### **Barrel Module Database Utilities**

Dave Robinson SCT Week March 2003

- Database Rules and Conventions
- Item Registration
- Shipments
- Data Uploads
  - Assembly Info
  - Datasheets
  - Profiles
  - SCTDAQ data
- Data Retrieval and Display

### Database Rules and Conventions

- Modules, ASIC-Hybrids and passive-Hybrids each have unique database serial numbers, but the user always refers to them by their shared visible barcode.
- Similarly the sensor-baseboards and baseboards each have unique serial numbers, but the user refers to them by their shared visible barcode.
- This is a great advantage to the ATLAS user, because data saved locally for any component is associated with the visible barcode without the need to lookup the 'true' serial number.
- On the other hand, this causes considerable overhead for otherwise simple transactions with the SCT database, eg:

- to register a module, one must also register the passive-hybrid and ASIC-hybrid because they share the same visible barcode.

- to ship a hybrid, one must also ship the other non-assembled components that share the same visible barcode

- to upload data, one must substitute the visible barcode number by the correct serial number, if appropriate.

- etc ...

For this reason some Standalone programs (written in java, suitable for Windows, Linux and MacOSX) have been developed for use by the barrel community to provide an interface to the database, and which take care of all the overhead necessary to ensure consistency of data.

http://www.hep.phy.cam.ac.uk/~silicon/jBarrels.html

- Tools specific to the Barrel Community
- Standalone program on your PC

- Item registration, shipments, assemblies, datasheets and profiles

- Extracts data from the excel sheets as defined in Nobu's document

http://www.hep.phy.cam.ac.uk/~silicon/jSCTDAQ.html

- Upload of SCTDAQ data
- Standalone program invoked from Rint session window
- Exracts data from SCTDAQ result files

http://www.hep.phy.cam.ac.uk/~silicon/jSCTDB.html

- Standalone program for windows/Linux/Mac
- Extracts and displays data from SCT database

# **Barrel Utilities Application**

Main features:

• Easy to use Graphical User Interface

• Tabs for Registration, Shipments, Assemblies and Datasheets (Profiles soon...)

• Users only need to know the visible barcode serial number that is associated with their item or their data. All overhead associated with serial number substitutions and special actions are taken care of.

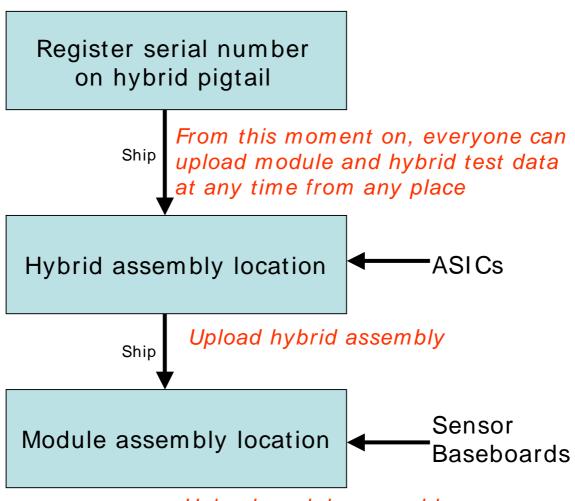
 Interacts with the database to perform extensive verification prior to any uploads (tries to prevent you "making a mistake")

 Flexibility – can upload just one item of data, or upload your entire backlog of data files in one go

