AXTParts Part Management System

Installation and Operation

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1. Installation

1.1 Client Device

As of version 4, AXTParts is responsive and will adapt its layout and view according to the device screen geometry used. This means it will work with phones, tablets and laptops/desktops quite happily. The client used to access AXTParts is a web browser. Any of the current popular browsers can be used. No additional client software is required as everything is done at the server end.

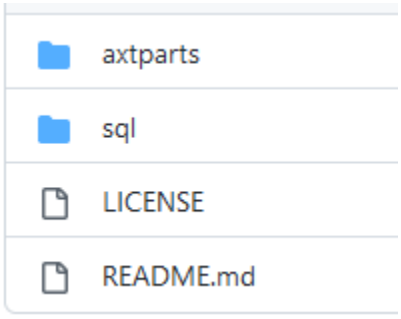
1.2 Server System

The required system is a Linux system, with MySQL database, Apache webserver and PHP (with MySQLi) modules installed. The main operating components are present in the apache document web space, and it is left up to the individual system administrator to configure the web space accordingly. It is advisable to use https (http using a TLS connection), as usernames and passwords are required to log in. In addition, several directories are required outside the web space to store documentation files. It is suggested that this be in /var/axtparts/, however it can be configured as required in the configuration file.

1.3 Files

The layout contains two main directories, ‘axtparts’ and ‘sql’. The sql directory contains files used to initialise the database and install some initial content. The axtparts directory contains the files ready to be linked into a website location after configuration.

The README file on GitHub describes the installation or upgrade process using either a git clone of the repository or downloading an archive file.



1.4 Database

The MySQL database first needs to be created with the database schema.

```
mysql -uroot -p < axtparts-schema.sql
```

This will create the database and its tables.

A second file, axtparts-initialdata.sql is present and may be edited prior to loading in order to adjust part categories and component states as required. This initial data creates an administrative user with a default password (*mypassword!*). The password can be changed later, on first login.

This file should now be loaded into the database:

```
mysql -uroot -p < axtparts-initialdata.sql
```

Finally, database privileges should be set to the 'axtpartsuser' user. In the mysql console application use:

```
mysql> grant select,insert,update,delete on axtparts.* to 'axtpartsuser'@'127.0.0.1'
identified by 'password';
mysql> flush privileges;
```

The database password will be added to the configuration file in the next step to allow the system to use the database.

1.5 Web Application Configuration

Edit the configuration file found in *axtparts/config/config-axtparts.php*.

Firstly the database configuration can be set:

```
// the database user information
define ("PARTSUSER", "axtpartsuser");
define ("PARTSPASSWD", "DB_PASSWORD");
define ("PARTSHOST", "127.0.0.1");
define ("PARTSDBASE", "axtparts");
```

Enter the password for the database here.

Next, the company information can be entered. This information is for use on reports, BOMs etc where appropriate.

```
// Company information - for reports
define ("ENG_RPT_CNAME", "COMPANY NAME");
define ("ENG_RPT_ADDR", "COMPANY ADDR");
define ("ENG_RPT_CITY", "COMPANY CITY");
define ("ENG_RPT_STATE", "COMPANY STATE");
```



```
define ("ENG_RPT_COUNTRY", "COMPANY COUNTRY");
define ("ENG_RPT_PCODE", "COMPANY POSTCODE");
define ("ENG_RPT_TEL", "COMPANY PHONE");
define ("ENG_RPT_FAX", "COMPANY FAX");
define ("ENG_RPT_WEB", "COMPANY WEBSITE");
```

Now configure the 2-character prefix used in creating unique part numbers. Any 2 characters can be used here.

```
// the prefix 2 alpha characters for automatically generated part numbers
define ("PARTPREFIX", "AX");
```

Finally, configure locations for various file stores. The datasheets are located within the web space to make it quick and easy to access. They do not need the security of authentication to access them. The suggested location is 'datasheets/', which is relative to the site docroot, ie is located at axtparts/datasheets/

```
// datasheets - relative to parent url
define ("DATASHEETS_DIR", "datasheets/");
```

The other documents are usually proprietary and confidential in nature, so need to be stored outside the web space, and only accessed by authenticated users with the appropriate privileges. A suggested location for these is in '/var/axtparts/'.

```
// These paths are specified in full. They should be outside the
// web docroot and read/writeable by the apache/httpd user.
// software image directory - full path required.
define ("SWIMAGE_DIR", "/var/axtparts/swimages/");

// engdocs directory - full path required
define ("ENGDOC_DIR", "/var/axtparts/engdocs/");

// mfgdocs directory - full path required
define ("MFGDOC_DIR", "/var/axtparts/mfgdocs/");
```

It should be noted that at this release, only engdocs/ is used. The other directories may be used as part of future releases. All of the directories need to be writeable by the apache web server user. If this is not done then documents and datasheets may not be able to be saved.

1.6 System Check

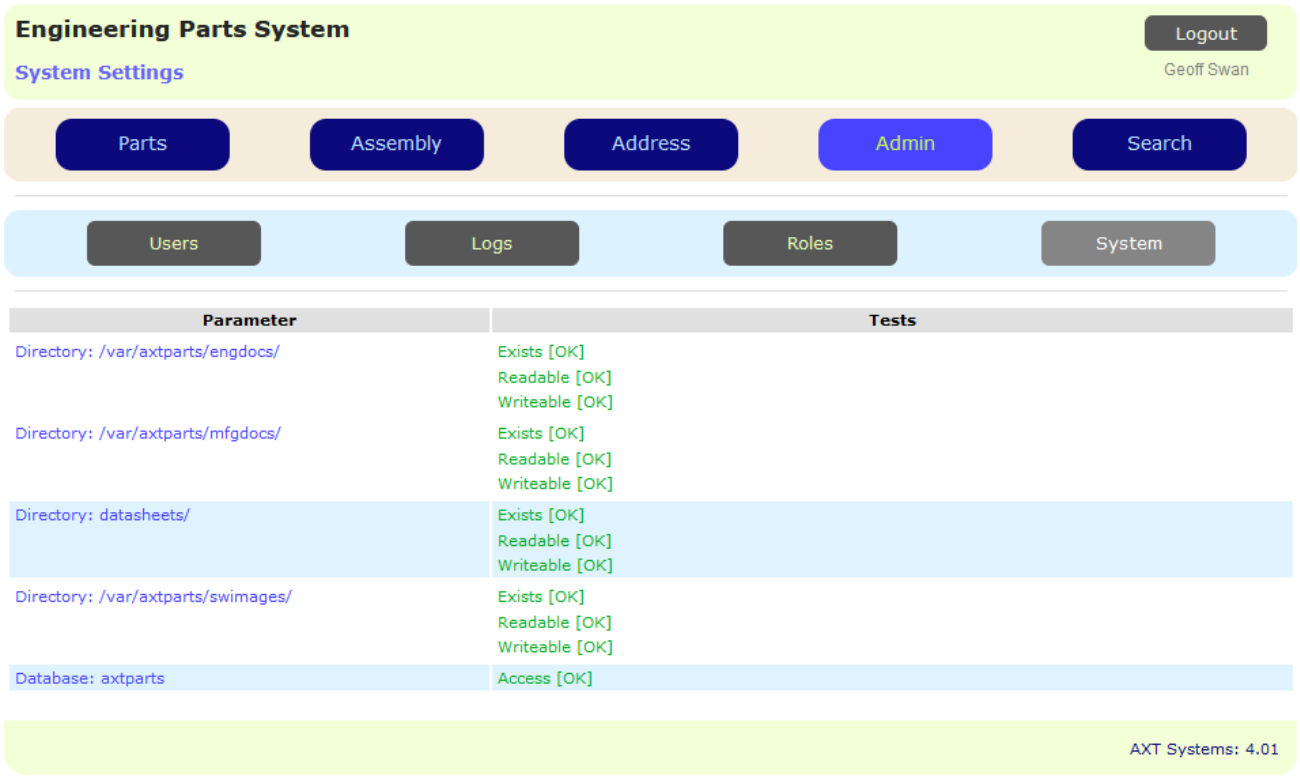
Now that the database is setup, permissions configured and directories in place, the application can be linked to the web space. For example, if the web space docroot for the https server is /var/www/https/ and the axtparts package was cloned to /opt/axtparts/

```
ln -s /opt/axtparts/axtparts /var/www/https/axtparts
```

Will link the site to the 'axtparts' directory in the web space, and will be accessible using *https://servername/axtparts/.* Be sure to check that the document directories can be read/write by the web server user. Also check that followSymLinks is enabled in the apache configuration for the axtparts location.

Log in as ‘admin’ using the default ‘mypassword!’ password to test whether the system is operational.

If you are able to login, select the ‘Admin’ tab and check the ‘System’ page to see if the directories are configured OK.



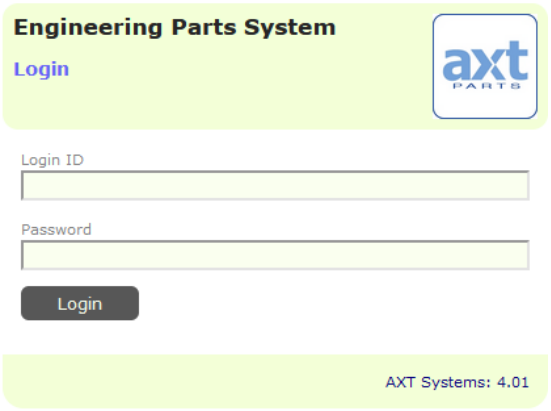
If any [FAIL] statuses are reported then these need to be fixed before continuing, and are usually attributable to permission settings and configuration.

Click the Users page on the Admin tab and click on the admin user to change the password. The admin user should have the initial ‘su’ role, allowing it to create new users and operate all parts of the system. Other roles can be created and new users can be created and assigned particular roles as required.

2. Operation

2.1 Login

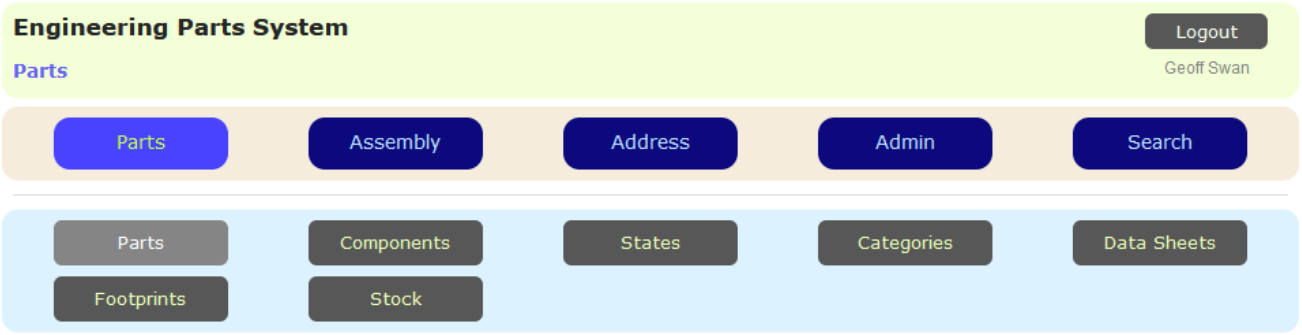
On connecting to the web server, the login page is shown. Use this form to enter a username and password to log in to the parts management system.



2.2 Parts Tab

After logging in, the default page will be the Parts tab.

A row of buttons allows selection pages within the Parts tab.



These buttons are shown on all the pages within each tab to allow easy navigation between various parts of the system. Since the site is responsive, the screen layout will change according to the device it is used on.

2.2.1 Parts

The parts page shows the parts that exist in the system. The default filter is to show all part categories, sorted by category and description as shown in this picture.

In this system, a "*Part*" is the term used to identify an item that is added to a BOM to build an assembly.

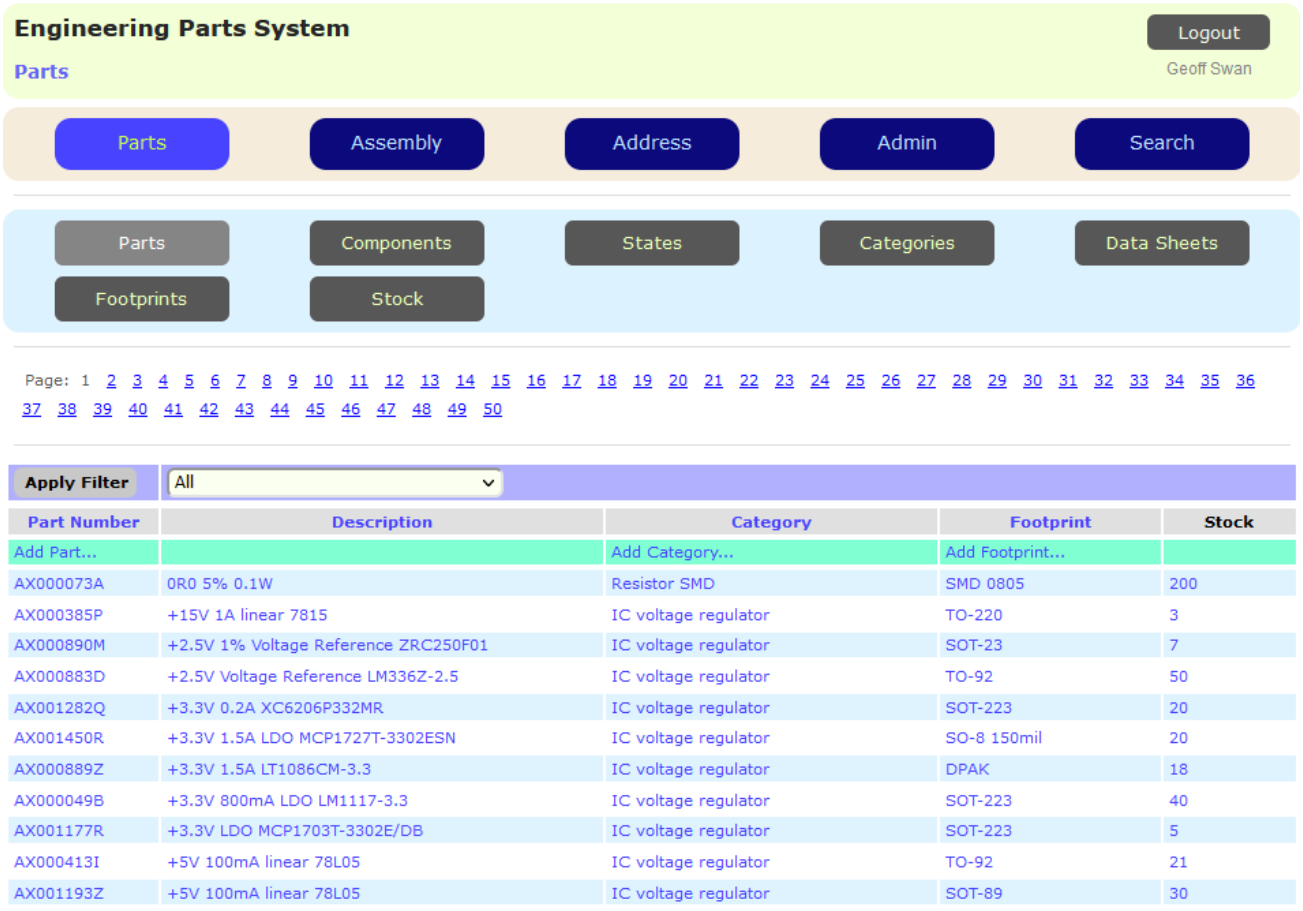
A "*Component*" is an item that a particular manufacturer/vendor supplies.

