# How to connect to SAP R/3 and call BAPI from MS Excel VBA

## Summary

This paper describes how to extract data from R/3 and present the results in MS Excel. The paper demonstrates by means of a code sample how easy it is to use VBA as the underlying technology for logon and data extraction. The example allows one to define R/3 systems and to retrieve/present all user locks + types from one individual system.

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## Author Bio

Danny De Roovere is a senior SAP Netweaver consultant employed at SAP Belgium-Luxemburg. Danny started as a SAP basis consultant (in particular EDI-ALE), and immediately added a new dimension to his career when SAP released it's NetWeaver platform. Today, his main focus is SAP's business-driven software architecture (eSOA), including SAP Enterprise Portal, SAP Exchange Infrastructure and Duet.
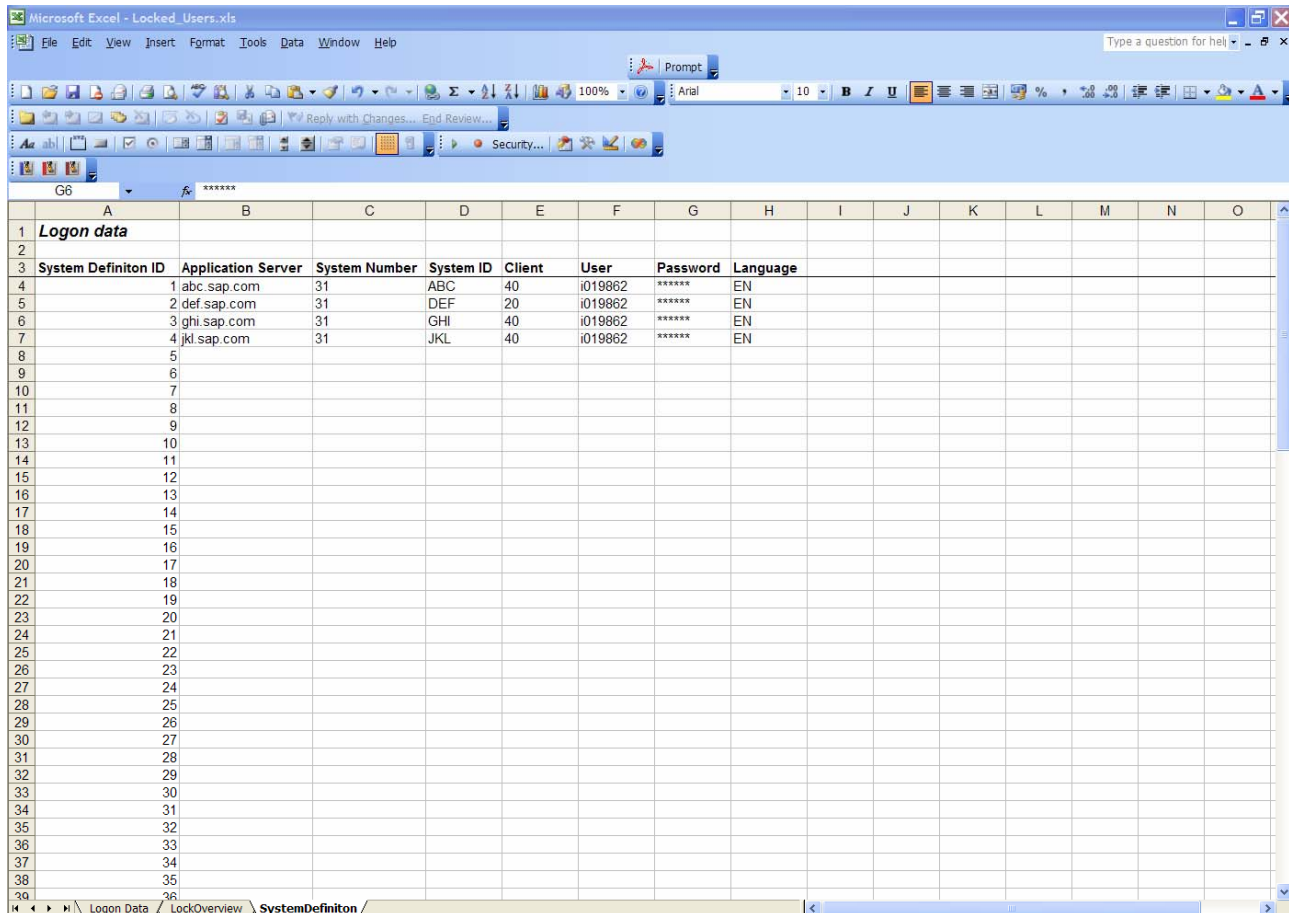
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## Excel sheet

The example is based on the usage of 3 sheets:

- Logon Data: allows one to select the system of interest and click on the submit button to retrieve the system's user locks

- Lock Overview: automatically launched after having clicked the submit button: It is the result of the BAPI calls

- System Definition: contains all system details. Data is copied to the 1$^{st}$ sheet. This sheet can be protected as it contains userids and passwords.

