

2019

# Data and Research – User Guide

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## Data at your finger tips

This document was prepared by the International Research and Analysis team which provides data, research and analysis on many aspects of international education in Australia and globally.

Available data and research resources include:

- Onshore student data (updated monthly)
- Data visualisations (updated monthly)
- Offshore student data (updated annually)
- Australian students studying offshore (updated annually)
- Research snapshots (including education export income)
- Other international data (including links to other countries international student data)
- Research papers (including the biennial international student survey and reports of other research projects)

Data on international students studying in Australia is extracted from the Provider Registration and International Student Management System (PRISMS) on a monthly basis to update our pivot tables and data visualisations. The data encompasses international students studying in Australia on a student visa. The data does not include students who are Australian or New Zealand permanent residents. The data series commences from January 2002.

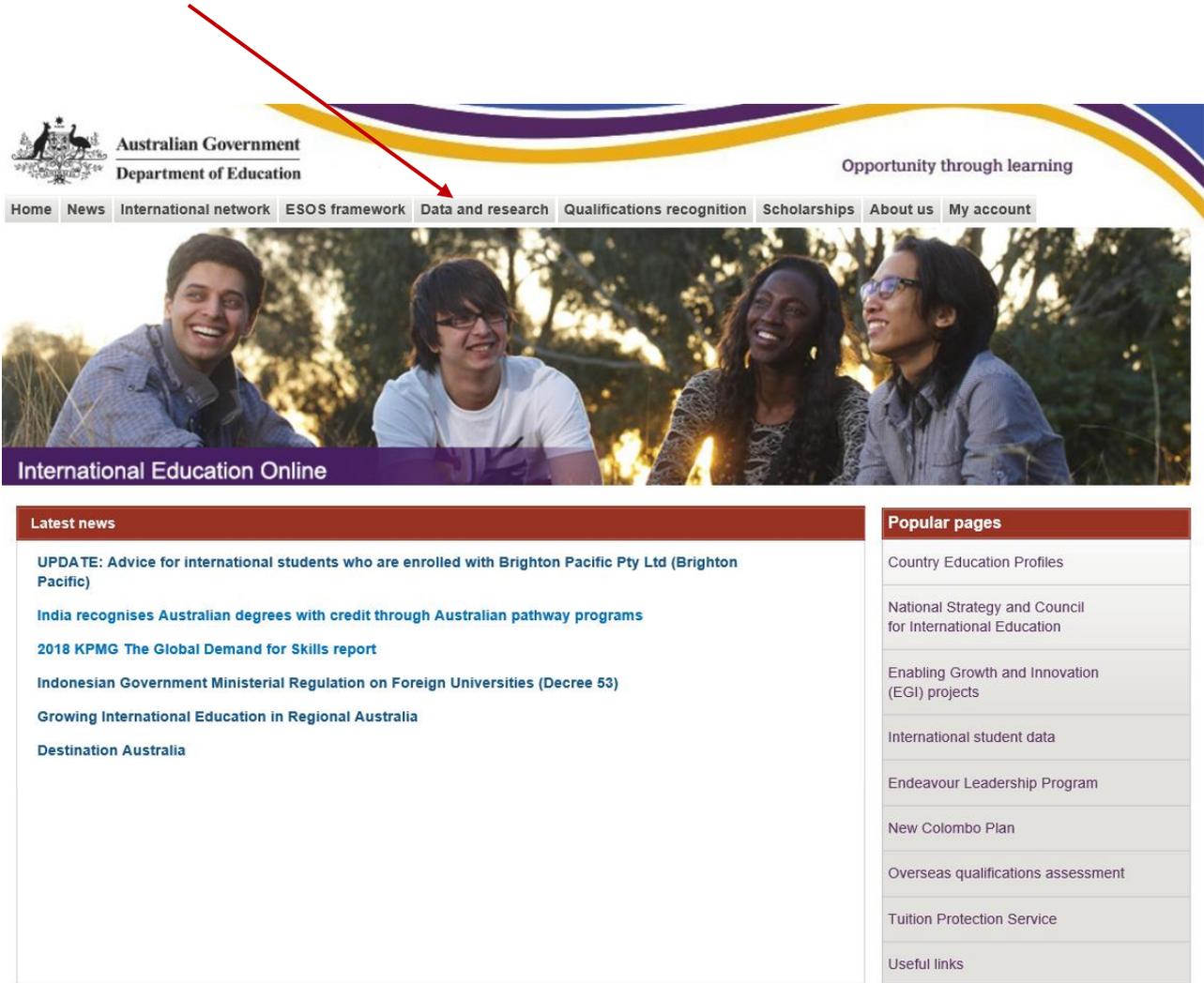
There are international students studying in Australia who are not on a student visa. These students are not captured in PRISMS data, but are the subject of some of our Research Snapshots.

Other information on offshore education delivery by Australian providers and Australian students studying overseas is updated annually from a range of sources, including the department's higher education and vocational education and training data collections (which otherwise mostly focus on domestic students).

Please contact [IEResearch@education.gov.au](mailto:IEResearch@education.gov.au) for further information or assistance.

# Navigating your way to the International student data

The screen shot below is the International Education Online home page (as at June 2019). The simplest way to access the International Student data is to click on the 'Data and Research' shortcut button:



From the **Data and research** main page, you can access the following:

1. International student data
2. Data visualisations (including student “head count” numbers)
3. Research snapshots
4. Research papers
5. Other international data
6. Offshore education data (also known as transnational education)
7. Australian students overseas
8. Archived data



## Data and research

[Print](#)

1. [International student data](#)
2. [Data visualisations](#)
3. [Research snapshots](#)
4. [Research papers](#)
5. [Other International data](#)
6. [Offshore education data](#)
7. [Australian students overseas](#)
8. [Archived data](#)

### Headline research

#### 2018 International Student Survey

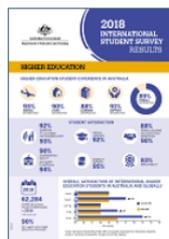
Every two years since 2010, the Australian Government has funded a national survey of international students across Australia’s major education sectors. The 2018 survey is the biggest so far, with over 80,000 international students participating.

The main 2018 survey covers students in Higher Education, Vocational Education and Training, English language institutions and international students in secondary school. The survey found 89 per cent of international students were satisfied or very satisfied with their living and learning experience in Australia.

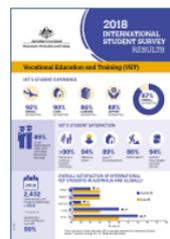
The overall headline findings and sector-level findings are captured in the infographic fact sheets below.



Headline Findings  
(pdf 321KB)



Higher Education  
(pdf 210KB)



VET  
(pdf 221KB)



Schools  
(pdf 186KB)



ELICOS  
(pdf 186KB)

#### 2018 Offshore Higher Education Student Survey

In 2018, the department supported a first-ever satisfaction survey of students who were studying Australian higher education programs offshore, either in their own country or in a major transnational education hub such as Singapore and Malaysia. Eighty six per cent of the students surveyed reported that they were satisfied or very satisfied with their overall study experience.