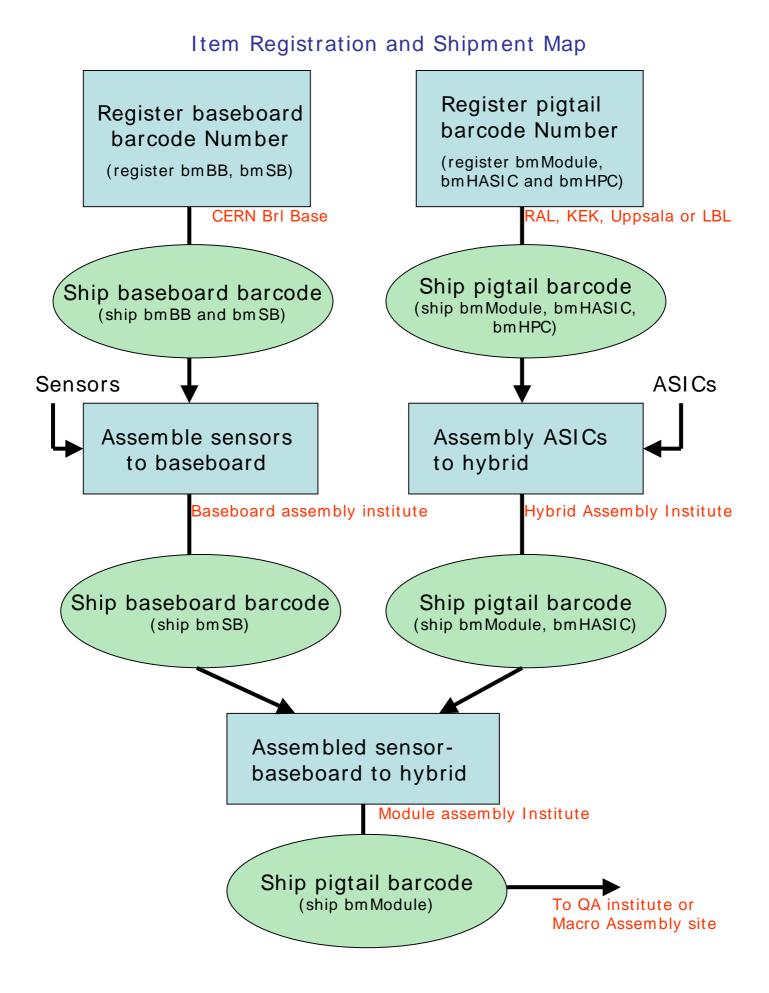
YOU MUST USE THIS APPLICATION TO UPLOAD DATA TO THE DATABASE. THE GENEVA JAVA UTILITIES AND WEB INTERFACE DO NOT PERFORM SERIAL NUMBER SUBSTITUTIONS OR SPECIFIC ACTIONS TO ENSURE VALID AND CONSISTANT BARREL DATA

### Item Registration, Shipments and Data Uploads

Once an item is registered in the database, any institute can upload test data for that item, regardless of where the item is currently located
To assemble a device from various components, the device and all the components must be located at the same institute at the time of assembly.



Upload module assembly



# Introduction to the Barrel Utilities Application

- Follow the installation instructions from the website
- Invoke by typing 'java Barrels/DBInterface'
- Enter the password



• Set 'Preferences'

🛞 Version 0.2	🎇 Set Default Configuration
Preferences	Your institute: RAL
Barrel Database Utilities	Cluster: UK 💌
tem Registration Shipments Assemblies Data Uploads	Spreadsheet Directory: Z:\datadir
Register new Items in the Database	Upload Directory: Z: uploads
C Baseboards C Hybrids/Modules	Save
Cluster: UK	Spreadsheet Dir: location of your data files
	Upload Dir: A directory used for temporary (upload) file creation and upload.

## **Registering New Items**

- Select 'Item Registration' tab
- Select 'Baseboards' or 'Hybrids/Modules'
- Click 'New...'

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- Select your initials
- Select registration date (default is today)
- Enter range of serial numbers and 'Add to List'

🌺 Register new Items	_ <b>_ _ _ _ _ _ _ _</b>
Register new Modu	les/Hybrids in the Database
Your Initials:	PWP 🔻
Cluster:	ик
Initial Location:	RAL
Registration Date:	14 🕶 JAN 👻 2003 🕶
Enter serial no range (last	5 digits only - omit the '202203302')
From: 1 To:	100 Add to List
	#Items in List: 0
Register Items	Remove Selected Item(s)
Register Items	

• Available (ie not yet registered) serial numbers are listed in a spreadsheet

 All components sharing the same visible barcode are also listed

🌺 Register new Items	
Register new Modu	ules/Hybrids in the Database
Your Initials:	PWP 🔻
Cluster:	UK
Initial Location:	RAL
Registration Date:	14 🔻 JAN 🔻 2003 🗨
Enter serial no range (last	t 5 digits only - omit the '202203302')
From: 1 To:	Add to List
	#items in list: 290
Serial No Typ	be Location Date
20220330200001 bmModu	lule RAL 14/01/2003 🔺
20220338200001 bmHAS	NC RAL 14/01/2003 🧱
20220337200001 bmHPC	C RAL 14/01/2003
20220338200002 bmHAS	SIC RAL 14/01/2003 💌
Register Items	Remove Selecter (Item(s)

In this example, for each bmModule the corresponding bmHASIC and bmHPC are listed too because they share the same visible barcode. There were 10 devices already registered in the database, so only 290 are listed.