Obviously, you can create your own look-and-feel (change columns and rows) to identify your systems, but be aware that you'll need to modify the sample VBA code in that case. This example is a quick how-to guide that demonstrates the power of VBA. The goal was not to make the winning ultimate UI.

### System Definition and Logon

First of all, you need to declare the systems you want to retrieve data from. To do so, start MS Excel and create the following sheet:
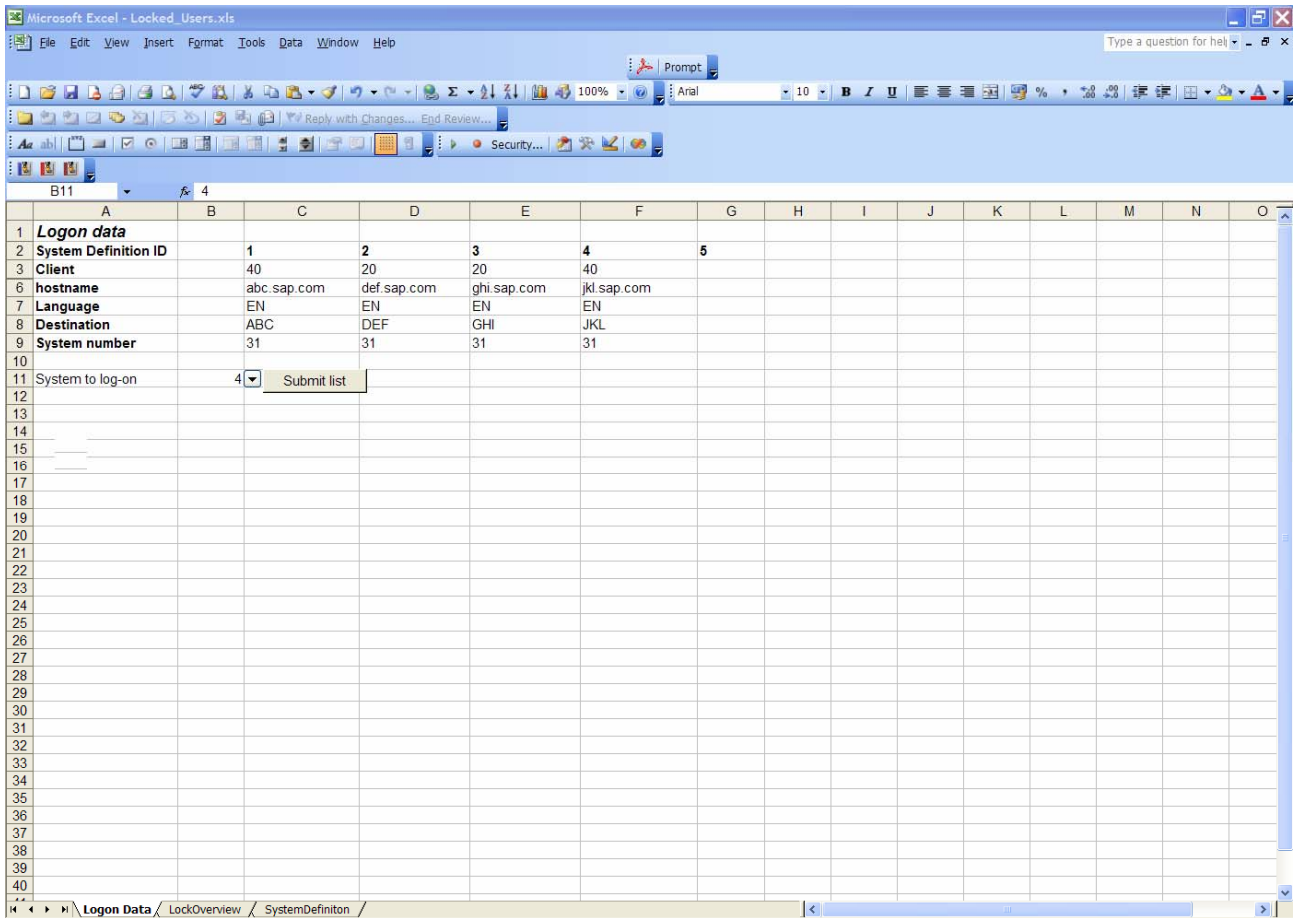