# International student data

International student data is a monthly summary of international enrolment data. International student data are provided for 2002 onwards. These enrolments and commencement data by month, as well as annual summaries:

## International student data

 Print

<b>International student data</b>	<b>Monthly summary of international student enrolment data</b>
Data visualisations	<b>2019</b>
Research snapshots	 <a href="#">March infographic (pdf 378KB)</a>
Research papers	
Other International data	
Offshore education data	<b>2018</b>
Australian students overseas	 <a href="#">Annual infographic (pdf 418KB)</a>
Archived data	 <a href="#">Annual summary (pdf 757KB)</a>

## International student data

International student data are provided for 2002 onwards. These include enrolment and commencement data by month, as well as annual summaries. **More detailed information can be accessed through [Austrade's Market Information Package \(MIP\)](#).**

- ▶ [2019](#)
- ▶ [2018](#)
- ▶ [2017](#)
- ▶ [2016](#)
- ▶ [2015](#)
- ▶ [2014](#)
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- ▶ [2005](#)
- ▶ [2004](#)
- ▶ [2003](#)
- ▶ [2002](#)

# Data visualisations

Data visualisations are used to explore the International student demographics at Australian institutions:

## Data visualisations



International student data

Data visualisations to explore the international student demographics at Australian institutions.

JavaScript must be enabled on the browser.

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**Data visualisations**

Research snapshots

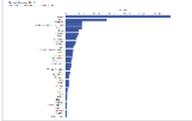
Research papers

Other International data

Offshore education data

Australian students overseas

Archived data



**Student numbers**

A graph showing actual student numbers on a student visa in Australia by nationality and state..

Data can be disaggregated by state, and the user can toggle between the current and last years' data.



**Where do international students come from and what do they study?**

An overview of where international students studying in Australia on a student visa come from and what they are studying here.



**International student enrolments by Australian Statistical Geography Standard (ASGS) SA4 region**

The geographic areas (categorized by ASGS SA4 Level) where international enrolments and commencements are in Australia can be explored by this data visualisation.

The regional data is updated monthly with each release of the international student data.



**Student location map**

(Warning: 20MB data download)

A map showing the distribution of international student enrolments across Australia. Enrolments data can be disaggregated by nationality and education sector.



**Pathways of international students while studying on a student visa**

Pathways of international students while on a student visa. Various pathways can be downloaded, including pathways post ELICOS, post Schools, prior to VET and prior to Higher Education. Pathways cohorts can be examined by nationality.

The pathways data is updated monthly with each release of the international student data.

1. **Student numbers.** A bar chart showing actual student numbers on a student visa in Australia by nationality.
2. **Where do international students come from and what do they study?** An overview of where international students in Australia on a student visa come from and what they are studying here.
3. **International student enrolments by Australian Statistical Geography Standard (ASGS).** The geographic areas where international enrolments and commencements are in Australia.
4. **Student Location.** A map showing the distribution of international student enrolments across Australia.
5. **Pathways of International students while studying on a student visa;** A set of pie charts showing pathways international students may follow through the education sectors while on a student visa. The data has been broken down by pathway type and year. The pathways data is updated monthly with each release of the international student data. Pathways can also be examined by nationality.

# 1. Student Numbers

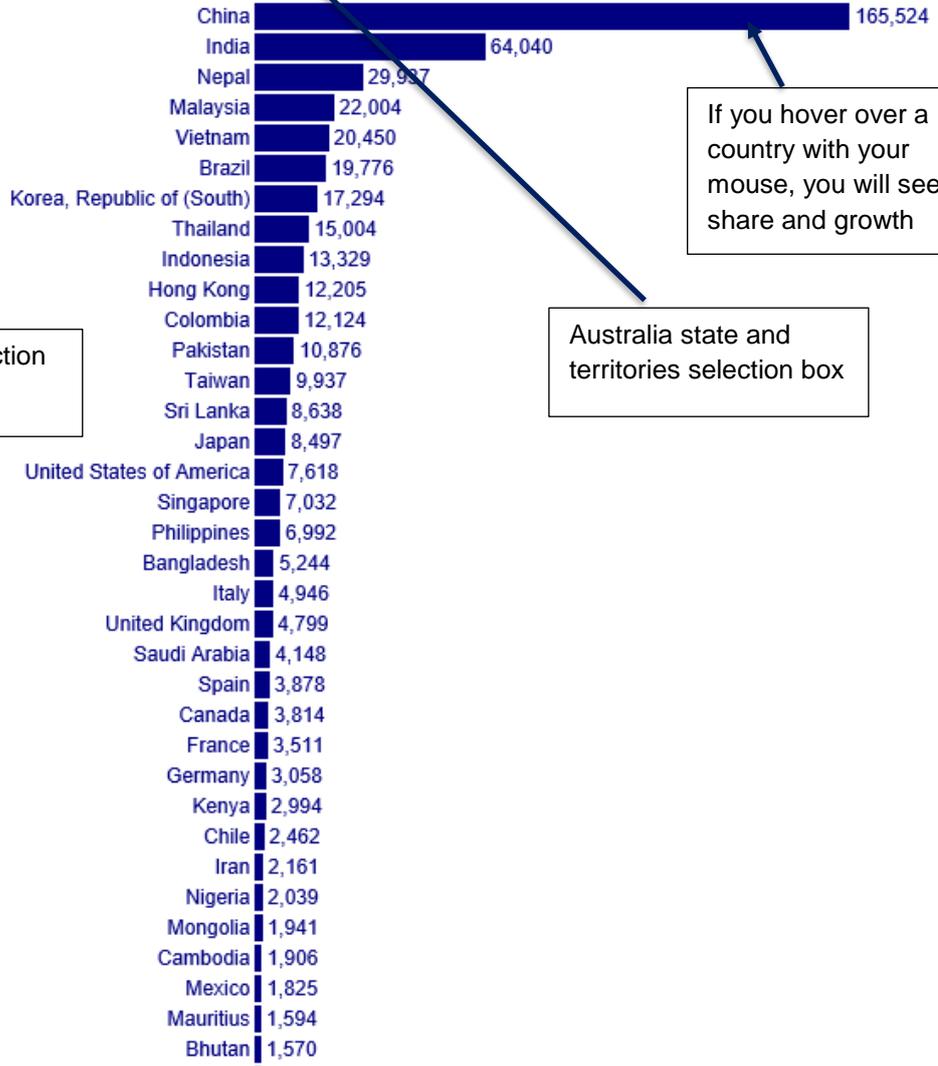
A chart showing student (head count) numbers by nationality. You can change the settings to get student numbers by state and territory and for the previous full year by using the drop down boxes.