- You can remove ranges of numbers by selecting them and then clicking 'Remove Selected Item(s)'
- To register all the items listed, click 'Register Items':

	Solution The Access Authorisation
Confirm Request	Enter details for institute RAL Institute username: ral Institute password: ##### Enter Cancel

### **Creating Shipments**

Example: Birmingham wish to ship assembled hybrids to RAL for module assembly.

- Select 'Shipments' tab
- Select the destination in the 'To:' menu
- Click on 'New...'

8	Version 0.4					
						Preferences
		Bar	rel Datab	ase Utilitie	S	
	Item Registration	Shipments	Assemblies	DataSheets		
		с	reate a Nev	N Shipment		
		F	rom: Birming	gham 💌		
			To: RAL	*		
			Nev			
			Qu	iit		

• Enter all the appropriate data

• Enter range of serial numbers that you want to ship (serial numbers correspond to the barcode numbers on the pigtail or baseboard)

• Click on 'Add to List'

🛃 New Shipment			_ 🗆 🗵
Register a N	lew Shipment from Birn	ningham to R/	AL.
Your In	itials: DGC 💌		
Your Refer	ence:abcdefgh		
Recipient's In	itials: PVVP 💌		
C	arrier:DHL		
Carrier's Refer	ence:12345		
Shipment	Date: 27 💌 FEB 💌 200	)3 🔻	
Enter Range of	Serial Numbers to Ship (full	14-digit numbers	s):
From: 20220330200001	To:2022033020000	5	Add to List
	#items in shi	pment: 8	
Serial Number	Туре	Assemt	led?
20220330200002	bmModule	NO	<b>A</b>
20220338200002	bmHASIC	NO	
20220330200005	bmModule	NO	
20220338200005	bmHASIC	NO	<b>_</b>
Register S	hipment Remove Se	lected Item(s)	]

Only components located at the sending institute are listed

• All components sharing the same visible barcode are also listed *if they are not assembled* 

(in this example, we requested to send hybrids 20220330200001 to 20220330200005. However hybrid 20220330200001 is not at Birmingham so 4 hybrids – bmHASICs - are listed, together with the bmModules that share the same visible barcode. Note the bmHPCs are assembled and therefore not included)

• When all components are listed, click on 'Register Shipment'

After you have uploaded the shipment, you must confirm it using the Geneva database web interface:

- Select 'Items' link
- Select 'Shipments' link
- Find your shipment in the list
- Select your shipment by clicking on the 'ShipDate'
- Enter the shipment date in the field 'Send Confirmation Date':  $\searrow$