Note that I created a separate Tab for 'System Definition', because I don't want the CPIC user passwords to be visible in the 'Logon Data' Tab in the spreadsheet. In fact I've hidden the rows (4 and 5) that are referenced in the 'Logon Data' sheet (see below).

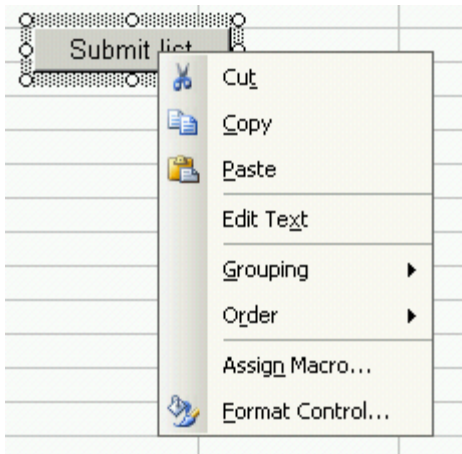## Lock Overview

After having defined your systems, you can call the VBA module by clicking on the button 'Submit List'. To put a button on your worksheet you 1st have to check that the 'Forms' toolbar is activated (View > Toolbars > Forms).



Simply drag-and-drop the button (4th icon from the left) on your worksheet.

To assign a Macro to the button, right-click on it and click on 'Assign Macro':

This button is associated with the macro 'Locked_Users.xls!GetUserList'.

| | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *Logon data* | | | | | | | | | |
| 2 | **System Definition ID** | | 1 | 2 | 3 | 4 | 5 | | | |
| 3 | **Client** | | 40 | 20 | 20 | 40 | | | | |
| 6 | **hostname** | | abc.sap.com | def.sap.com | ghi.sap.com | jkl.sap.com | | | | |
| 7 | **Language** | | EN | EN | EN | EN | | | | |
| 8 | **Destination** | | ABC | DEF | GHI | JKL | | | | |
| 9 | **System number** | | 31 | 31 | 31 | 31 | | | | |
| 10 | | | | | | | | | | |
| 11 | System to log-on | 4 | Submit list | | | | | | | |
| 12 | | | | | | | | | | |
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| 14 | | | | | | | | | | |
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**Assign Macro**

Macro name:
Locked_Users.xls!GetUserList

OK
Cancel
New
Record...

Macros in: All Open Workbooks
Description

## Macro

'GetUserList' is the macro used to retrieve the lock information from the system selected in the 'Logon Data' screen. To edit a macro, in the menu bar click on Tools > Macro > Visual Basic Editor).

### GetUserList



The macro executes 2 BAPI calls: one to retrieve the list of users defined for one system (BAPI_USER_GETLIST), and one to retrieve the details (BAPI_USET_GET_DETAIL) for each of the users.

Remark that parameters defined as import for the BAPI, are referenced as export parameters for the calling object.

Below the full code sample block:

```
    Private Sub GetUserList()


        '
```

```vba
'Declaration
'
Dim Destination_System As Integer
Dim objBAPIControl As Object 'Function Control (Collective object)
Dim sapConnection As Object 'Connection object
Set objBAPIControl = CreateObject("SAP.Functions")
Set sapConnection = objBAPIControl.Connection


'
'Logon with initial values
'ActiveSheet is the sheet calling the Macro / Cells(x, y) refers to the
row, column in the spreadsheet
'
Destination_System = ActiveSheet.Cells(11, 2).Value + 2 'Add 2 to retrieve
the column that contains the definiton
sapConnection.client = ActiveSheet.Cells(3, Destination_System).Value
sapConnection.user = ActiveSheet.Cells(4, Destination_System).Value
sapConnection.Language = ActiveSheet.Cells(7, Destination_System).Value
sapConnection.hostname = ActiveSheet.Cells(6, Destination_System).Value
sapConnection.Password = ActiveSheet.Cells(5, Destination_System).Value
sapConnection.SystemNumber = ActiveSheet.Cells(9,
Destination_System).Value
sapConnection.System = ActiveSheet.Cells(8, Destination_System).Value
sapConnection.Destination = ActiveSheet.Cells(8, Destination_System).Value
If sapConnection.logon(1, True) <> True Then
MsgBox "No connection to R/3!"
Exit Sub 'End program
End If


Set objUserList = objBAPIControl.Add("BAPI_USER_GETLIST")
Set objUserDetail = objBAPIControl.Add("BAPI_USER_GET_DETAIL")


'Prepare output to the EXCEL worksheet
'
Worksheets(2).Select
Cells.Clear
Range("A1").Font.Italic = True
Range("A2:E2").Font.Bold = True
ActiveSheet.Cells(2, 1) = "User Name"
ActiveSheet.Cells(2, 2) = "Wrong Logon"
ActiveSheet.Cells(2, 3) = "Local Lock"
ActiveSheet.Cells(2, 4) = "Global Lock"
ActiveSheet.Cells(2, 5) = "No UserPwd"
```