A *part* can reference 0 or more *Components*.

For example, multiple sources of a capacitor, with different vendor part numbers are all separate *components*, each with different data sheets.

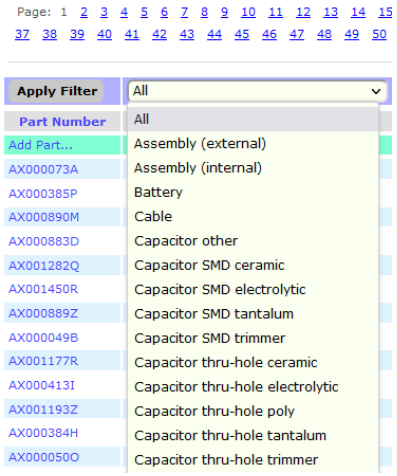
However they share the equivalent functionality (value, ratings, footprint, parameters etc) and are all referenced by the same *part*.

It is not mandatory to enter components into the system and parts may be used if you are not particular about component details beyond the simple part information



The table column headers ('Part Number', "Category', 'Description', 'Footprint') can be clicked to use that column for sorting. Page numbers are shown at the top and may be clicked to move to a particular page.

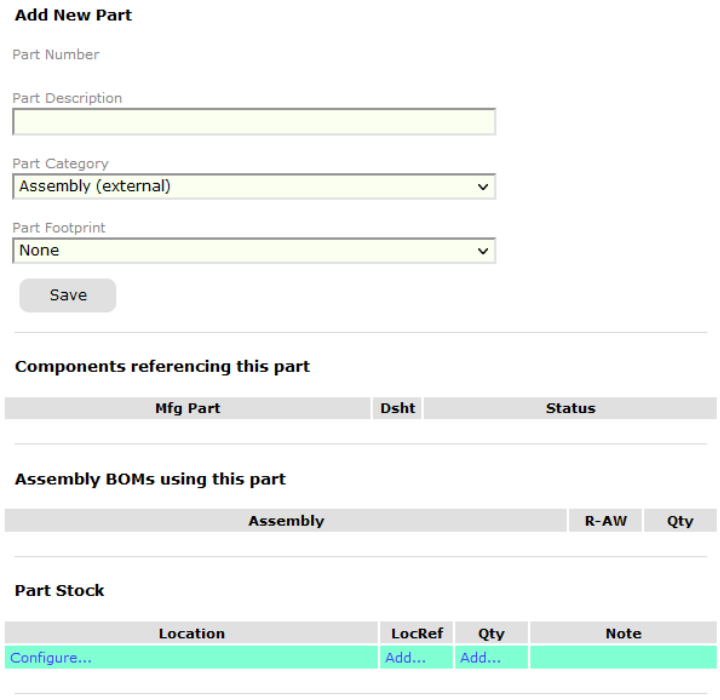
A filter may be selected to limit the items shown. This filter selects a part category and shows parts in that category only, or 'All' if selected. To de-select the part category filter, select 'All'.



Before entering new parts, it is a good idea to add categories, states and footprints to allow selection of these for a part entry.

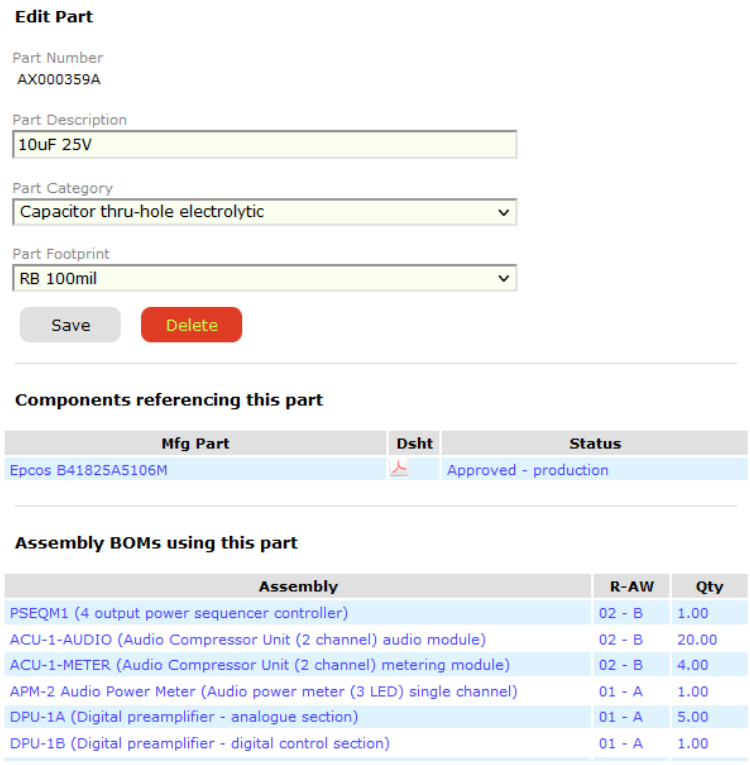
Add/Edit a part

Click the 'Add Part...' link at the top of the Part Number column. This will bring up a pop-up form (if you don't see it then allow popups for the host in your web client).



The Part Number will be created by the system after the part is entered. Enter the Part Description and select the Part Category and Footprint. Since the category and footprint are separate, it is not necessary to duplicate this information in the part description. Once this is done, click ‘Save’ to save the part. Other information on this form is not relevant at the new part creation time.

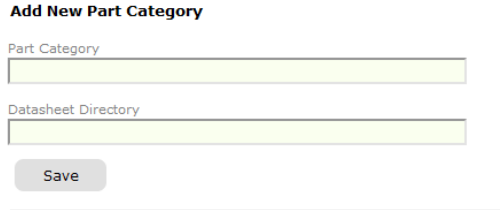
To edit a part, click on the part number in the first column for that part. The same popup will appear with details populated.



Now the part number is shown, and also any other details such as components linked to this part, with data sheets and component status. A list of BOMs that reference the part is also shown.

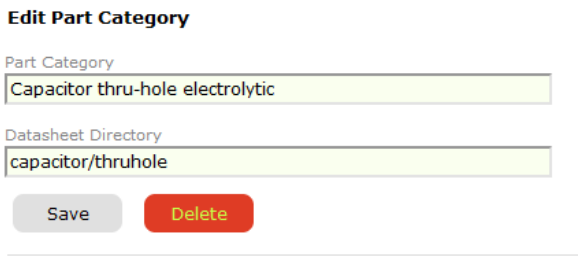
Add/Edit a Category

Categories can be managed using the Category page or a new one added simply from the parts page by clicking the “Add Category...” button at the top of the category column. A popup appears allowing entry of category detail.



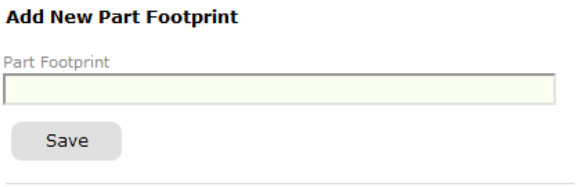
The Part Category input is the category name and the Datasheet directory is the directory where all datasheets for this category of part are stored. For example, an 0805 SMD resistor may have datasheets stored in “resistor/smd/0805”.

To edit a part category, the category name can be clicked in the category column of the parts page.



Add/Edit a Footprint

Part footprints are used to distinguish various parts that share the same basic name and allow easy identification of parts at a glance. All footprints can be managed from the Footprint page, however on the parts page footprints can be added by clicking on “Add Footprint...” at the top of the footprint column.

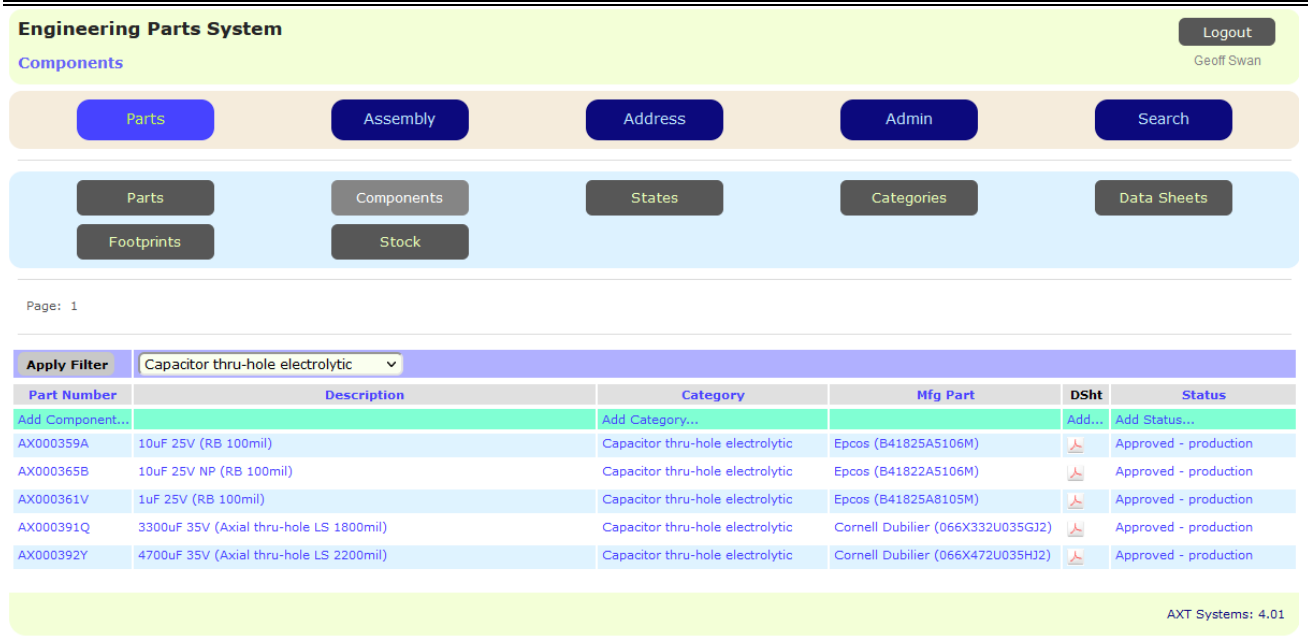


A simple popup form will allow entry of a footprint description.

2.2.2 Components

The components page is selected by clicking on the Components button at the top of the Parts tab page.

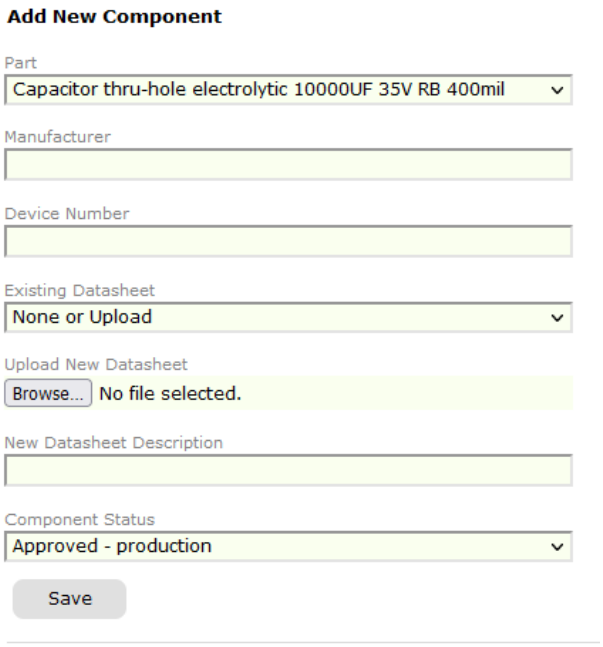
This will show a table of components in the system. The Category filter can be applied to examine components belonging to a particular category. If a category if selected in the Parts page then this will remain in place when the pages are selected.



The columns may be sorted according to the column title clicked and the first row is used for adding components, categories, datasheets and component status.

Add/Edit Component

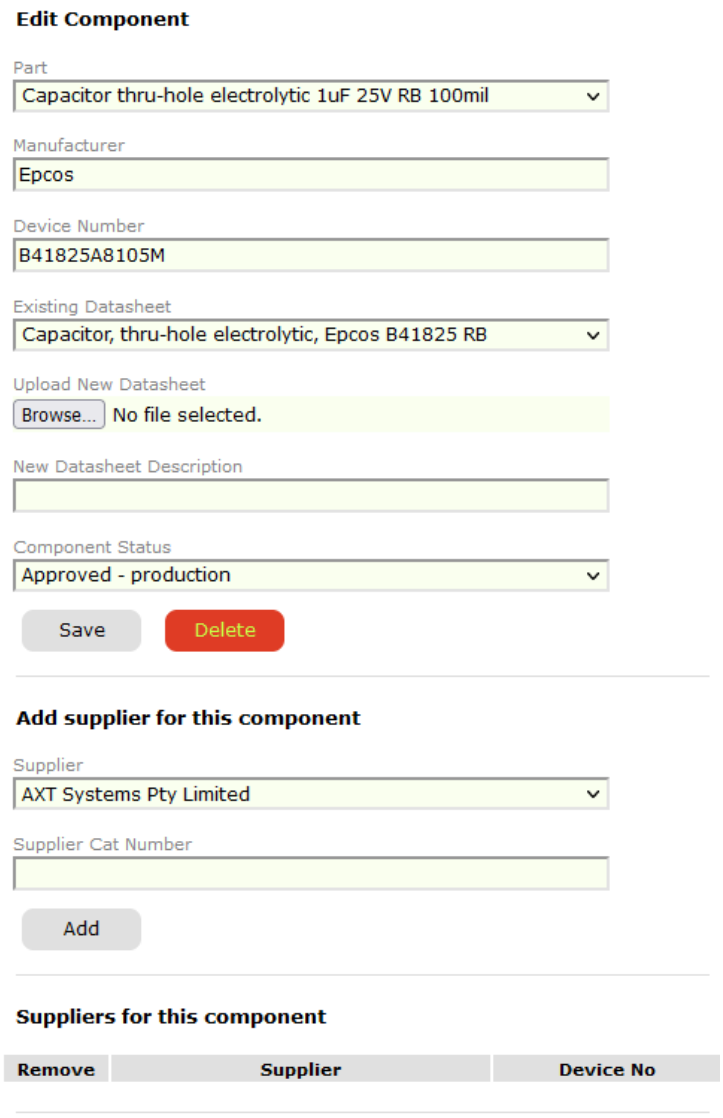
Clicking on “Add Component...” brings up a popup which is used to add a new component to the system.