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Shipment         SHIP DATE       SENDER NUMBER       DESTINATION LOCATION       Validate your shipment by updating the Send Confirmation Date.         20- FEB- 2003       99,0,002,011       Valencia       Munich MPI       St         20- FEB- 2003       99,0,002,009       Valencia       Freiburg       St         20- FEB- 2003       99,0,002,009       Valencia       Freiburg       St         20- FEB- 2003       99,0,002,008       Valencia       Melbourne       St         20- FEB- 2003       99,0,002,007       Valencia       Geneva       St         20- FEB- 2003       99,0,002,006       Valencia       Manchester       St         20- FEB- 2003       99,0,002,006       Valencia       Manchester       St         20- FEB- 2003       99,0,001,990       Freiburg       RAL       St         20- FEB- 2003       99,0,001,990       Freiburg       RAL       St         2003       99,0,001,990       Freiburg       RAL       St	<u> </u>			$\sim$		
SHIP DATE       SENDER NUMBER       DESTINATION LOCATION NAME       Validate your shipment by updating the Send Confirmation Date.         20- FEB- 2003       99,0,002,001       Valencia       Munich MPI       St         20- FEB- 2003       99,0,002,009       Valencia       Freiburg       St         20- FEB- 2003       99,0,002,009       Valencia       Freiburg       St         20- 20- 2003       99,0,002,009       Valencia       Melbourne       St         20- 2003       99,0,002,000       Valencia       Melbourne       St         20- 2003       99,0,002,007       Valencia       Geneva       St         2003       99,0,002,006       Valencia       Manchester       St         2003       99,0,002,006       Valencia       Manchester       St         2003       99,0,001,990       Freiburg       RAL       St         2003       99,0,001,990       Freiburg       St       Send Confirmation Date:         2003       99,0,001,990       Freiburg       RAL       St         2003       99,0,001,990       Freiburg       RAL       St         2003       99,0,001,990       Freiburg       St       St         2003       99,0,001,990       Fre		Thep://ineib.anige	s.ch.or+r/pacad/c	2_3mp#.scarcap		
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17-     99,0,001,990     Freiburg     RAL     St     INITIALS:       2003     2003     St     SENDER     BAL       17-     00.0.001.084     Mmin MDL     NULLIEF     C.     LOCATION						
2003 SENDER RAL		99,0,001,990	Freiburg	RAL	St	
	<u>2003</u>					
	17-	99,0,001,984	Munich MPI	NIKHEF	Se	LOCATION NAME:
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	5) 5)					Internet

# Data File Name Conventions

You define a 'Spreadsheet Directory' in your preferences. For assembly and datasheet uploads, the application will try to find excel datasheets in this directory

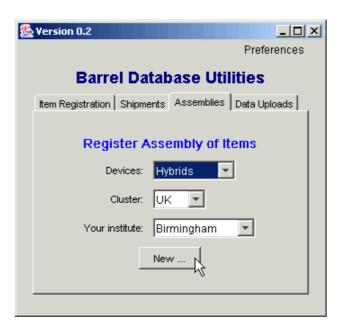
Datasheet	Recommended Filename	Alternative Filename
bmBBrawData	BASEBOARD_nnnnnnnnnnnnn.xls	Anything.xls
bmSBrawData	SENSOR_BASEBOARD_nnnnnnnnnnnnn.xls	Anything.xls
bmHPCrawData	HPC_HYBRID_nnnnnnnnnnnnn.xls	Anything.xls
bmHASICrawData	ASIC_HYBRID_nnnnnnnnnnnnn.xls	Anything.xls
bmModulerawData	MODULE_nnnnnnnnnnnnn.xls	Anything.xls
bmSurveyXYrawData	XYSURVEY_nnnnnnnnnnnn_mm.xls	Anything.xls
bmSurveyZrawData	ZSURVEY_nnnnnnnnnnnnn_mm.xls	Anything.xls

#### If you use 'recommended' filenames, the application can find these files automatically, allowing you to upload an unlimited number of files in one go

## Uploading Assembly Information

Assembly information is extracted from the 'bmSBrawData', 'bmHASICrawData' and 'bmMODULErawData' excel sheets.

- Select the 'Assemblies' tab
- Select the Device Type (Baseboards, Hybrids or Modules)
- Check you cluster and institute are correct
- Click on 'New...'



Click on 'Add to List' to extract the assembly info from the appropriate excel sheet:

• If the 'From:' and 'To:' fields are both blank, you are presented with a dialog box to find and open the excel file.

• If a number is in the 'From:' field and the 'To:' field is blank, the application will find and open one excel file corresponding to that one serial number

• If a range of serial numbers is entered, the application opens all excel files for that range of serial numbers

