-family:arial; color:Green; font-size:12pt; font-
weight:bold">'x25,v2+|; |'</td>'
'</tr>'
'</table>'
fi
'<!-- *** Accession Number Portion ends *** -->'/
'</td>'
'</tr>'
'</table>'
'</span>'
'</body>'
'</html>'

```

### iii. Tabulated Output with Headings

MFN: 8	Format: Grid	Last MFN: 10	Mark Menu	Mark This Record
اندرج نمبر	مصنف	عنوان	درجہ بندی نمبر	حوالہ مصنف
684	انور السادات	انور السادات کی آپ بیتی	(62) س ۱ د 929	س ۱ د ۱

```

'<!doctype html>'
'<html>'
'<head>'
'<meta charset="utf-8">'
'<Title> Grid </Title>'
'</head>'

'<body>'
'<table width="1140" border="1" bordercolor="Grey" align="center" cellspacing="0" cellpadding="4">'
'<tr>'
'<th width="111"><div align="right"><span style="color:Maroon; font-family:calibri; font-
weight:bold">حوالہ مصنف</span></div></th>'
'<th width="215"><div align="right"><span style="color:Maroon; font-family:calibri; font-
weight:bold">درجہ بندی نمبر</span></div></th>'

```

```

'<th width="473"><div align="right"><span style="color:Maroon; font-family:calibri; font-
weight:bold">عنوان</span></div></th>'
'<th width="199"><div align="right"><span style="color:Maroon; font-family:calibri; font-
weight:bold">مصنف</span></div></th>'
'<th width="108"><div align="right"><span style="color:Maroon; font-family:calibri; font-
weight:bold">اندر آج نمبر</span></div></th>'
'</tr>'
'<tr>'
/** Author Mark */
'<td width="111"><div align="right" dir="RTL">'
if p(v1^a) then v1^a, fi
'</div></td>'

/** Classification Number */
'<td width="215"><div align="right">'
'<table>'
if p(v1) then

'<tr>'
    if p(v1^c) then
'<td>'
        v1^c
'</td>'
    fi
    if p(v1^d) then
'<td>'
        v1^d
'</td>'
    fi
    if p(v1^e) then
'<td>'
        v1^e
'</td>'
    fi
'</tr>'
fi
'</table>'
'</div></td>'

/** Title */
'<td width="473"><div align="right">'
if p(v4) then v4, fi
'</div></td>'

/** Author */
'<td width="199"><div align="right">'
if p(v3) then v3+|; |,fi
'</div></td>'

```

```

/** Accession Number */
'<td width="108"><div align="right">'
if p(v2) then v2+|; |, fi
'</div></td>'
'</tr>'
'</table>'
'</body>'
'</html>'

```

#### iv. Tabulated Output for Generating Lists

Data Viewer (DEF_HOME/JURDU (RTL))		PFT Manager (DEF_HOME/JURDU (RTL))	
MFN:	8	Format: List	Last Mfn: 10
Mark Menu		Mark This Record	
من ۱ - ۱	929 من ۱ (62)	انور السادات کی آپ بیٹی	انور السادات
		684	

```

'<!doctype html>'
'<html>'
'<head>'
'<meta charset="utf-8">'
'<Title> Print Sort List </Title>'
'</head>'

'<body>'
'<table width="1140" border="1" bordercolor="Grey" align="center" cellspacing="0" cellpadding="4">'
'<tr>'
/** Author Mark */
'<td width="111"><div align="right" dir="RTL">'
if p(v1^a) then v1^a, fi
'</div></td>'

/** Classification Number */
'<td width="215"><div align="right">'
'<table>'
if p(v1) then

'<tr>'
    if p(v1^c) then
'<td>'
        v1^c
'</td>'
    fi
if p(v1^d) then
'<td>'
    v1^d

```

```

        '</td>'
fi
if p(v1^e) then
        '<td>'
        v1^e
        '</td>'
fi
        '</tr>'
fi
'</table>'
'</div></td>'

/** Title */
'<td width="473"><div align="right">'
if p(v4) then v4, fi
'</div></td>'

/** Author */
'<td width="199"><div align="right">'
if p(v3) then v3+|; |, fi
'</div></td>'

/** Accession Number */
'<td width="108"><div align="right">'
if p(v2) then v2+|; |, fi
'</div></td>'
'</tr>'
'</table>'
'</body>'
'</html>'

```

## v. Generating Stock List

Stock List covers status of all Accession Numbers automated in the DB. Multiple occurrences of Accession # are breakup to become on the separate line or in the Row & Title is replicated with every occurrence of Accession.



مولانا ابوالکلام آزاد: شخصیت اور کارنامے	1892
سگمنڈ فرائیڈ: جدید نفسیات کا روح رواں	4025
علی یور کا مفتی	5385
روشن اندھیرے	5616
تاتاریوں کی یلغار	6022
لا تفرقو	6217
عمر خیام	6291
انور السادات کی آپ بیتی	684
جنگیز خان	688
طب اسلامی کا انسائیکلوپیڈیا	B000001
طب اسلامی کا انسائیکلوپیڈیا	B000002
طب اسلامی کا انسائیکلوپیڈیا	B000003
طب اسلامی کا انسائیکلوپیڈیا	B000004
طب اسلامی کا انسائیکلوپیڈیا	B000005

```

'<!doctype html>'
'<html>'
'<head>'
'<meta charset="utf-8">'
'<Title> Stock List </Title>'
'</head>'
'<body>'
  '<table dir="RTL" align="center" border="1" cellspacing="0" cellpadding="3">'
  '<tbody>'
    'if p(v2) then,'
    '<!-- Loop is being used to break more than one occurrences of Accession # field-->/'
    'e1:=1, e2:=nocc(v2), while e1<=e2'
    '('
    '<tr>'
    '<td width="108"><span style="font-family:calibri">'
    'if p(v2[e1]) then, v2[e1],</span></td><td width="473"><span style="font-'
    'family:calibri">',v4, fi,<br />'
    '<!-- Loop is being incremented to jump over to next Accession#-->/'
    'e1:=e1+1,'
    '</span></td>'
    '</tr>'
    ')'
  
```

```
        fi,  
'</tbody>'  
'</table>'  
'</body>'  
'</html>'
```

## References:-

### Information about the Urdu

1. <http://www.britannica.com/EBchecked/topic/619612/Urdu-language>
2. <http://en.wikipedia.org/wiki/Urdu>
3. <http://www.bbc.co.uk/voices/multilingual/urdu.shtml>

### Information about the Urdu script

1. [http://en.wikipedia.org/wiki/Urdu\\_alphabet](http://en.wikipedia.org/wiki/Urdu_alphabet)
2. <http://www.bbc.co.uk/languages/other/urdu/guide/alphabet.shtml>
3. <http://www.omniglot.com/writing/urdu.htm>

### Information about Right-to-Left

1. <http://en.wikipedia.org/wiki/Right-to-left>

### Information about J-ISIS & Downloads

1. <https://kenai.com/projects/j-isis>
2. <https://kenai.com/projects/j-isis/downloads>