Firstly, a Part must be selected that this component references. The list of parts available to select is filtered by the currently selected category.

Then the Manufacturer and specific device number/catalogue number etc are added. If a datasheet is already in place (some components may reference the same datasheet) then that can be selected or a new datasheet uploaded. A description of the data sheet is given (this appears in the datasheet management page) and the component status selected. Component status is useful to allow certain components to be identified as EOL or Obsolete etc.

After the component is saved, suppliers may be added to it by selecting the component for editing by clicking on the part number in the first column.



Suppliers come from the Address Book (Address tab) for entries marked as Suppliers. These can then be selected as suppliers for this particular component and a list of suppliers is shown in the table at the bottom.

Add/View Data Sheet

Clicking on the “Add...” link in the top row under the DSht column allows data sheets to be uploaded, without having to create a component. Datasheets will appear in the dropdown for selection when creating a component later.

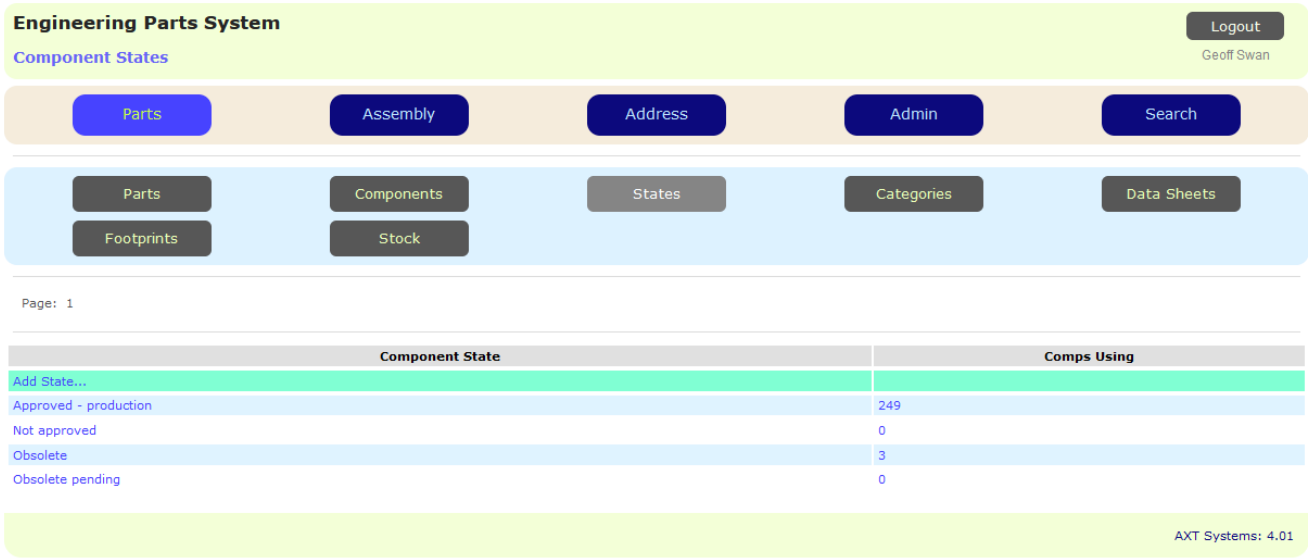
Clicking on the PDF icon for the datasheet column will bring up the datasheet for viewing in a popup window.

Add Status

To add a new status from the Components page, the “Add Status...” link can be used. This brings up a simple popup to add a status that can be selected when adding/editing a component.

2.2.3 States

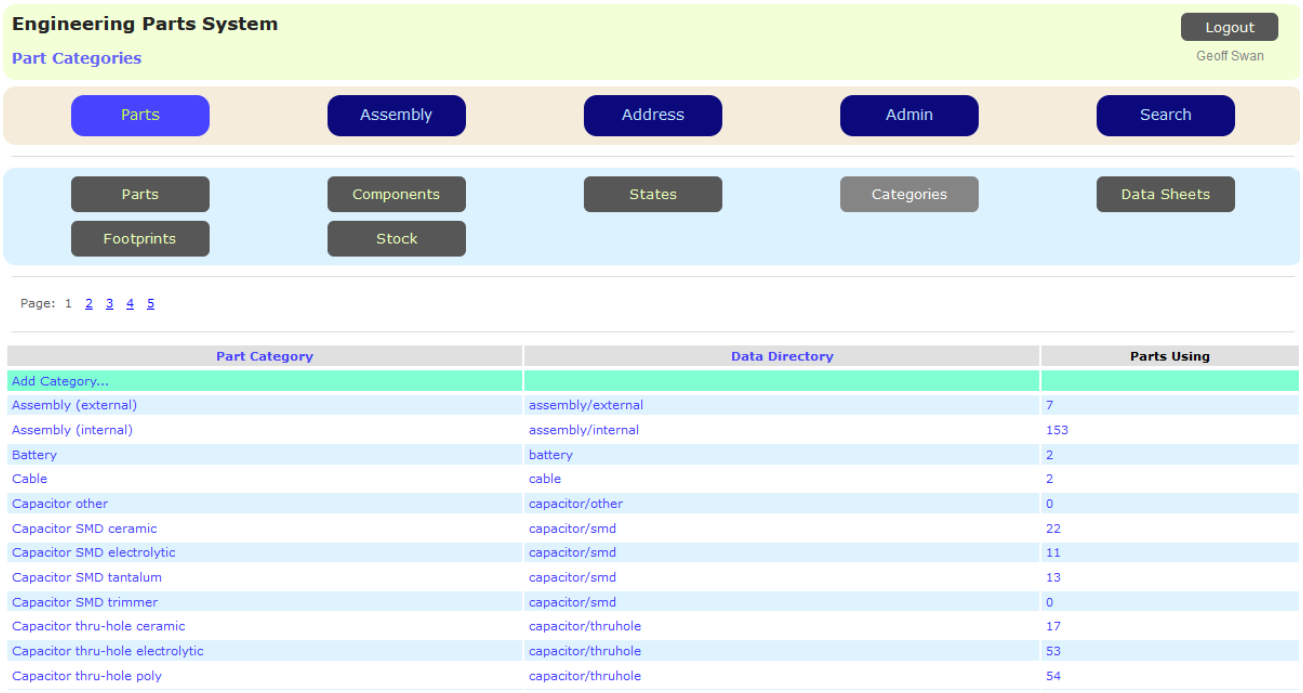
The “States” page is used to manage the component status values and shows an overview of components with various status values.



Status values can be added or edited from this page by clicking the “Add...” link or the status value to edit.

2.2.4 Categories

The Categories page gives a tabulated view of all part categories and shows how many parts are using the category.

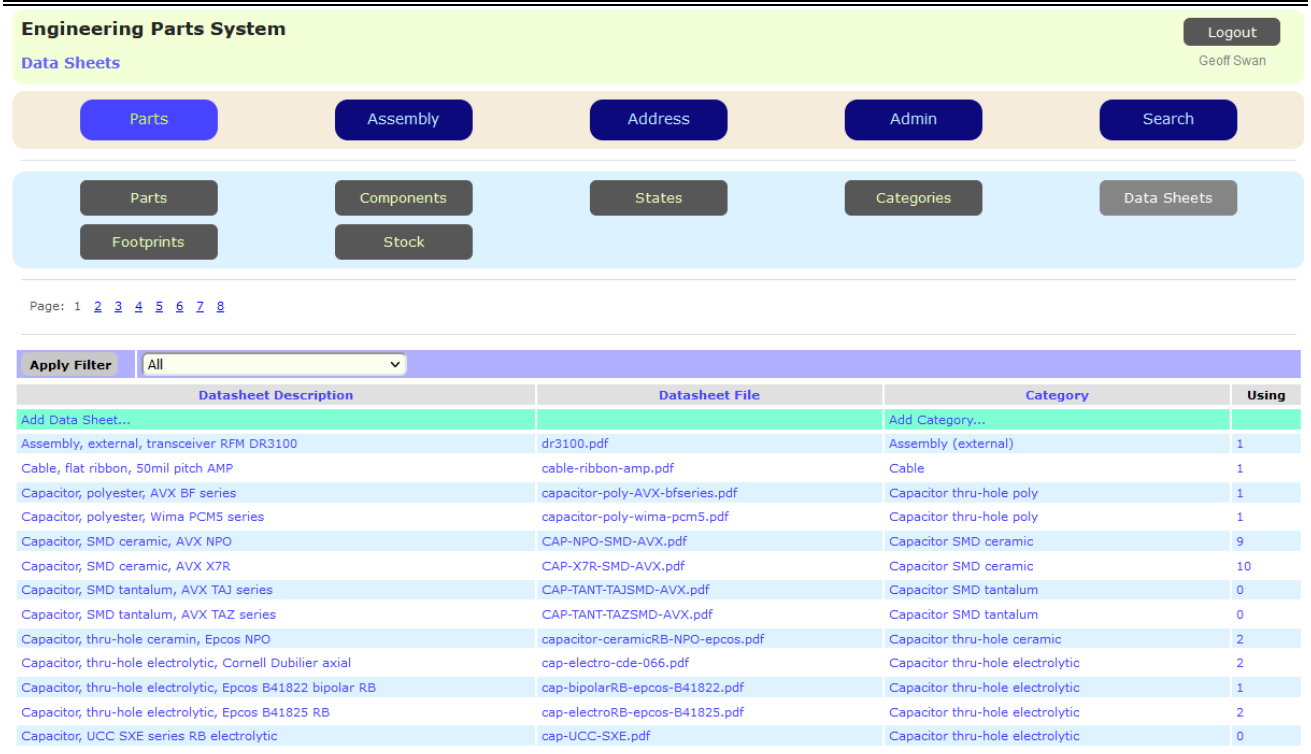


Part Category	Data Directory	Parts Using
Add Category...		
Assembly (external)	assembly/external	7
Assembly (internal)	assembly/internal	153
Battery	battery	2
Cable	cable	2
Capacitor other	capacitor/other	0
Capacitor SMD ceramic	capacitor/smd	22
Capacitor SMD electrolytic	capacitor/smd	11
Capacitor SMD tantalum	capacitor/smd	13
Capacitor SMD trimmer	capacitor/smd	0
Capacitor thru-hole ceramic	capacitor/thruhole	17
Capacitor thru-hole electrolytic	capacitor/thruhole	53
Capacitor thru-hole poly	capacitor/thruhole	54

Categories may be added and edited from this page by using the “Add Category...” link or selecting the category to edit.

2.2.5 Data Sheets

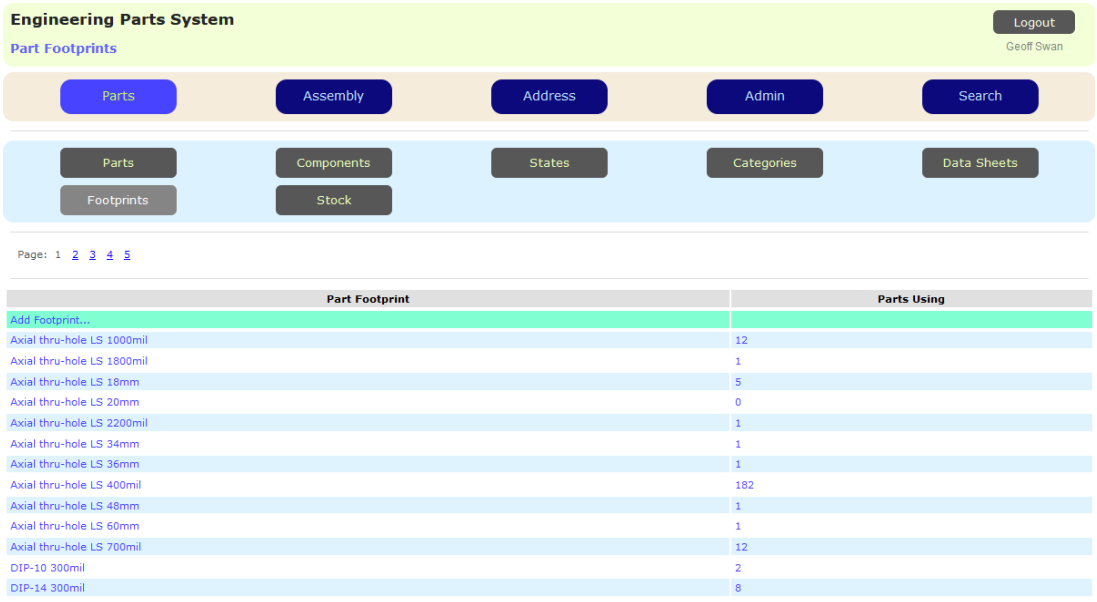
The Datasheets page is used to manage datasheets for components. It allows datasheet information to be edited, new datasheets to be added and shows how many components are referencing particular datasheets.



2.2.6 Footprints

The Footprints page is used to manage part footprints. Footprints may be added or edited here and the number of parts referencing each footprint is shown in the table.

Adding a footprint is done by clicking the “Add Footprint...” link at the top of the Part Footprint column. Editing an existing footprint is performed by clicking on the footprint name.



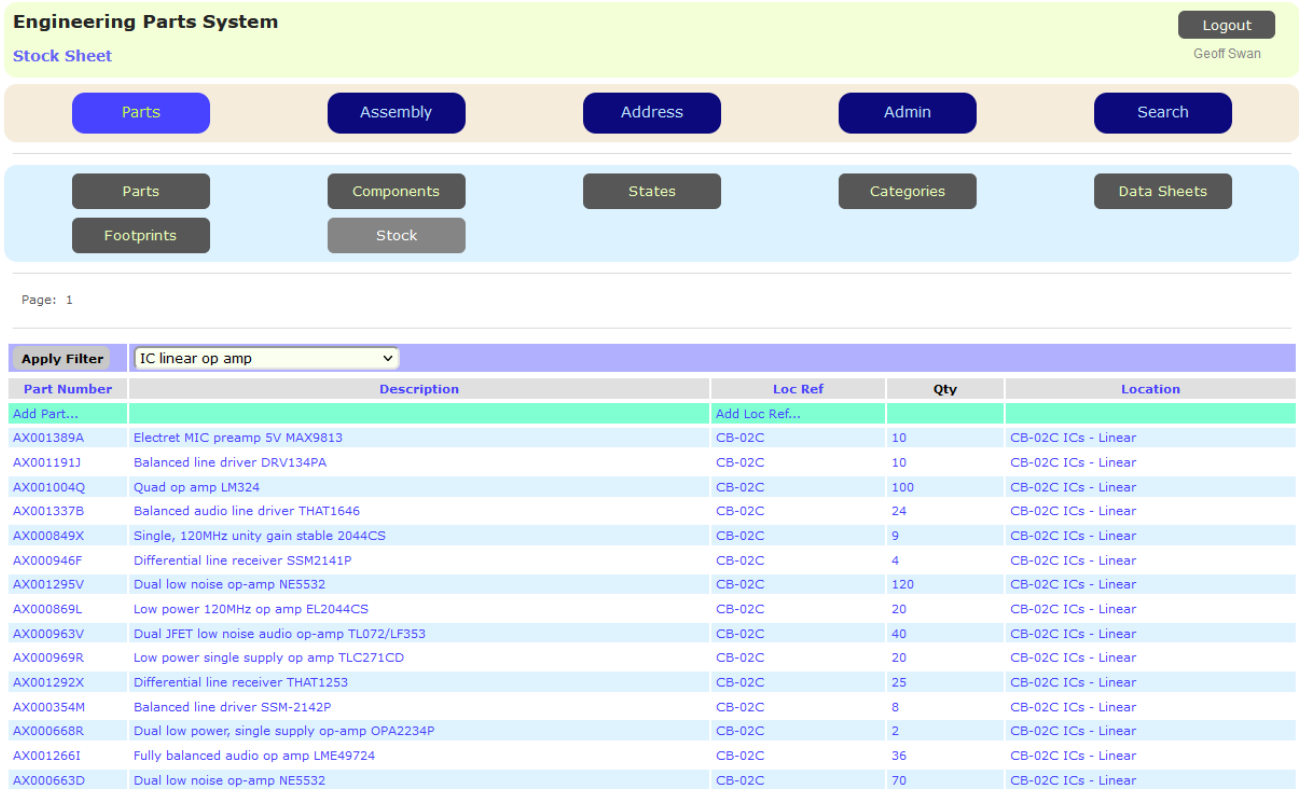
2.2.7 Stock

The Stock page is used for identifying stock levels and locations. It is a stock reference system only, no automatic adjustments are made to quantities.