Register Assembly of ASICs to UK Hybrids	
Enter serial no range (last 5 digits only - omit the '202203302')	
From: 1 To: 5 Add to List	
⊡ <mark>⊡</mark> Hybrids ⊡ <mark>⊕</mark> 20220338200002	
<ul> <li>20220337200002 (bmHPC) Position 1</li> <li>20220990034932 (chABCD3T) Position 1</li> </ul>	
<ul> <li>20220990034933 (chABCD3T) Position 2</li> <li>20220990034937 (chABCD3T) Position 3</li> </ul>	
<ul> <li>20220990034950 (chABCD3T) Position 4</li> <li>20220990034959 (chABCD3T) Position 5</li> </ul>	
<ul> <li>20220990034969 (chABCD3T) Position 6</li> <li>20220990034970 (chABCD3T) Position 7</li> </ul>	
<ul> <li>20220990034977 (chABCD3T) Position 8</li> <li>20220990034981 (chABCD3T) Position 9</li> </ul>	
<ul> <li>20220990034982 (chABCD3T) Position 10</li> <li>20220990034983 (chABCD3T) Position 11</li> </ul>	
20220990034984 (chABCD3T) Position 12	
Register Assemblies         View Upload Info         Remove Selected Item(s)	

Assembly data is only listed if:

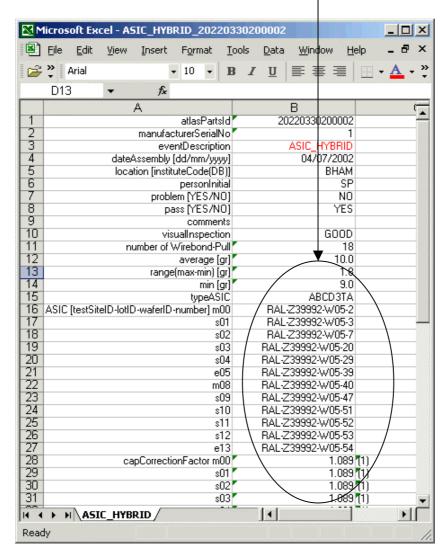
- the excel file(s) exist
- all components are not already assembled
- all components are located at your institute

### Note ASICs are defined by:

"TestSite"-"Lot Number"-"Wafer Number"-"Chip site on wafer"

#### Where

"Chip site on wafer" is either a sequence number (between 1 and 250) or the XY co-ordinate.



Eg RAL-Z39992-W05-X8-Y0 or RAL-Z3992-W05-2

The application interprets this string and looks up the appropriate 14-digit serial number

# Uploading DataSheets

- Select the 'DataSheets' tab
- Ensure your cluster and institute are correct
- Select the datasheet type
- Click on 'New ...'

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			Preferences	
	Barrel Datab	ase Utiliti	es	
ĺ	Item Registration Shipments Assemblies	DataSheets		
	Upload Da	tasheets		
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• Enter one serial number, or a range of serial numbers, or leave the serial number fields blank

• Click on 'Add to List'

• If both number fields are blank, you are prompted to find an excel file, otherwise the application automatically finds and opens the appropriate excel files

• Excel files (and some information extracted from them) are listed in a spreadsheet

• If 'Prevent Duplicate Uploads' is ticked, files are only listed if they have not previously been uploaded.

Register new Items							
Upload Module data files to the Database							
	Prevent Dup	licate Uploa	ids?				
Enter range of	serial numbers (	(leave out th	ne '202203302'	' part):			
From: 1 To: 5 Add to List							
File	SerialNo	#datasheets Event	Date	Status	Comment		
MODULE_20220330200002.xls	20220330200002	MODULE	08/07/2002	Ok	None		
MODULE_20220330200003.xls	20220330200003	MODULE	10/07/2002	Ok	None		
MODULE_20220330200005.xls	20220330200005	MODULE	18/07/2002	Ok	None		
Upload Data	isheet(s)	Remove Sele	cted Datasheet(	s)			

click on 'Upload Datasheet(s)' to upload.

### **Special Actions on Datasheets**

1. Capacitor correction factors (in bmHASICrawData sheet) will be automatically filled by lookup from the database. If you have filled them in (to a value not equal to 1.0), a warning is generated for your information if it is incorrect

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2. Recalculation of data in bmSurveyXYrawData sheet to convert from  $\mu$ m to mm, and to convert to measured values in place of deviations

### Summary of Barrel Utilities Application

Available now to download from

http://www.hep.phy.cam.ac.uk/~silicon/jBarrels.html

Action	Status
Item Registration	Ready
Shipments	Ready
Assembly Uploads	Ready
Datasheet Uploads	In Progress
Profiles	Not yet started

### **Final Note**

Please adhere strictly to the sheet format as defined in Nobu's document, for the first two columns. Other columns are ignored.

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