## Student numbers

2018 ▾ Mar ▾ Australia ▾

534,189 students in Australia

Share: 100%, Growth: 12%  
January-March 2018



If you hover over a country with your mouse, you will see the share and growth

Australia state and territories selection box

Month selection box

Student Number year selection box

## 2. Where do international students come from and what do they study?

This provides an overview of international students from particular countries, providing a standard visual report of:

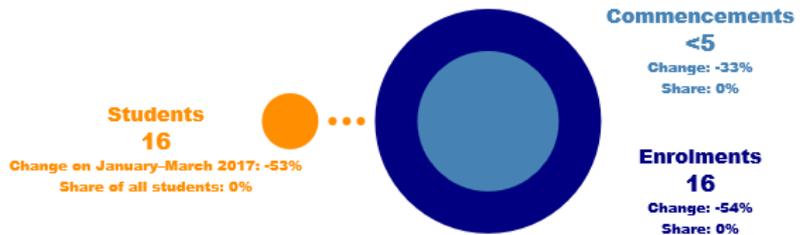
- Student numbers and gender mix
- Enrolments and commencements by sectors; level of study; and field of education.

### Where do international students come from and what do they study?

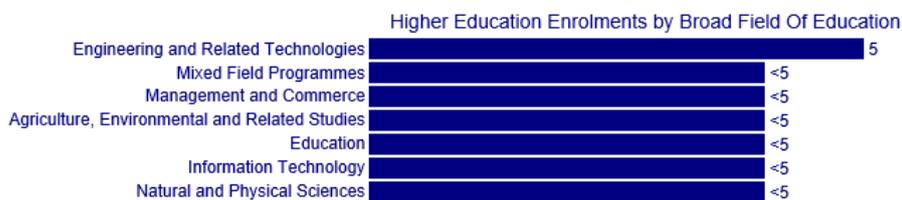
2018 ▾ Mar ▾ Libya ▾



Use the drop down boxes to refine your research through the countries and year.



If you hover over the Commencements with your mouse, you will see the Share and growth.



### 3. International student enrolment by Australian Statistical Standard (ASGS)

Statistical Areas Level 4 (SA4s) are geographical areas to be used for output of a variety of regional data. The SA4 regions cover the whole of Australia without gaps or overlaps. This provides an overview of the enrolments and commencements of international students by geographic areas.

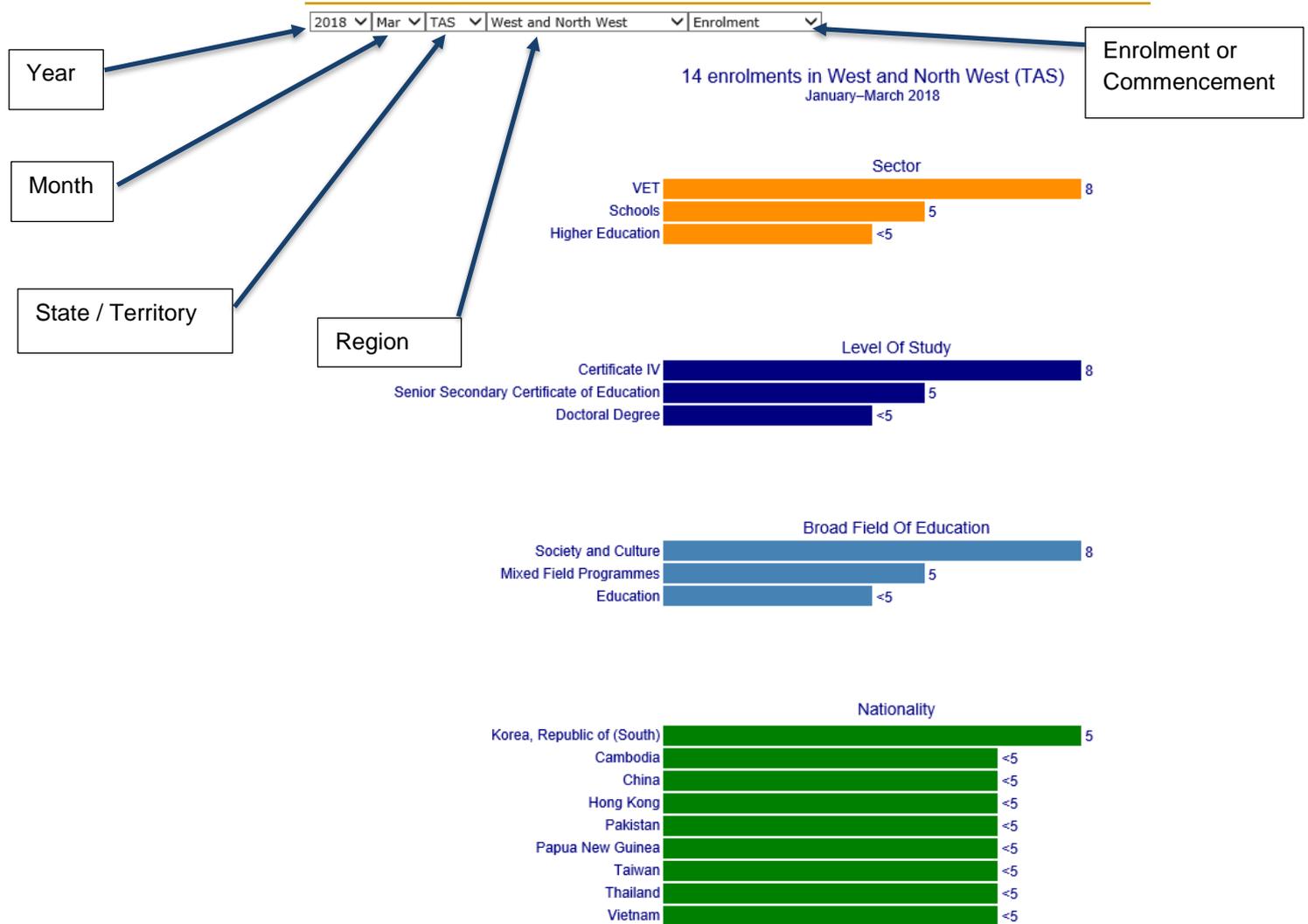
The regional data is updated monthly with each release of the international student data.