The intention of the stock data is simply to allow an indication of how many items may be in a particular location. It saves time in searching through tubs and boxes and various parts drawers for a particular device you know you have a few of. It is up to the user to manually count and adjust the numbers as required.

The Stock page shows all items for which there is more than 0 stock entered. In particular the last few columns are of interest. These show the Location reference (labelling of location references is up to the individual), the Location itself (which may show a room/lab/store etc) and the quantity of parts expected to be there.

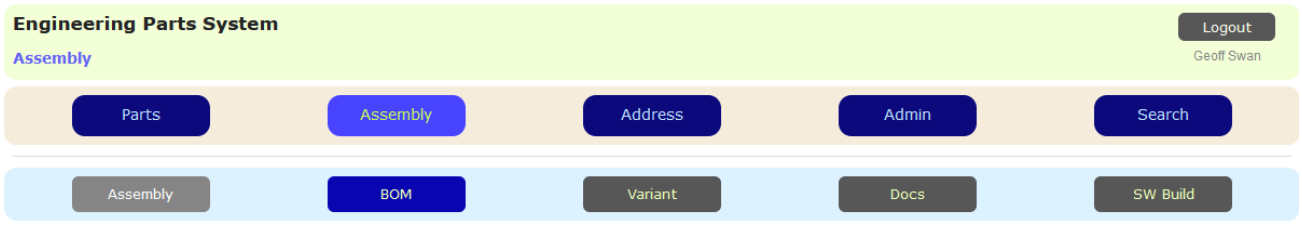
Sorting may be adjusted by clicking on column titles and a filter can be applied to select a particular category



2.3 Assembly Tab

The Assembly tab is where details of assemblies built using the parts is maintained.

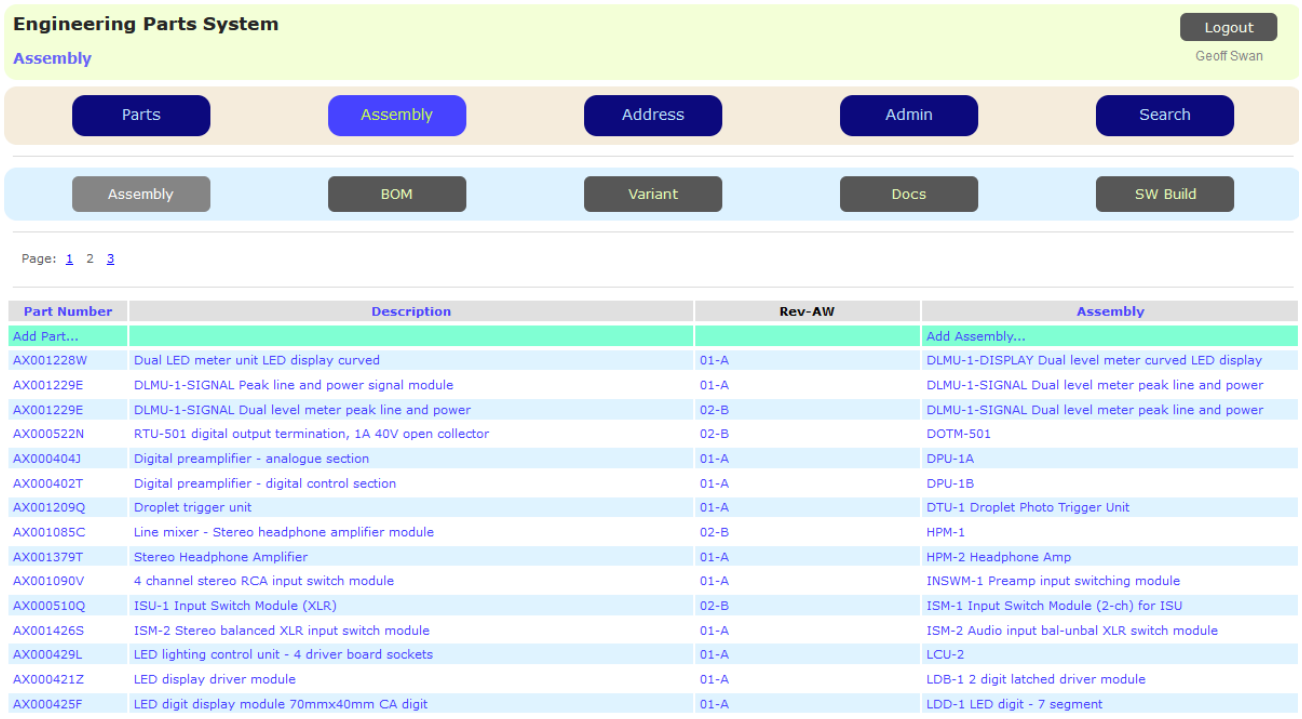
As with the Parts tab, there are several pages under the Assembly tab, accessible using the page buttons at the top.



2.3.1 Assembly

The Assembly page shows a table of all assemblies present in the system.

The table can be sorted by clicking on the column headings

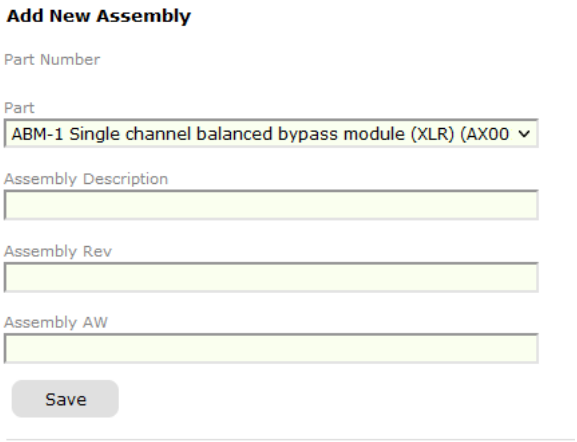


Part Number	Description	Rev-AW	Assembly
Add Part...			Add Assembly...
AX001228W	Dual LED meter unit LED display curved	01-A	DLMU-1-DISPLAY Dual level meter curved LED display
AX001229E	DLMU-1-SIGNAL Peak line and power signal module	01-A	DLMU-1-SIGNAL Dual level meter peak line and power
AX001229E	DLMU-1-SIGNAL Dual level meter peak line and power	02-B	DLMU-1-SIGNAL Dual level meter peak line and power
AX000522N	RTU-501 digital output termination, 1A 40V open collector	02-B	DOTM-501
AX000404J	Digital preamplifier - analogue section	01-A	DPU-1A
AX000402T	Digital preamplifier - digital control section	01-A	DPU-1B
AX001209Q	Droplet trigger unit	01-A	DTU-1 Droplet Photo Trigger Unit
AX001085C	Line mixer - Stereo headphone amplifier module	02-B	HPM-1
AX001379T	Stereo Headphone Amplifier	01-A	HPM-2 Headphone Amp
AX001090V	4 channel stereo RCA input switch module	01-A	INSWM-1 Preamp input switching module
AX000510Q	ISU-1 Input Switch Module (XLR)	02-B	ISM-1 Input Switch Module (2-ch) for ISU
AX001426S	ISM-2 Stereo balanced XLR input switch module	01-A	ISM-2 Audio input bal-unbal XLR switch module
AX000429L	LED lighting control unit - 4 driver board sockets	01-A	LCU-2
AX000421Z	LED display driver module	01-A	LDB-1 2 digit latched driver module
AX000425F	LED digit display module 70mmx40mm CA digit	01-A	LDD-1 LED digit - 7 segment

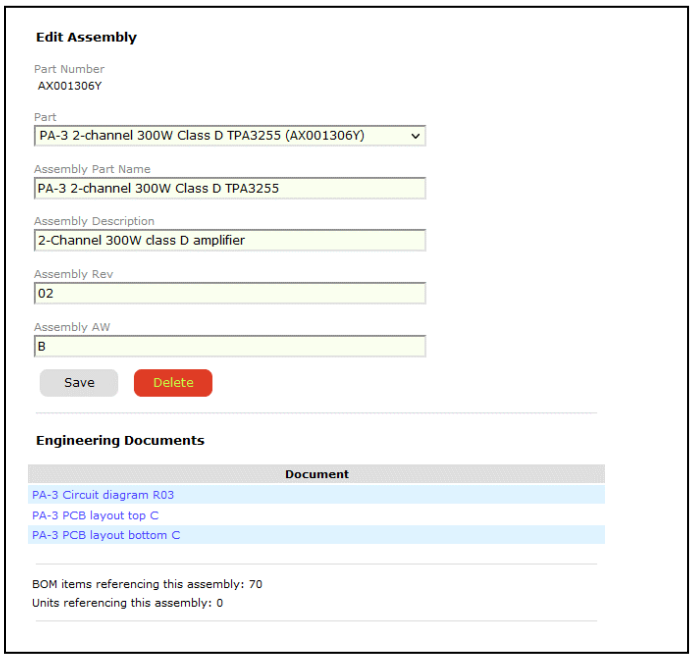
Each assembly has a part number (as a completed assembly, which may be a sub-assembly for another assembly) and an optional Revision and Artwork level identifier (useful in the case where PCB artwork is referenced as part of the assembly).

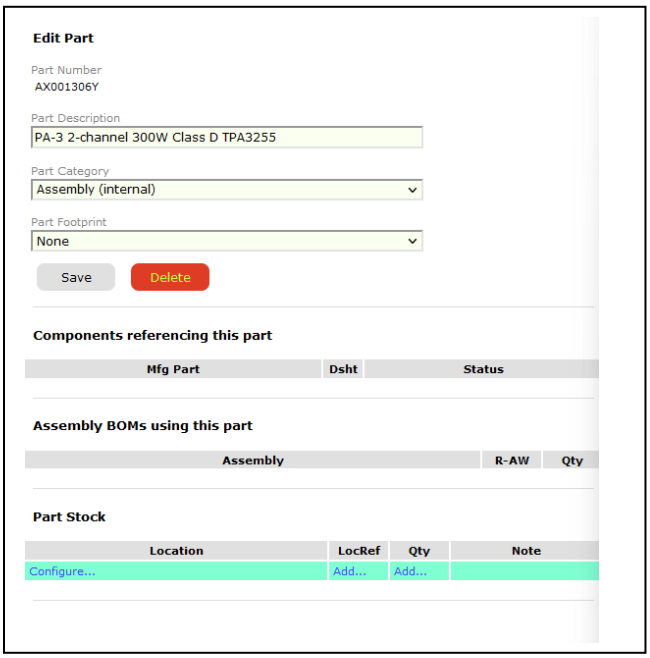
To add an assembly, it must first be defined as a part. The assembly part (sometimes used to be called a PWA, or printed wiring assembly) has a part number and description. A useful category for assemblies can be ‘assembly-internal’ for completed assemblies that are in-house design and ‘assembly-external’ for modules or assemblies that are bought-in as a sub-assembly to be fitted to a larger assembly.

Once the assembly part is defined, add an assembly by clicking 'Add Assembly...' in the top row of the Assembly column. A popup then appears to allow select of the Part, entry of the Assembly name (which may be different from its part description), the Assembly Revision and Assembly Artwork (if required). The Assembly Description will be populated with the Part Description after saving.



The following shows the Assembly and Part popups for the same item, to show the relationship between the fields.



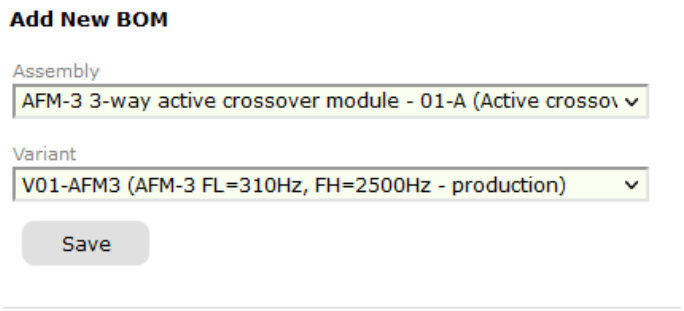


After the assembly has been entered and saved, it can be edited by clicking on its assembly description in the right-hand column of the assembly table. This brings up the Edit Assembly popup which allows editing of the various fields and also shows any engineering documents associated with the assembly and how many BOM items are referenced by the assembly.

2.3.2 Bill Of Materials (BOM)

A BOM is entered for an assembly, so the assembly must be defined using the assembly page before a BOM can be entered for it. All parts should also exist, so they can be selected for inclusion, and the assembly variant should also be defined.