    

```vba
'Define the import parameters for BAPI_USER_GETLIST
'
objUserList.exports("MAX_ROWS") = "99999"
objUserList.exports("WITH_USERNAME") = ""

'call the 1st BAPI to retrieve the list of users: BAPI_USER_GETLIST
'
returnFunc = objUserList.Call

If returnFunc = True Then
    Dim objTable As Object
    Set objTable = objUserList.Tables("USERLIST")
    ActiveSheet.Cells(1, 1) = "User count :" & objTable.RowCount
    For i = 1 To objTable.RowCount
        'Alternate row colors
        '
        If i Mod 2 = 0 Then
            For j = 1 To 5
                ActiveSheet.Cells(2 + i, j).Interior.Color = RGB(165, 162,
165)
            Next j
        Else
            For j = 1 To 5
                ActiveSheet.Cells(2 + i, j).Interior.Color = RGB(214, 211,
206)
            Next j
        End If
        ActiveSheet.Cells(2 + i, 1) = objTable.Cell(i, 1)
        'Define the import parameters for BAPI_USER_GET_DETAIL
        '
        objUserDetail.exports("USERNAME") = objTable.Cell(i, 1)
        'Cal the 2nd BAPI to retrieve the details for each user
        '
        returnFunc = objUserDetail.Call
        If returnFunc = True Then
           Dim isLocked As Object
             Set isLocked = objUserDetail.imports("ISLOCKED")
             If isLocked.Value("WRNG_LOGON") = "L" Then
                 ActiveSheet.Cells(2 + i, 2).Font.Color = RGB(255, 0, 0)
                 ActiveSheet.Cells(2 + i, 2) = "X"
             End If
             If isLocked.Value("LOCAL_LOCK") = "L" Then
                 ActiveSheet.Cells(2 + i, 3).Font.Color = RGB(255, 0, 0)
                 ActiveSheet.Cells(2 + i, 3) = "X"
             End If
```

```vba
                    If isLocked.Value("GLOB_LOCK") = "L" Then
                         ActiveSheet.Cells(2 + i, 4).Font.Color = RGB(255, 0, 0)
                         ActiveSheet.Cells(2 + i, 4) = "X"
                    End If
                    If isLocked.Value("NO_USER_PW") = "L" Then
                         ActiveSheet.Cells(2 + i, 5).Font.Color = RGB(255, 0, 0)
                         ActiveSheet.Cells(2 + i, 5) = "X"
                    End If
               Else
                    MsgBox "Error when accessing BAPI_USER_GET_DETAIL in R/3 ! "
                    Exit Sub
               End If
          Next i
     Else
          MsgBox "Error when accessing BAPI_USER_GETLIST in R/3 ! "
          Exit Sub
     End If
     'Close connection to R/3 !
     '
     objBAPIControl.Connection.logoff
     '
     'Release the objects to free storage space
     '
     Set sapConnection = Nothing
     Set functionCtrl = Nothing
     MsgBox "Program terminated!", 0, "Exit"
     End Sub
```

## Related Content

- SAP and VBA:
  http://abap.mirrorz.com/

- Thread: Sample code needed to call BAPI from VB
  https://www.sdn.sap.com/irj/sdn/thread?threadID=73856

- Read any SAP table with Microsoft Excel
  https://www.sdn.sap.com/irj/sdn/go/portal/prtroot/docs/library/uuid/c043d836-166c-2910-b99e-ae3633dec547

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