You can get enrolments and commencements for international students by regions by clicking on the following:

- Year
- Month
- State / Territory
- Region
- Enrolment / Commencements

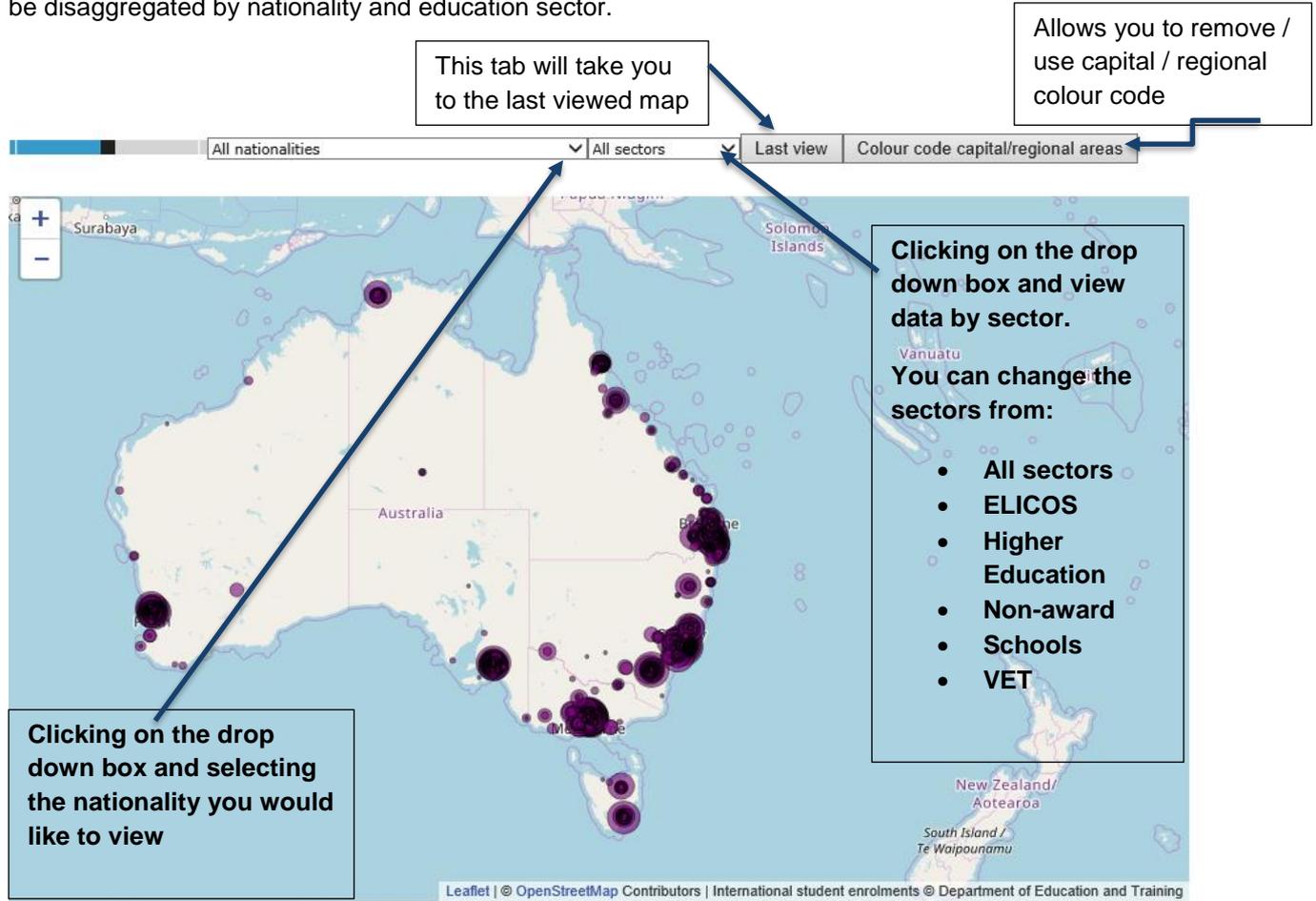
Example: To investigate the enrolments for West and North West of Tasmania in March 2018, you would select the following:

#### International student enrolments by Australian Statistical Geography Standard (ASGS) SA4 region



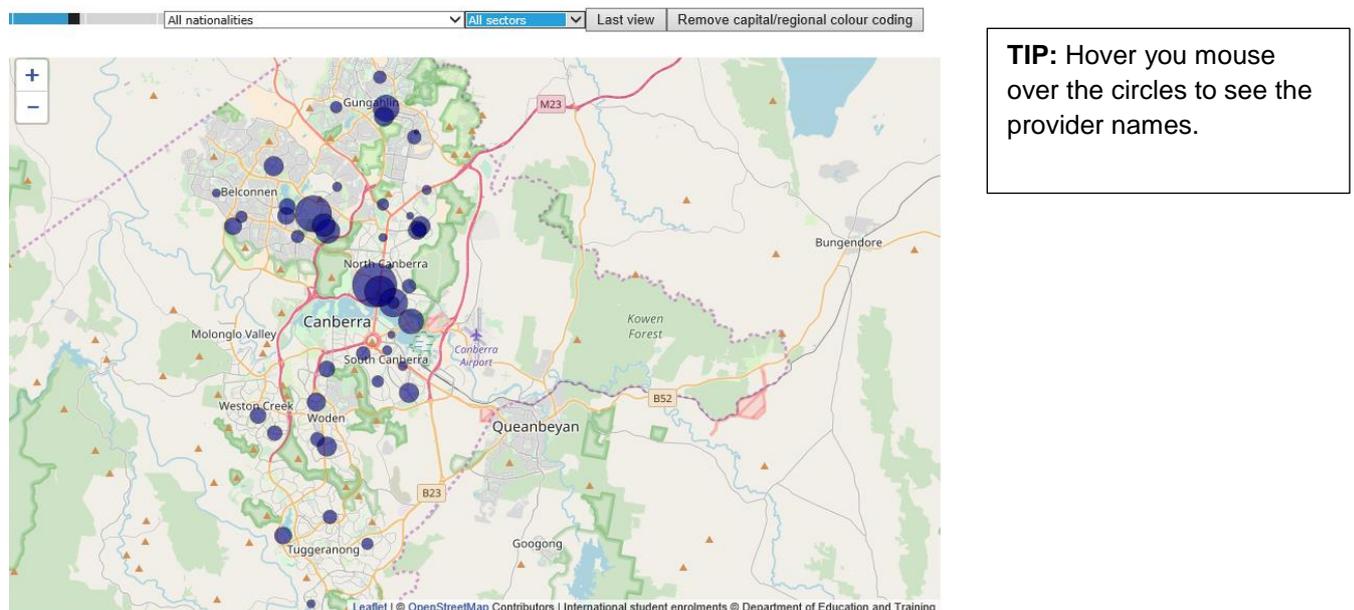
## 4. Student Location

This map shows the distribution of international student enrolments across Australia. Enrolments data can be disaggregated by nationality and education sector.



You can zoom in to a location using your mouse wheel.