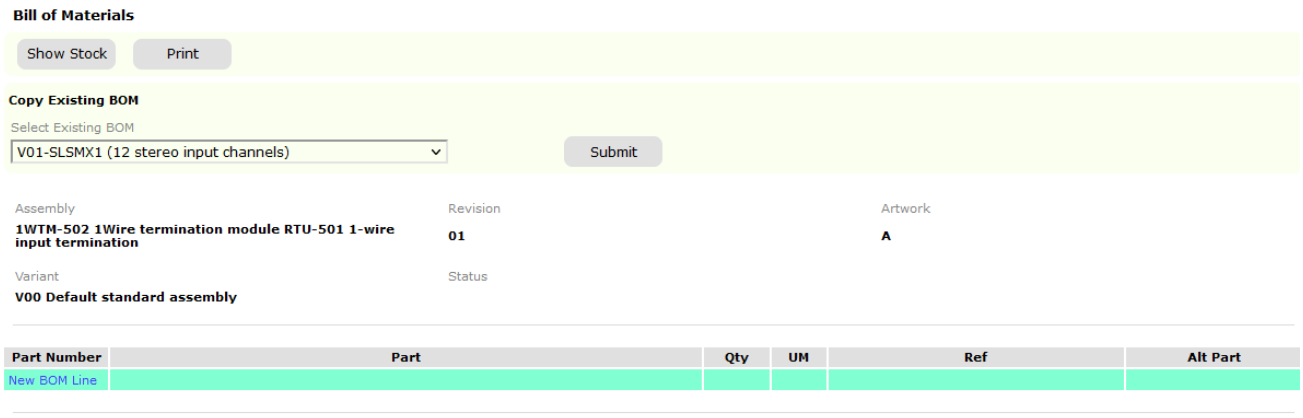
Adding a new BOM firstly involves clicking on the “New BOM...” link at the top of the Part Number column. This opens a popup to allow selection of the assembly and the variant.



After this information is saved, a BOM form will appear. It will initially be empty of BOM lines, but as these are added the parts list will appear as shown below.

When initialised with no parts the BOM does not actually exist in the system yet. It only exists once a part is added to the BOM.

When a new BOM is started, the option of copying a BOM from an existing assembly is presented. This allows a new variant BOM based on an existing variant of the same assembly to be easily started without having to enter all the parts again. The user may then edit the various BOM lines to adjust components for the different variant of the assembly. Note that the ability to copy from an existing BOM only appears when there are no components assigned to the new assembly.



Bill of Materials

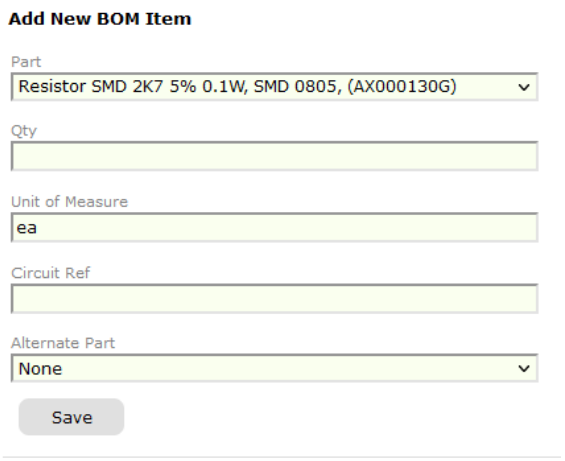
Show Stock | Print

Assembly: **APM-1 Audio Power Meter LED audio power meter**
Revision: **01**
Artwork: **A**
Variant: **V00-APM1 APM-1 +15V PSU build**
Status: **production**

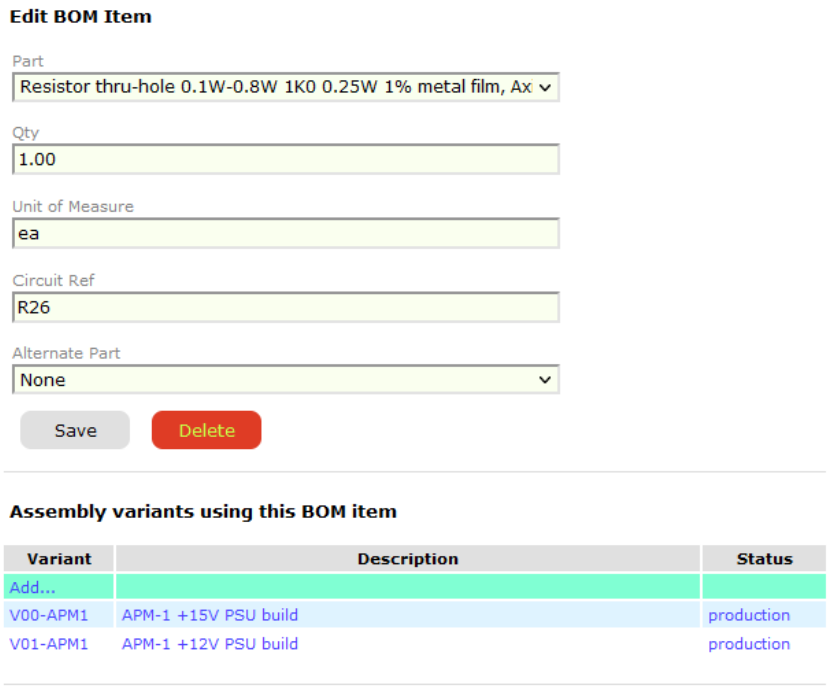
Part Number	Part	Qty	UM	Ref	Alt Part
New BOM Line					
AX000363L	Capacitor thru-hole ceramic 0.1uF 50V X7R RB 200mil	1.00	ea	C3	
AX000359A	Capacitor thru-hole electrolytic 10uF 25V RB 100mil	2.00	ea	C1, C2	
AX000358S	Diode small signal thru-hole Small signal silicon diode, 75V 200mA 1N4148 Axial thru-hole LS 400mil	2.00	ea	D1, D2	
AX000966T	IC linear op amp Quad op amp LM324 DIP-14 300mil	2.00	ea	U1, U2	
AX000602F	LED thru-hole 3mm BLUE LED, high efficiency thru-hole custom	2.00	ea	D3, D6	
AX000373S	LED thru-hole 3mm GREEN LED, high efficiency thru-hole custom	2.00	ea	D10, D12	
AX000445T	LED thru-hole 3mm RED LED, high efficiency high brightness thru-hole custom	2.00	ea	D9, D11	
AX000989F	LED thru-hole 3mm WHITE, high efficiency flat top thru-hole custom	2.00	ea	D5, D8	
AX000374A	LED thru-hole 3mm YELLOW LED, high efficiency thru-hole custom	2.00	ea	D4, D7	
AX000992I	PCB APM-1 Audio Power Meter	1.00	ea		
AX000234S	Resistor thru-hole 0.1W-0.8W 100R 0.25W 1% metal film Axial thru-hole LS 400mil	4.00	ea	R19-R20, R12-R23	
AX000282L	Resistor thru-hole 0.1W-0.8W 10K 0.25W 1% metal film Axial thru-hole LS 400mil	8.00	ea	R1-R3, R5-R7, R18, R21	
AX000284B	Resistor thru-hole 0.1W-0.8W 12K 0.25W 1% metal film Axial thru-hole LS 400mil	2.00	ea	R4, R8	
AX000286R	Resistor thru-hole 0.1W-0.8W 15K 0.25W 1% metal film Axial thru-hole LS 400mil	2.00	ea	R14, R15	
AX000258M	Resistor thru-hole 0.1W-0.8W 1K0 0.25W 1% metal film Axial thru-hole LS 400mil	1.00	ea	R26	
AX000266D	Resistor thru-hole 0.1W-0.8W 2K2 0.25W 1% metal film Axial thru-hole LS 400mil	2.00	ea	R24, R25	
AX000268T	Resistor thru-hole 0.1W-0.8W 2K7 0.25W 1% metal film Axial thru-hole LS 400mil	2.00	ea	R9, R10	
AX000274U	Resistor thru-hole 0.1W-0.8W 4K7 0.25W 1% metal film Axial thru-hole LS 400mil	3.00	ea	R11-R13	
AX000256W	Resistor thru-hole 0.1W-0.8W 820R 0.25W 1% metal film Axial thru-hole LS 400mil	2.00	ea	R16, R17	

Click on “New BOM Line” to add a new line to the BOM. To edit a line, click on the Part Number for that line.

The popup for the BOM line will appear, allowing the selection of the part, quantity, unit of measure and circuit reference. An alternative part may also be specified in cases where a substitute is approved.

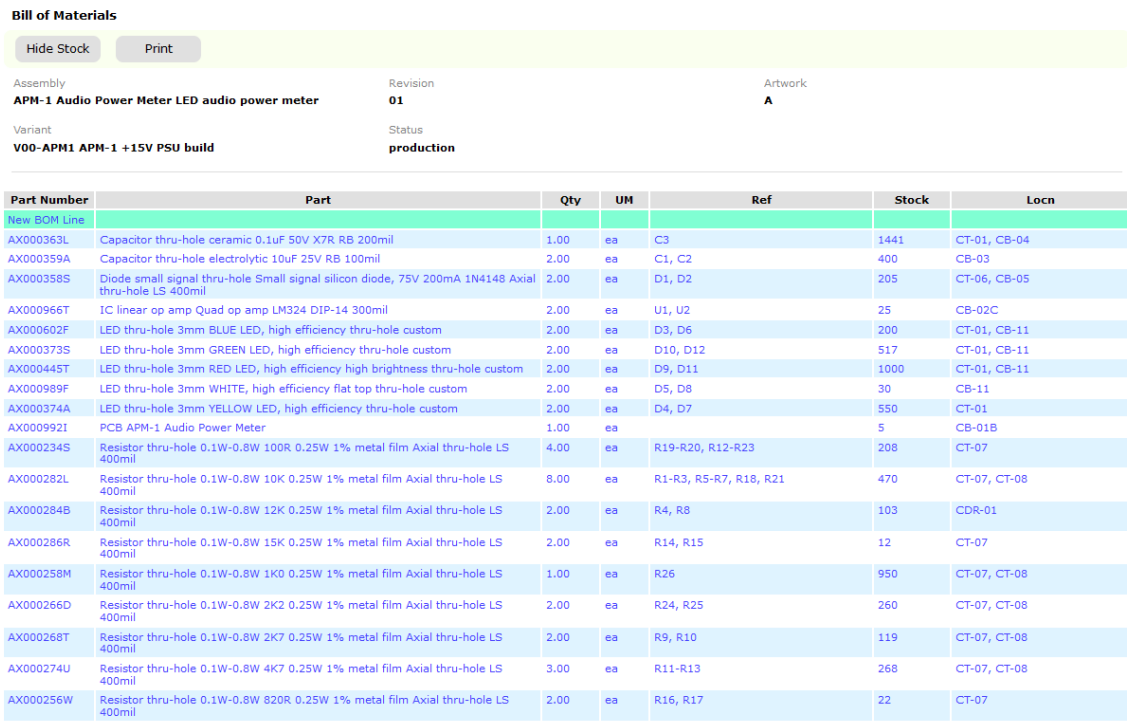


When editing a BOM item, the assembly variants that use the BOM item are also shown.



On the Bill of Materials form, two additional buttons are shown. These are ‘Show Stock’ and ‘Print’.

The ‘Show Stock’ button will show the stock location and available amount on the BOM, which is handy for a pick list to locate and select the parts for building the assembly. The button switches to ‘Hide Stock’ when this is selected, to allow the original BOM format to be viewed or printed.



The ‘Print’ button generates a printable format of the BOM form, showing or hiding the stock depending on the selection state.

This popup can now be printed (to pdf or a printer) as required.

Bill of Materials

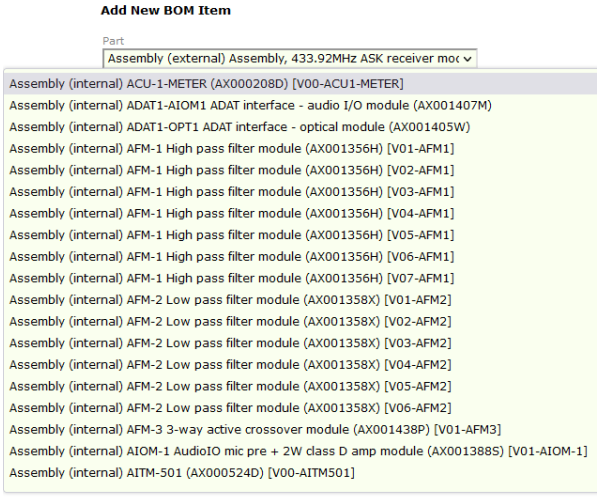
Assembly	Revision	Artwork
APM-1 Audio Power Meter LED audio power meter	**01**	**A**
Variant	Status	
V00-APM1 APM-1 +15V PSU build	**production**	

Part Number	Part	Qty	UM	Ref	Stock	Locn
AX000363L	Capacitor thru-hole ceramic 0.1uF 50V X7R RB 200mil	1.00	ea	C3	1441	CT-01, CB-04
AX000359A	Capacitor thru-hole electrolytic 10uF 25V RB 100mil	2.00	ea	C1, C2	400	CB-03
AX000358S	Diode small signal thru-hole Small signal silicon diode, 75V 200mA 1N4148 Axial thru-hole LS 400mil	2.00	ea	D1, D2	205	CT-06, CB-05
AX000966T	IC linear op amp Quad op amp LM324 DIP-14 300mil	2.00	ea	U1, U2	25	CB-02C
AX000602F	LED thru-hole 3mm BLUE LED, high efficiency thru-hole custom	2.00	ea	D3, D6	200	CT-01, CB-11
AX000373S	LED thru-hole 3mm GREEN LED, high efficiency thru-hole custom	2.00	ea	D10, D12	517	CT-01, CB-11
AX000445T	LED thru-hole 3mm RED LED, high efficiency high brightness thru-hole custom	2.00	ea	D9, D11	1000	CT-01, CB-11
AX000989F	LED thru-hole 3mm WHITE, high efficiency flat top thru-hole custom	2.00	ea	D5, D8	30	CB-11
AX000374A	LED thru-hole 3mm YELLOW LED, high efficiency thru-hole custom	2.00	ea	D4, D7	550	CT-01
AX000992I	PCB APM-1 Audio Power Meter	1.00	ea		5	CB-01B
AX000234S	Resistor thru-hole 0.1W-0.8W 100R 0.25W 1% metal film Axial thru-hole LS 400mil	4.00	ea	R19-R20, R12-R23	208	CT-07
AX000282L	Resistor thru-hole 0.1W-0.8W 10K 0.25W 1% metal film Axial thru-hole LS 400mil	8.00	ea	R1-R3, R5-R7, R18, R21	470	CT-07, CT-08
AX000284B	Resistor thru-hole 0.1W-0.8W 12K 0.25W 1% metal film Axial thru-hole LS 400mil	2.00	ea	R4, R8	103	CDR-01
AX000286R	Resistor thru-hole 0.1W-0.8W 15K 0.25W 1% metal film Axial thru-hole LS 400mil	2.00	ea	R14, R15	12	CT-07
AX000258M	Resistor thru-hole 0.1W-0.8W 1K0 0.25W 1% metal film Axial thru-hole LS 400mil	1.00	ea	R26	950	CT-07, CT-08
AX000266D	Resistor thru-hole 0.1W-0.8W 2K2 0.25W 1% metal film Axial thru-hole LS 400mil	2.00	ea	R24, R25	260	CT-07, CT-08
AX000268T	Resistor thru-hole 0.1W-0.8W 2K7 0.25W 1% metal film Axial thru-hole LS 400mil	2.00	ea	R9, R10	119	CT-07, CT-08
AX000274U	Resistor thru-hole 0.1W-0.8W 4K7 0.25W 1% metal film Axial thru-hole LS 400mil	3.00	ea	R11-R13	268	CT-07, CT-08
AX000256W	Resistor thru-hole 0.1W-0.8W 820R 0.25W 1% metal film Axial thru-hole LS 400mil	2.00	ea	R16, R17	22	CT-07

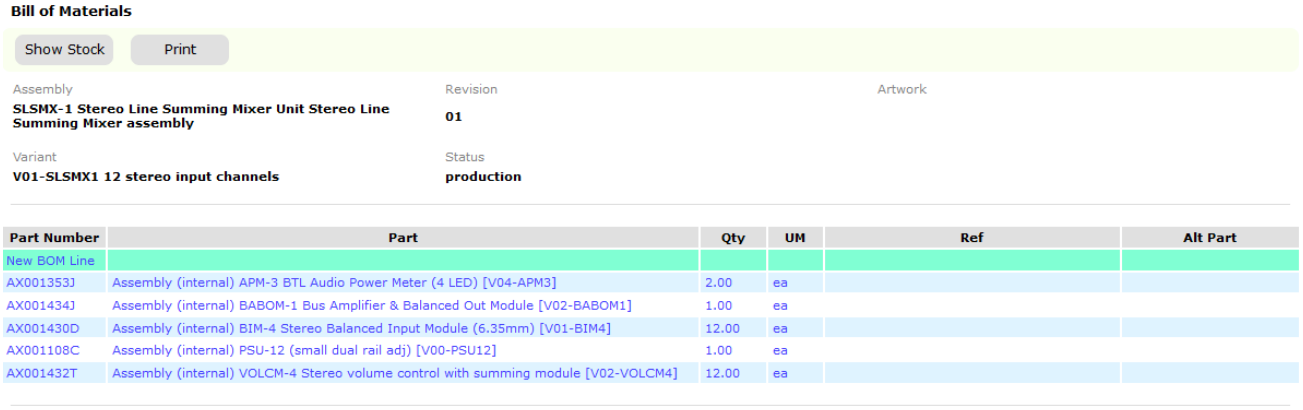
2.3.3 Assemblies with Sub-Assemblies

It is possible to build an assembly that contains other assemblies, known as sub-assemblies. An example in a product that contains a number of different circuit boards along with other hardware.

This is created in the same way as any other assembly, except that assemblies will be selected as the parts for the BOM. Each assembly will have a variant as well which is displayed to ensure the correct variant of the sub-assembly is specified.



The variant is also shown in the BOM part listing.

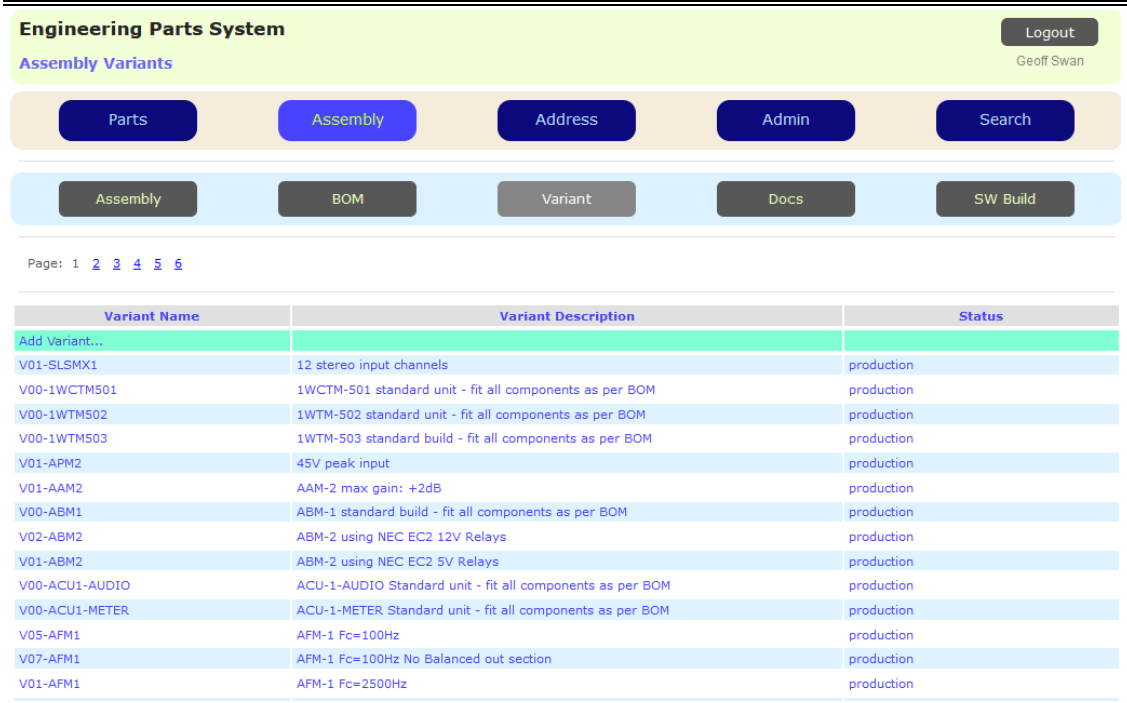


Part Number	Part	Qty	UM	Ref	Alt Part
New BOM Line					
AX001353J	Assembly (internal) APM-3 BTL Audio Power Meter (4 LED) [V04-APM3]	2.00	ea		
AX001434J	Assembly (internal) BABOM-1 Bus Amplifier & Balanced Out Module [V02-BABOM1]	1.00	ea		
AX001430D	Assembly (internal) BIM-4 Stereo Balanced Input Module (6.35mm) [V01-BIM4]	12.00	ea		
AX001108C	Assembly (internal) PSU-12 (small dual rail adj) [V00-PSU12]	1.00	ea		
AX001432T	Assembly (internal) VOLCM-4 Stereo volume control with summing module [V02-VOLCM4]	12.00	ea		

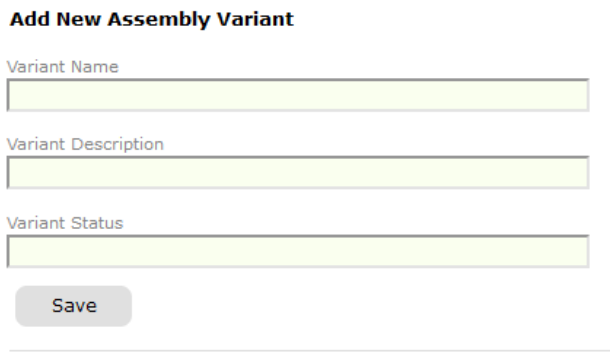
2.3.4 Variant

A variant is a minor change to an assembly to add or remove different options. For example, a linear PSU module may be configured for use as a 12V, 15V, 24V DC output depending on resistor changes. This resistor change becomes a variant of the assembly BOM.

Management of variants is performed on the Variant page (although it is possible to Add a variant in the BOM page). Where an assembly does not currently have any variants, it can be marked with a default variant to fit all components as per BOM.

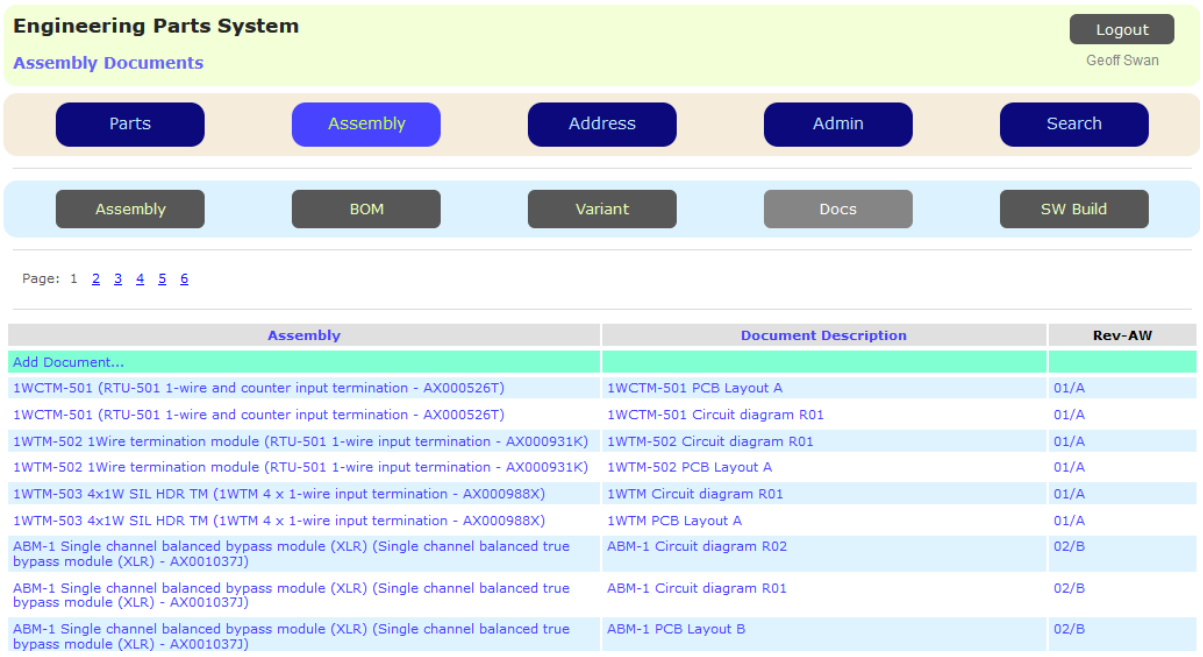


Adding or editing a Variant is done using the “Add Variant...” link or clicking on the Variant name to be edited. The popup appears allowing the variant information to be entered.



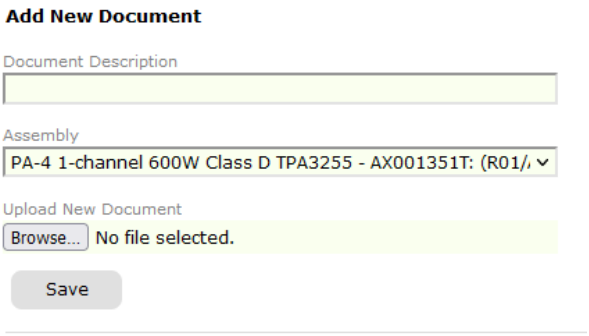
2.3.5 Documents

Assembly documentation is managed in the “Docs” page. This may include circuit diagrams, PCB layout diagrams, mechanical drawings, handbooks and manuals etc. These are usually in pdf format to allow easy browser-based viewing. These are separate from component data sheets, which are attached to components.

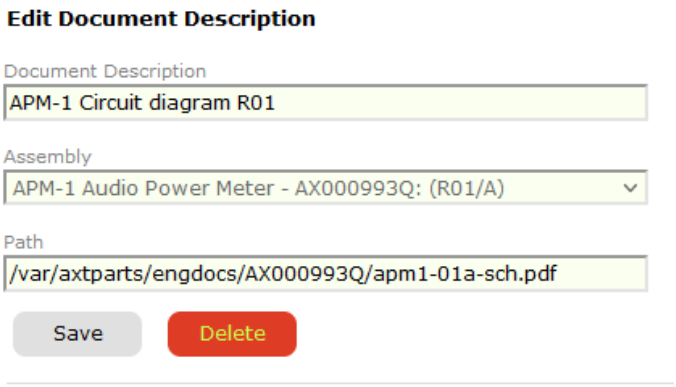


A new document is added using the “Add Document...” link, or an existing document detail is edited by clicking on the description in the Assembly column. To view the document, click on the document description in the right-hand column. These documents are kept out of the web space and require Apache xsendfile to be enabled in order to download them.

When adding a document, the popup below appears. This allows the description to be entered and the assembly to which the document belongs selected. The file is then selected using the ‘Browse...’ button.

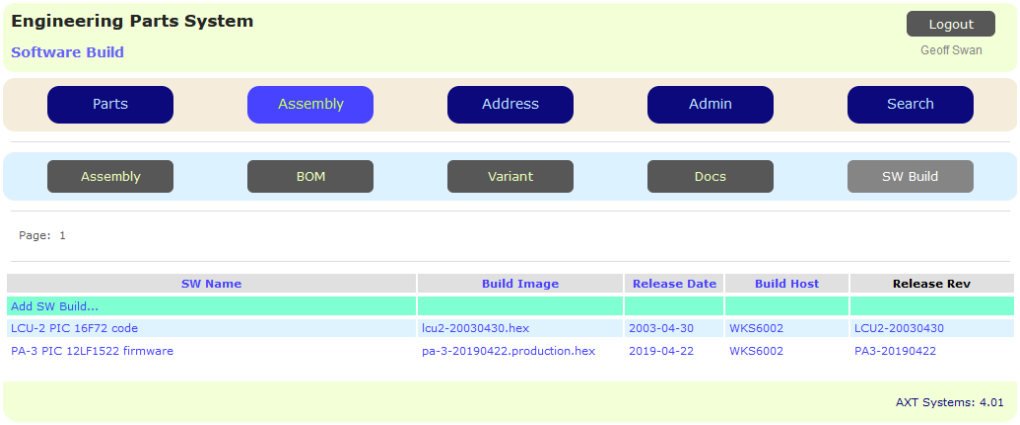


The document is saved in the configured document directory with a path that includes the assembly part number. In the edit popup, the document can be deleted or the description changed.

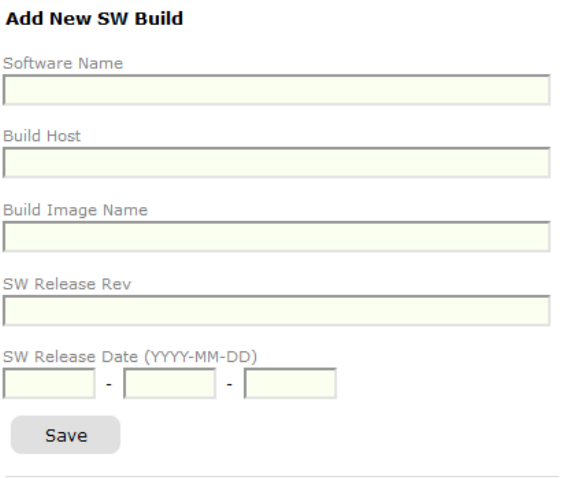


2.3.6 SW Build

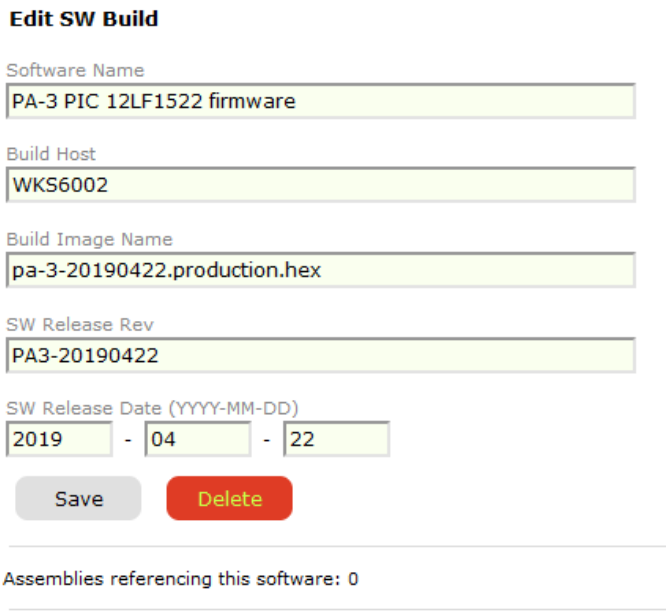
The software build information allows details of software and firmware that is included as part of the assembly to be recorded.