*Note: To safeguard the privacy of students, any nationality with less than five enrolments in a state or territory are not shown.*



## 5. Pathways for international students on a student visa

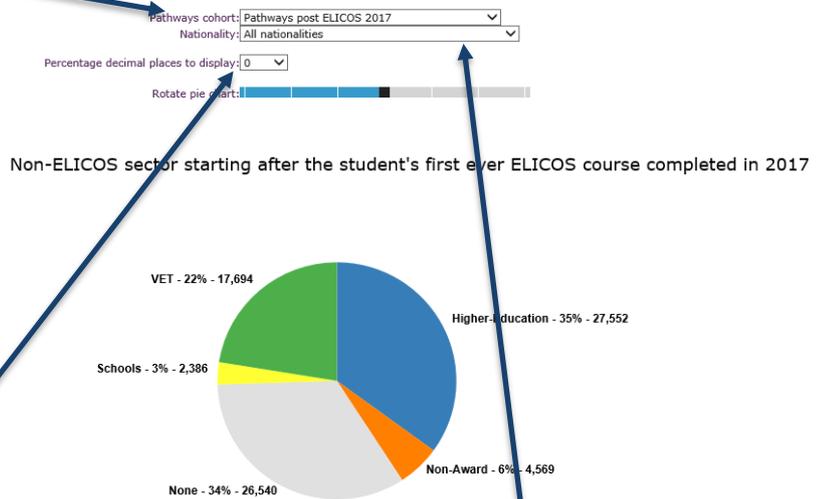
You can get pathways for international students on a student visa by sector by clicking on one of the following:

- Pathways post ELICOS (2015)
- Pathways post ELICOS (2016)
- Pathways post Schools age 17 and over (2015)
- Pathways post Schools age 17 and over (2016)
- Pathways pre Higher education (2016)
- Pathways pre Higher education (2017)
- Pathways pre (VET) 2016
- Pathways pre (VET) 2017

You can set the percentage precision to either 0 or 1 (meaning no decimal point of one decimal point)

You can view data by all nationalities combined or refine the data by one particular nationality.

### Pathways for international students on a student visa

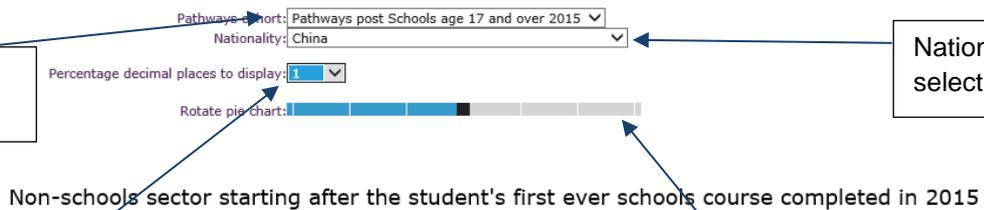


*Example: To investigate what senior secondary school students from China studied in 2017 (after studying school in 2016), you would select the following:*

### Pathways for international students on a student visa

Student pathways selection box.

Nationalities selection box



Percentage precision selection box

Note: You can rotate the pie chart (e.g. if labels are too cluttered)

## Research snapshots

The Research Snapshot series has been developed by the International Research and Analysis Unit to provide stakeholders with summary updates on current activities and developments in international education data and research. The Snapshots are produced regularly, after relevant data are released.

Date	Title	Area of interest
May 2019	Education export income by country (calendar year)	All sectors
	 <p>Snapshot (pdf 780KB)</p>	 <p>Infographic (pdf 455KB)</p>
April 2019	International mobility of Australian university students	Higher Education
	 <p>Snapshot (pdf 641KB)</p>	 <p>Infographic (pdf 534KB)</p>
April 2019	Tuition fees for international students	All sectors
	 <p>Snapshot (pdf 611KB)</p>	
March 2019	Jobs supported by international students studying in Australia	All sectors
	 <p>Snapshot (pdf 496KB)</p>	

# Research papers

This series of papers and reports presents the International Group's research, which highlights detailed trends in Australia's international education sector.

Issue	Title
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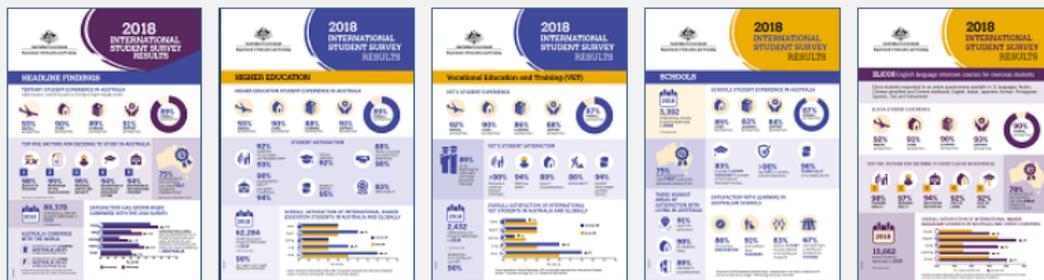
2019/3

## **International Student Survey 2018**

Every two years since 2010, the Australian Government has funded a national survey of international students across Australia's major education sectors. The 2018 survey is the biggest so far, with over 80,000 international students participating.

The main 2018 survey covers students in Higher Education, Vocational Education and Training, English language institutions and international students in secondary school. The survey found 89 per cent of international students were satisfied or very satisfied with their living and learning experience in Australia.

The overall headline findings and sector-level findings are captured in the infographic fact sheets below:



Headline Findings  
(pdf 321KB)

Higher Education  
(pdf 210KB)

VET  
(pdf 221KB)

Schools  
(pdf 186KB)

ELICOS  
(pdf 186KB)

2019/2

## **2018 Offshore Higher Education Student Survey**

In 2018, the department supported a first-ever satisfaction survey of students who were studying Australian higher education programs offshore, either in their own country or in a major transnational education hub such as Singapore and Malaysia. Eighty six per cent of the students surveyed reported that they were satisfied or very satisfied with their overall study experience.



Infographic  
(pdf 3.2MB)

Report  
(pdf 17.9MB)

2019/1

## **International education data gaps: Sector perspectives**

The Department of Education and Training funded International Education Association of Australia (IEAA) to undertake a comprehensive analysis of existing international education data, as well as identifying any data gaps or areas for improvement. The consultation process engaged almost 200 stakeholders between October 2017 and April 2018. This included an online survey, as well as face-to-face focus groups where providers shared their experiences with using existing data sets, discussed opportunities for improvement and identified critical data gaps.

The report is available [here](#).

## Other International data

This page has been created to provide a single point of access to external sources of Australian and international education data. For example:

- Australia
- USA
- UK
- Canada
- New Zealand
- Global

### Australia Department of Education



#### Higher Education

The Department of Education manages the Higher Education Statistics Collection which provides data relating to domestic and international students studying in Australian higher education institutions.

### Department of Home Affairs



#### Student Visa statistics

The Department of Home Affairs publishes quarterly and annual reports which provide data about Australia's Student Visa Program. These reports incorporate data on student visa applications lodged and student visas granted.



#### Temporary Entrants in Australia (Stock Data) Statistics

The Department of Home Affairs publishes quarterly reports on the number and composition of temporary entrants and New Zealand citizens present in Australia at a particular date, including student visa holders



#### The Outlook for Net Overseas Migration

The Department of Home Affairs provides a summary of current immigration statistics including permanent additions, settler arrivals, permanent departures, visitors, students and business visas. Department of Home Affairs provides a summary of current immigration statistics including permanent additions, settler arrivals, permanent departures, visitors, students and business visas.