Adding a software/firmware release is done using the “Add SW Build...” link. The popup appears allowing details to be added.



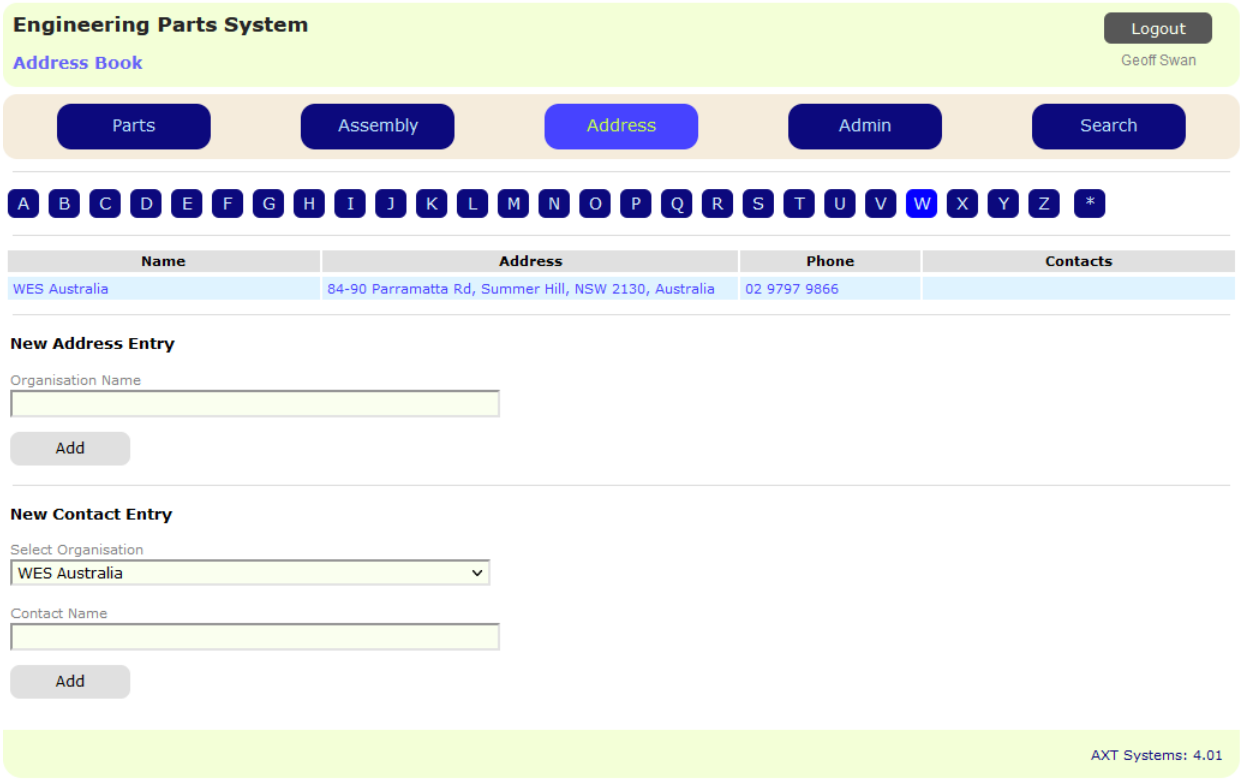
To edit a software build, click on the software name and the edit popup appears.



This is a simple mechanism to identify a particular software release with an assembly. It is not intended to perform any other functions.

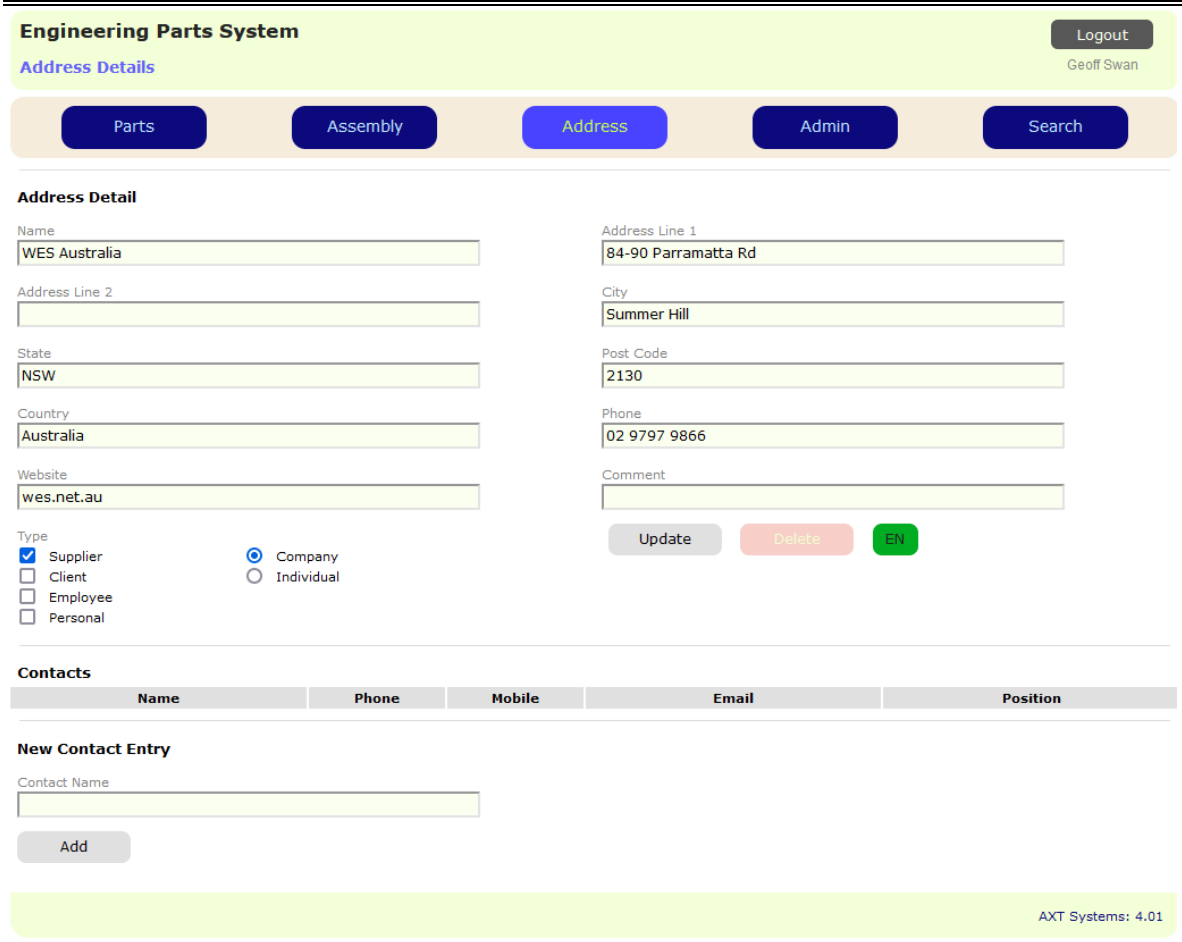
2.4 Address Tab

The address tab is a simple address book, allowing supplier information to be added for convenience, along with contact data for people attached to particular organisations.



A row of alphabetical selection buttons appears at the top and organisation names appear under these whose first letter matches the selected button.

Adding a new organisation address entry is done using the entry box and ‘Add’ button. Organisation detail can be edited or viewed by clicking on the organisation name.



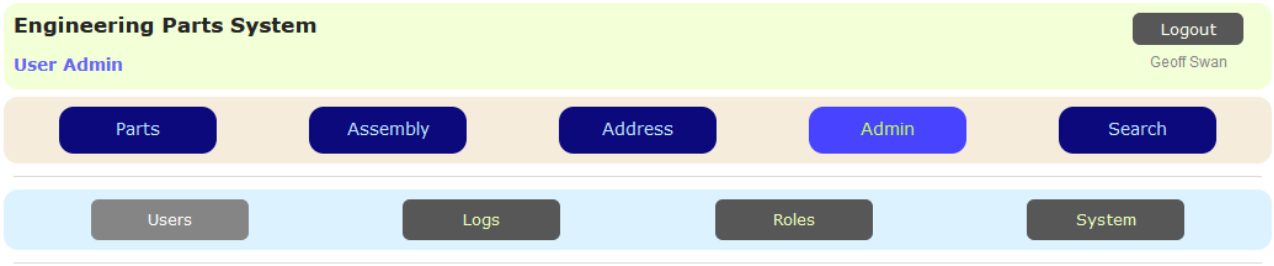
Additional contacts can be added to an organisation here as well as a list of contacts and contact information.

Currently the Address book is used for Manufacturers and Suppliers for components and assemblies. However additional modules have been planned to allow further functionality in the future with other types of address book entries.

2.5 Admin Tab

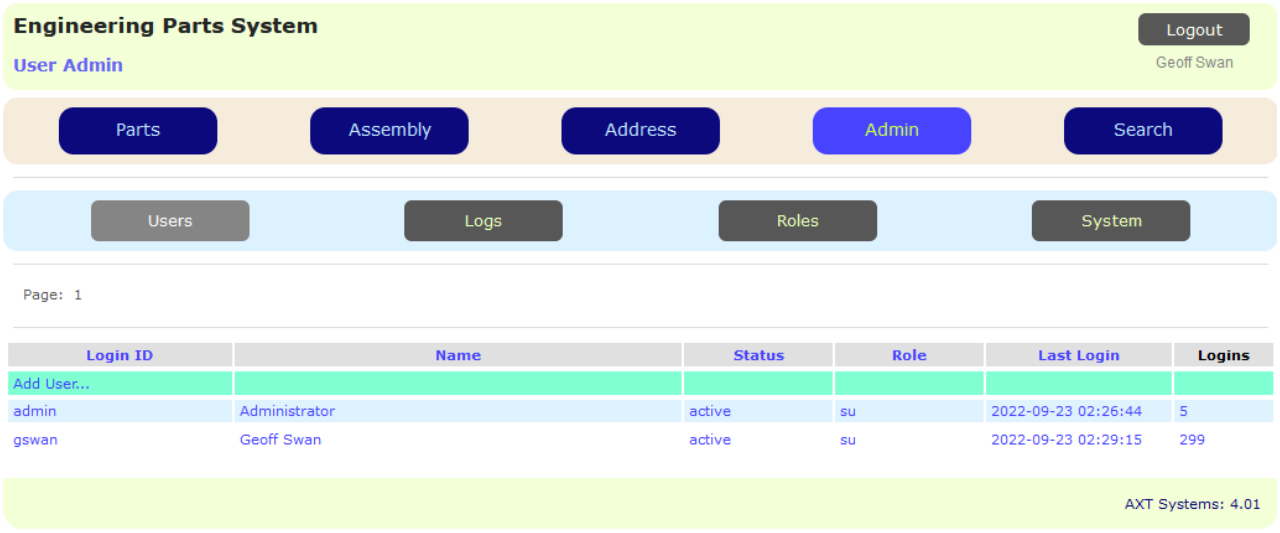
The admin tab is only visible to administrators and is used to create new users and assign permissions and privileges, examine logs and system settings and user role management.

A row of buttons at the top selects the admin pages and functions.

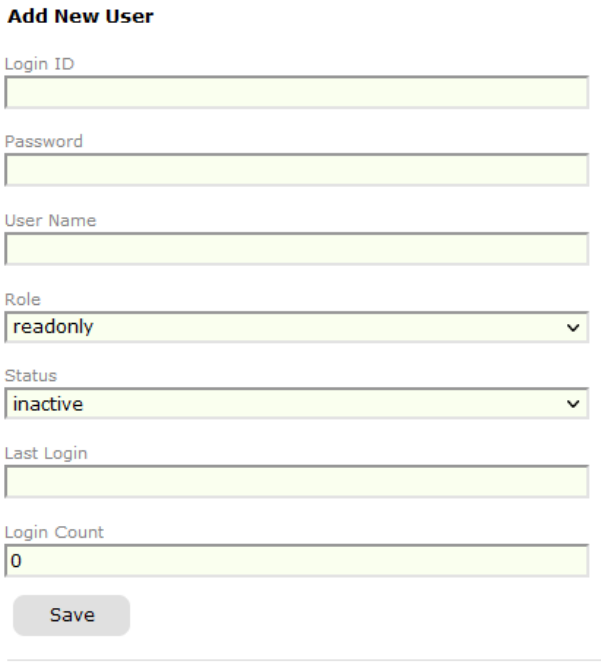


2.5.1 Users

The Users button shows a table of the users registered to log into the parts system. It also shows their status, roles, last login time and a count of logins.



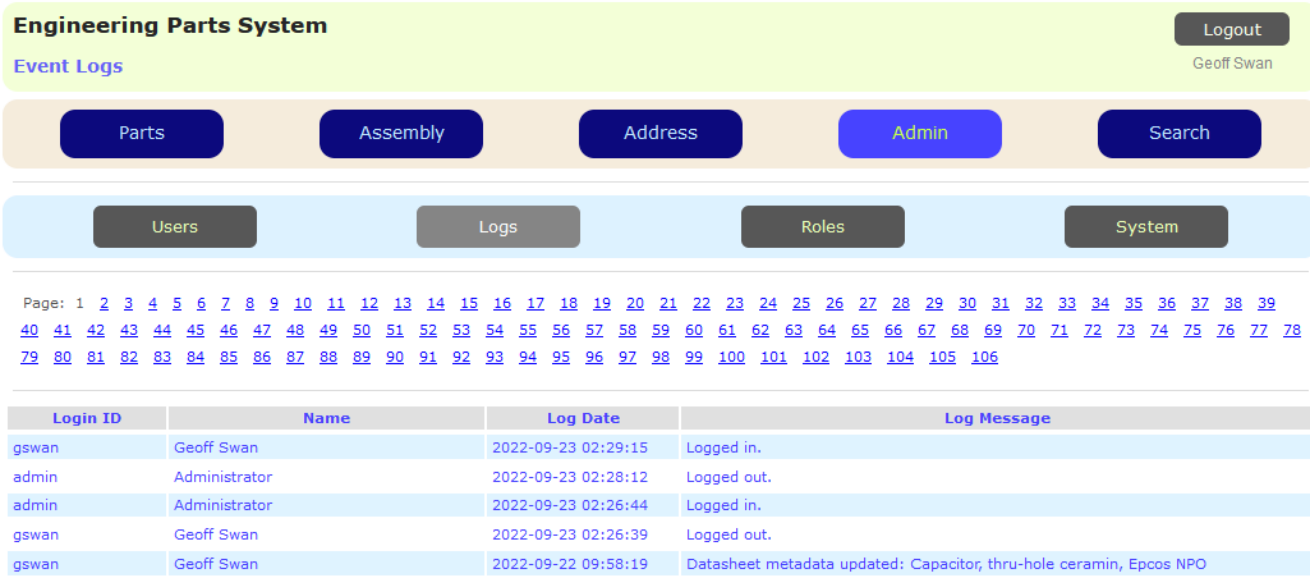
A Use may be added by clicking on the ‘Add User...’ link at the top of the LoginID column.