### National Centre for Vocational Education Research (NCVER)



#### Vocational Education and Training (VET)

NCVER is an independent body responsible for collecting, managing and analyzing national vocational education and training (VET) statistics and survey data which covers both domestic and international students studying in Australian public VET institutions.

### English Australia



#### English Language Intensive Courses for Overseas Students (ELICOS)

English Australia is the national peak body for the ELICOS sector and publishes data on international ELICOS students in Australia both on student visas and on other types of visas.

## Offshore education data (also known as transnational education)

1. Delivery of Australian higher education courses offshore
2. Delivery of Australian vocational education and training (VET) courses offshore.

Data on offshore students is collected by other areas of the Department of Education. There are two Research Snapshots available on offshore students in Higher Education and Vocational Education and Training (VET).

Detailed data tables are available at the Offshore education data tab. Higher education student's data tables have been extracted from the Higher Education Information Management System and from the National Centre for Vocational Education Research (NCVER) national data collection on VET students.

**Australian Government**  
**Department of Education**  
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### Offshore education data Print

**Data on the Offshore Delivery of Australian Courses**

**Delivery of Australian higher education courses offshore**

*Current*  
[2017 Excel file](#)

This excel file has been extracted from the Higher Education Statistics Collection to provide a comprehensive record of offshore students enrolled in Australian higher education courses. It uses 'term residence' to identify whether students are studying onshore or offshore.

*Earlier data*  
Earlier data can be accessed from the [Higher Education Statistics Collection](#) by sending a query to [university-statistics@education.gov.au](mailto:university-statistics@education.gov.au)

**Delivery of Australian vocational education and training (VET) courses offshore**

*Current*  
Since 2015, data on offshore VET students and VET courses delivered offshore can be extracted from the Total VET Activity (TVA) data collection. For more information contact the National Centre for Vocational Education Research (NCVER) at [ncver@ncver.edu.au](mailto:ncver@ncver.edu.au)

[Total VET program enrolments 2017](#)  
[Total VET program enrolments 2016](#)  
[Total VET students and program enrolments 2015](#)

*Earlier data*  
Prior to 2015, the Australian Government provided funding to the NCVER to conduct an annual survey of Australian Technical and Further Education (TAFE) institutions to identify how many students were studying Australian VET courses offshore. Reports are available for the following years:

[2014](#)  
[2013](#)

Offshore education data tab

Data tables  
Current / Earlier data  
For Higher Education  
and VET

# Australian Students Overseas

1. Australian students studying overseas
2. Graduate Outcomes Survey (GOS)

Data on Australian university students is collected by the universities and reported through the Australian International Universities Director's Forum (AUIDF).

These data are summarised in a Research Snapshot and data tables are available at the Australian student overseas tab.

Data on the employment outcomes of Australian higher education graduates who studied overseas is also provided.

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## Australian Students Overseas

**Australian students studying overseas**  
Since 2009, the Australian Universities International Directors' Forum (AUIDF) has undertaken annual surveys of Australian universities to gather data on their students who study overseas. In 2017, 37 universities responded to the study. A data table of recent survey data is here:  
[2017 survey data tables \(xlsx 42KB\)](#)

A summary of information can be found in the [research snapshot](#) and in the [infographic](#).

**Graduate Outcomes Survey (GOS)**  
The GOS is funded by the Australian Government Department of Education and Training and was administered by the Social Research Centre in 2017. An extract of the 2017 GOS data focusing on the employment outcomes of Australian higher education graduates who studied overseas is provided here:  
[2017 GOS data tables \(xlsx 20KB\)](#)

A summary can be found in the [infographic](#).

For more information visit [The Quality Indicators of Learning and Teaching website](#)

**Australian students overseas**

International student data  
Data visualisations  
Research snapshots  
Research papers  
Other International data  
Offshore education data  
**Australian students overseas**  
Archived data

Australian student's overseas data tab

Data tables

Research snapshots / infographic

# Using Pivot Tables in Excel



Fields enable the data to be either **filtered** or **grouped**.

There must also be at least one **data field** in the table to provide the numbers for the summary.

In the example above there are 2 data fields displayed. They are:

**DATA YTD Enrolments**

and

**DATA YTD Commencements.**

The fields can be moved with the mouse to different areas of the pivot table to give different summaries and aggregations of the data.

## 2. Page Area

Purple highlight in figure 1 (columns A-B, rows 1-3)

The page area is used to locate the fields used for **filtering** the data.

It can also be used as a convenient place to locate fields not currently being used (also see the Pivot Table Field List which will be explained below).

In the example above the State, Month and Sector fields are in the PAGE area and the Month field has been set to **Jun**. The numbers displayed in the data area reflects what is selected by this filter (i.e. June data is showing).

## 3. Data Area

Green highlight in figure 1.

This area contains the numeric summaries determined by the fields in the row, page and column areas.

In the example above the data fields are **DATA YTD Enrolments** and **DATA YTD Commencements.**

The type of summary used in the example is **SUM**, giving:

**Sum of DATA YTD Enrolments** and **Sum of DATA YTD Commencements** (See below for more ways to summarise the data).

### IMPORTANT

When using international student data pivot tables, data fields are prefixed by the word DATA. These are the only fields that should be placed in the data area.

#### 4. Row Area

Pale Yellow highlight in figure 1

The items of fields placed in the row area will be displayed and the summaries created will form the rows of the data area.

In the example above the Nationality field is in the row area.

When clicking on the down arrow next to a field name, a list of items will appear in a drop down menu. The boxes next to each item allow for selection of specific items or combinations of items.

More than 1 field can be placed in this area (see: *Stacking Fields*).

#### 5. Column Area

Blue highlight in figure 1

The items of fields placed in the column area will be displayed and the summaries created will form the columns of the data area.

In the example above the Year field is in the column area. More than 1 field can be placed in this area (see: *Stacking Fields*).

When clicking on the down arrow next to a field name a list of items will appear in a drop down menu. The boxes next to each item allow for selection of specific items or combinations of items.

#### 6. Pivot Table Field List

Not all available fields need to be shown in the Page, Row, Column or Data areas. To simplify using the pivot table, only those fields currently being used need to be displayed.

A full list of all the fields available can be seen in the **Pivot Table Field List**.

To open the Pivot Table Field List:

Hover over the pivot table with the mouse pointer and click within the pivot table area to reveal the Pivot Table Fields Sub-Menu

Fields that are currently displayed in the pivot table are shown in **bold**

Fields that are not displayed are shown in normal font

To display a field not already in the pivot table:

Use the mouse to select the field from the Pivot Table Field List

Drag/Drop it to the appropriate area in the pivot table

The field will now be shown in **bold** in the Field list

To remove a field that is currently displayed in the pivot table:

Select the field to be removed with the mouse

Drag it out of the pivot table area until you see a red X beside the mouse icon

Drop the field icon.

The field will now appear in the Pivot Table Field List in normal font. The Pivot Table Field List can be locked to the sides of the screen. Drag the box to the left or right and when positioned correctly it will snap to the side and expand. In this position it will remain displayed while a cell in the pivot table is selected.

⇒ **Identify the Page, Row, Column, Data Areas on the IE Basic Pivot table, and open the Pivot Table Field List.**

## Using Fields to summarise data

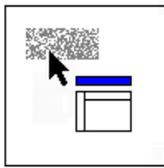
### 1. Moving Fields

Fields in any part of the pivot table can be moved to any other part of the pivot table.

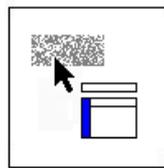
To move fields simply select them with the mouse and drag/drop them in the new location.

When you move fields around, you will see a small icon representing a pivot table next to your mouse pointer with the area highlighted in blue into which the field is to be dropped. For example, when a field is dragged into the Row area, the symbol will appear next to the mouse pointer with the Row area highlighted. See below for examples:

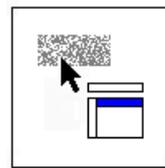
Field Drop Locations:



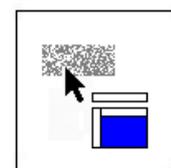
PAGE area



ROW area



COLUMN area



DATA area

Be careful where you locate **data** fields—they should only be in the data area.

### 2. Stacking Fields

Fields can be stacked in the row or column areas, enabling more complex summaries of the data.

To stack fields, select fields from the Page area or the Field List and drag/drop them in the appropriate area.

You can stack several fields in the row and/or column areas, but stacking too many fields can make the data difficult to read.

In the example below, the **State** (blue highlight) and **Sector** (yellow highlight) fields are **stacked** in the Row Area, providing a breakdown of enrolments data by State and Sector (Row) and Year (Column), for year-to-date August (Page Area) up to 2008.

	A	B	C	D	E	F	G	H	I
1	Month	Aug							
2	Nationality	(All)							
3									
4	Sum of DATA YTD Enrolments		Year						
5	State	Sector	2002	2003	2004	2005	2006	2007	2008
6	NSW	ELICOS	19,944	18,759	18,801	19,285	22,986	31,642	38,515
7		Schools	6,946	8,318	8,584	7,488	7,030	7,905	9,266
8		VET	23,233	24,860	25,622	28,316	34,719	48,549	67,030
9		Higher Education	39,164	45,353	51,779	57,297	59,418	60,984	61,645
10		Other	8,476	9,056	8,983	8,864	8,498	8,721	9,496
11	NSW Total		97,763	106,346	113,769	121,250	132,651	157,801	185,952
12	VIC	ELICOS	9,177	10,973	11,299	10,367	12,026	18,284	22,139
13		Schools	6,715	7,864	7,838	7,122	6,721	7,444	8,096
14		VET	11,554	11,621	12,046	14,632	20,175	33,735	48,355
15		Higher Education	35,382	42,314	47,077	49,863	51,768	54,049	57,049
16		Other	5,581	5,620	5,444	5,450	5,668	6,115	6,754
17	VIC Total		68,409	78,392	83,704	87,434	96,358	119,627	142,393
18	Grand Total		166,172	184,738	197,473	208,684	229,009	277,428	328,345
19									
20									

### 3. Filtering Data

Fields in the PAGE area can be used to filter the data. For example you may just want to analyse data for one particular sector.

To apply a filter, do the following:

Make sure the field to be filtered is in the Page Area

(If the Sector field is not in the page area, use the mouse to drag it there).

Click the down-arrow at the right of the field box.

This will reveal the items of the field.

Because the field is in the **page area**, you can select one or multiple items.

Click the item to be filtered by, and click OK.

The data and summaries will now reflect the filter applied.

The field will show the item of the filter applied e.g. ELICOS as shown below:

Month	Mar	▼
Nationality	(All)	▼
State	(All)	▼
Sector	ELICOS	▼
	Data	Ye
	Sum of DATA	
	2015	20
Total	64,688	

To remove the filter, follow the same procedure, but select **(All)**.

In the example below you can see that the items of the Sector field are (All), ELICOS, Schools, VET, Higher Education, and Other (Non-award). Higher Education is selected and this is reflected in the sector field in the Page area.

	A	B	C	D	E	F	G	H	I
1									
2	Month	Aug							
3	Sector	Higher Education							
4	Nationality	(All)							
5									
6	Sum of DATA YTD Enrolments	Year							
7	State	2002							
8	NSW	39,164							
9	VIC	35,382							
10	QLD	17,789							
11	SA	4,921							
12	WA	11,181							
13	TAS	1,131	1,346	1,604	1,874	2,186	2,368	2,526	
14	NT	218	204	152	160	211	274	334	
15	ACT	2,777	3,521	3,794	3,902	3,941	4,052	4,447	
16	Grand Total	112,563	131,745	147,723	159,518	165,984	171,392	179,136	
17									

#### 4. Selecting Data

When fields are displayed in the row or column areas you can use the Item Selector to limit which data are displayed. This is similar to applying a filter, but you can select more than one item.

The Item Selector is a good way to see what items are contained within a field.

In the example below, the Sector field items are shown with just ELICOS and VET selected.

When specific selections are made the summaries in the data area and grand totals reflect these selections.

The **(Show All)** option enables you to over-ride an existing selection.

Clicked once it will SELECT ALL items. Clicked a second time it will DE-SELECT ALL items.

	A	B	C	D	E	F	G	H
1	Month	Aug						
2	State	(All)						
3	Nationality	(All)						
4								
5	Sum of DATA YTD Enrolments	Year						
6	Sector	2002						
7	ELICOS	44,294						
8	VET	47,201						
9	Grand Total	91,495						
10								
11								

#### IMPORTANT

If you make a selection of items in a field that is in the row or column area, and then MOVE this field to the Page Area, the selection will be retained and the data will be filtered based on this.

- In the example above if the Sector field is moved to the Page Area, the selection (**ELICOS and VET**) will be retained and the data and summaries displayed will reflect this.
- The Sector page field item will show **(Multiple Items)**.
- To change the selection of items or to include all items, you must open the item selector of the field to make your new selection.

	A	B	C	D	E	F	G	H	I
1	Month	Aug							
2	Nationality	(All)							
3	State	(All)							
4	Sector	(Multiple Items)							
5									
6	Sum of DATA YTD Enrolments	Year							
7		2002	2003	2004	2005	2006	2007	2008	
8	Total	91,495	97,565	99,998	106,002	127,664	178,448	239,700	
9									
10									

## 5. Drill Through

Drill Through enables you to view the raw data that makes up the summaries on the screen. This is especially useful if you are a MIP subscriber and using the Standard or Detailed pivot tables from the Austrade website.