This will bring up a popup to enter the user information. Editing a user is performed by clicking on the LoginID. A similar popup appears where the user detail can be edited or the user deleted.

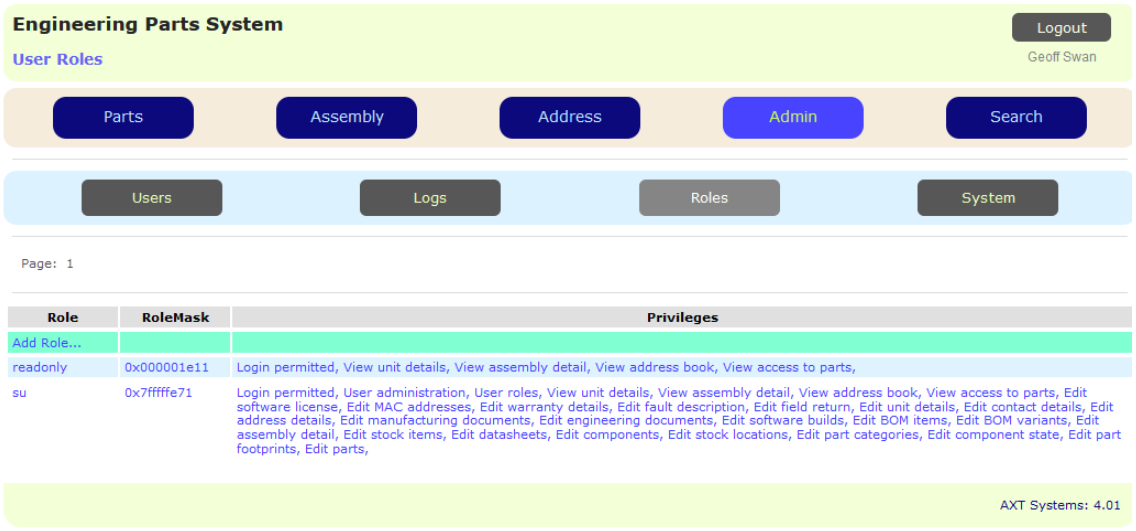
2.5.2 Logs

The Logs page shows a table of reverse-chronologically sorted events that have been performed on the system. These can be sorted by different columns by clicking on the column header.



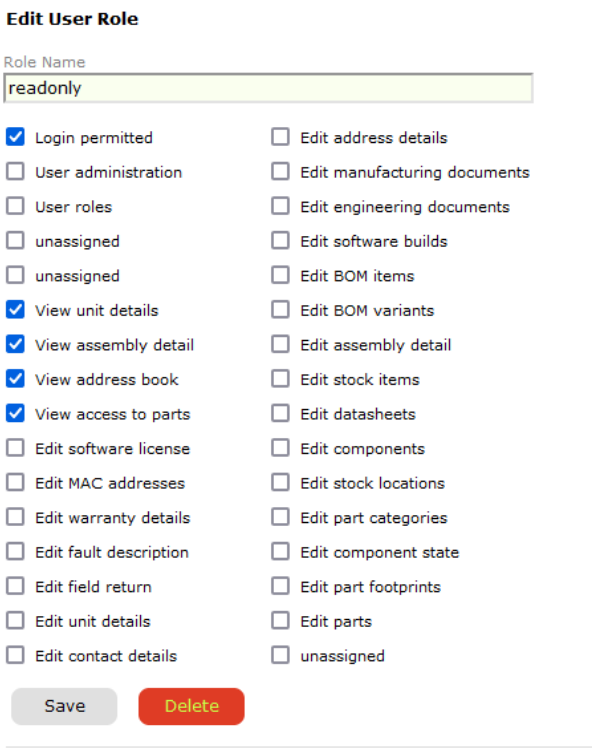
2.5.3 Roles

This page allows the management of user roles and permissions. It shows a table of defined roles and these can be edited by clicking on the Role name, or a new role added by clicking the ‘Add Role...’ link.



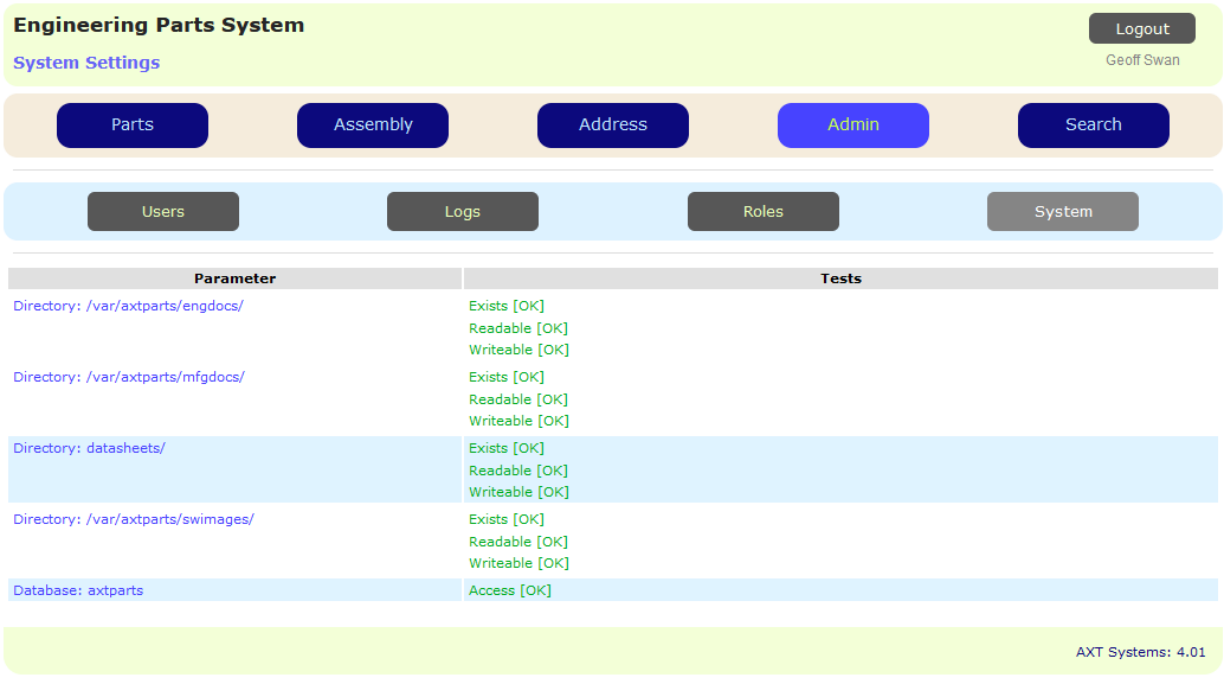
Particular functions are defined as being permitted or not permitted by a role according to the selection of privileges. Some of the functions are not yet implemented (planned future functionality) so perform no useful action at this time.

Roles may also be deleted using this popup.



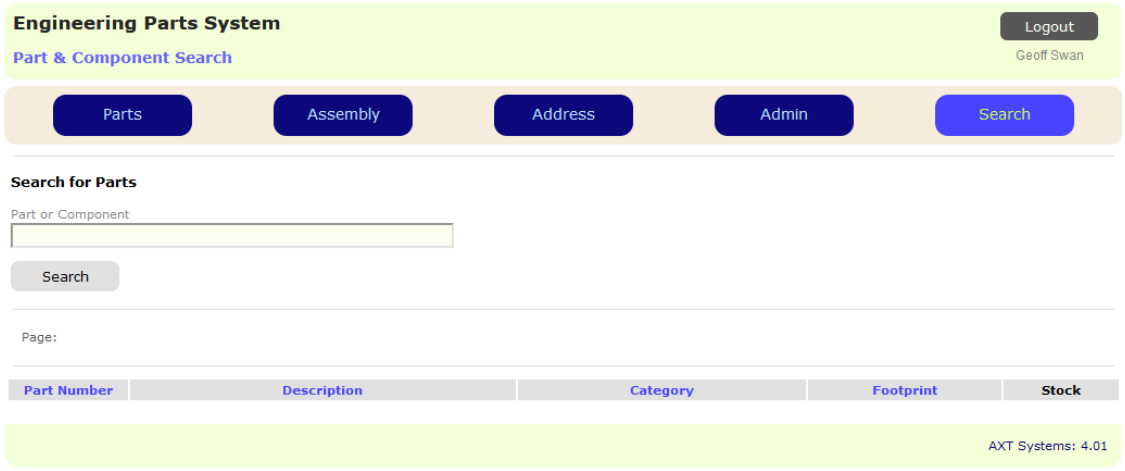
2.5.4 System

The System page is present to show that various settings required for correct operation are present and correct. There is no further functionality for this page.

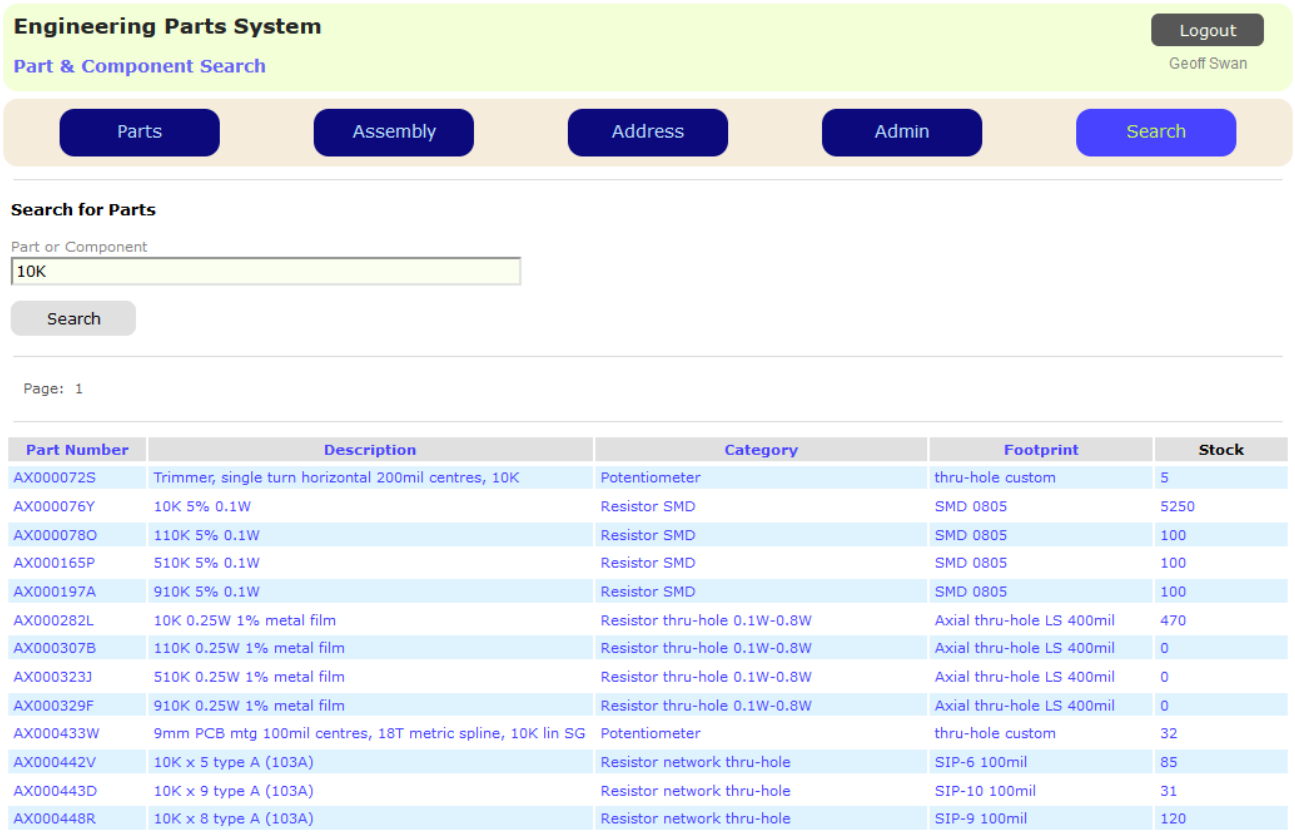


2.6 Search Tab

The Search Tab allows a simple search for a part or component.



Enter the search text and click Search. Results are shown in the table on the page and can be sorted by clicking the column header.



Part Number	Description	Category	Footprint	Stock
AX000072S	Trimmer, single turn horizontal 200mil centres, 10K	Potentiometer	thru-hole custom	5
AX000076Y	10K 5% 0.1W	Resistor SMD	SMD 0805	5250
AX000078O	110K 5% 0.1W	Resistor SMD	SMD 0805	100
AX000165P	510K 5% 0.1W	Resistor SMD	SMD 0805	100
AX000197A	910K 5% 0.1W	Resistor SMD	SMD 0805	100
AX000282L	10K 0.25W 1% metal film	Resistor thru-hole 0.1W-0.8W	Axial thru-hole LS 400mil	470
AX000307B	110K 0.25W 1% metal film	Resistor thru-hole 0.1W-0.8W	Axial thru-hole LS 400mil	0
AX000323J	510K 0.25W 1% metal film	Resistor thru-hole 0.1W-0.8W	Axial thru-hole LS 400mil	0
AX000329F	910K 0.25W 1% metal film	Resistor thru-hole 0.1W-0.8W	Axial thru-hole LS 400mil	0
AX000433W	9mm PCB mtg 100mil centres, 18T metric spline, 10K lin SG	Potentiometer	thru-hole custom	32
AX000442V	10K x 5 type A (103A)	Resistor network thru-hole	SIP-6 100mil	85
AX000443D	10K x 9 type A (103A)	Resistor network thru-hole	SIP-10 100mil	31
AX000448R	10K x 8 type A (103A)	Resistor network thru-hole	SIP-9 100mil	120

The part number can be clicked to bring up the part detail popup.

Document Revision

Revision	Author	Date	Comment	Approval
01	G Swan	2015-09-09	Original issue	
02	G Swan	2017-02-21	Upgraded for new release	
03	G Swan	2018-01-07	Upgraded to include BOM copy feature	
04	G Swan	2022-09-22	Upgraded for responsive version	