To drill through, select a number in the pivot table and double click on it. A new worksheet will open with the raw data. You can safely delete the new worksheet with the raw data or close the pivot table, without having an impact on the pivot table.

## 6. Sorting Items and Data

It is often convenient to sort items in different ways. For example, you may want to sort Nationality alphabetically, or by the number of enrolments.

To sort items by name:

Locate the field to be sorted in the row or column area.

Select one cell in the item list.

Click the sort buttons in the menu at the top of the screen to sort the items based on their

name:  .

To sort items by data values:

Locate the field to be sorted.

Note that to sort by data **value**, the field to be sorted must be in the column area.

Select one cell in the data area belonging to that field.

Click the sort buttons in the menu at the top of the screen to sort the items based on their

data values:  .

## 7. Grouping Items

You may wish to group part of an item list, and view the remaining items as individual items.

For instance, you may wish to look at data for New South Wales, Victoria and Queensland as individual states, but group all the other states into a single item, and show aggregate data for the group.

When items are grouped, the data aggregates based on the groupings.

To group items:

Locate the field containing the items to be grouped in a row or column area. For this example, use Row Area.

Using the mouse and holding down the Ctrl key, select the items to be grouped. In the example below, this would be Western Australia, South Australia, Australian Capital Territory, Tasmania and the Northern Territory.

Right-click in the selected cells and select **Group** ⇒ **Group...**

The table now has a new field called **State2** added:

In the **State2** field the grouped states are collectively shown as **Group1**. You can safely rename the grouped items, rather than keeping them called Group 1 or 2.

Aggregations in the data area reflect the grouping.

The **State** field remains in the **Row Area**. This can be moved to the Page Area.

See the example below:

	A	B	C	D	E	F	G	H	I
1	Month	Aug							
2	Sector	(All)							
3	Nationality	(All)							
4	State	(All)							
5									
6	Sum of DATA YTD Enrolments	Year							
7	State2	2002	2003	2004	2005	2006	2007	2008	
8	NSW	97,763	106,346	113,769	121,250	132,651	157,801	185,952	
9	VIC	68,409	78,392	83,704	87,434	96,358	119,627	142,393	
10	QLD	38,834	44,468	48,369	49,904	53,591	59,004	72,318	
11	Group1	42,689	49,518	52,111	55,157	58,555	63,941	73,726	
12	Grand Total	247,695	278,724	297,953	313,745	341,155	400,373	474,389	
13									
14									

⇒ Using the IE Basic Pivot Table, practise moving and stacking fields, filtering and selecting data, drilling through, sorting by item lists and data values.

## Summarising Data in Pivot Tables

There are many ways to summarise the data in a pivot table. As well as simple aggregations of data, you can find differences, percentages, contributions and more.

You can concurrently show different kinds of summaries for the same data field. For example, you can show the year to date enrolment volumes, the change on the previous year, and the percentage change.

We will investigate how to use different types of summaries in the exercise below.

⇒ EXERCISE 1

**Use the IE Basic Pivot Table to show Year-to-Date Enrolments, Differences from Previous Year and Percentage Growth, by Sector and Year:**

Close and re-open the IE Basic Pivot Table

Organise the table as follows:

Month, Sector, State and Nationality fields are in the **Page Area**.

The Year field is in the **Column Area**

The DATA YTD Enrolments field is in the **Data Area**

The DATA YTD Commencements field is not displayed

(Open the Data item selector, click the item called **Sum of Data YTD Commencements** to de-select it and click OK)

Check that the Month field has a filter for the current month applied

Open the Pivot Table Field List (right click in the data area ⇒ Show Field List)

Drag the field called **DATA YTD Enrolments** into the **data area**

Repeat step 6

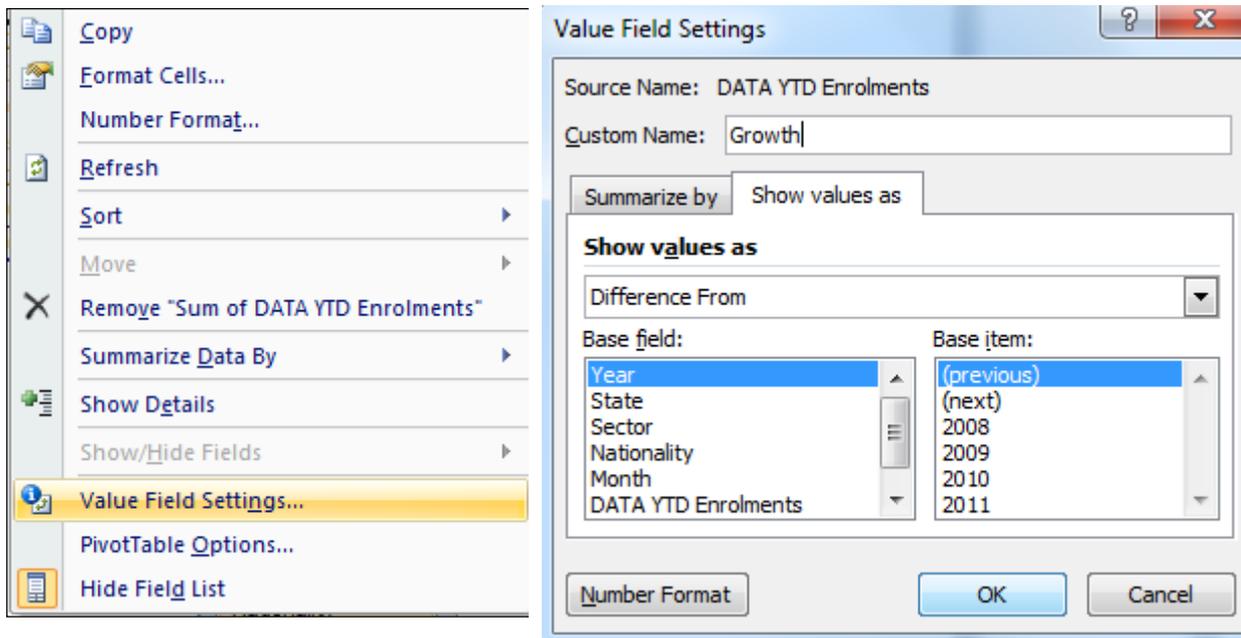
Drag the Data field to the **Row Area**. Your pivot table should now look like this (the Month filter and data may be different):

	A	B	C	D	E	F	G	H	I
1	Month	Jun							
2	Sector	(All)							
3	State	(All)							
4	Nationality	(All)							
5									
6		Year							
7	Data	2002	2003	2004	2005	2006	2007	2008	2009
8	Sum of DATA YTD Enrolments	204,594	232,646	250,084	264,772	286,286	328,543	390,733	467,407
9	Sum of DATA YTD Enrolments2	204594	232646	250084	264772	286286	328543	390733	467407
10	Sum of DATA YTD Enrolments3	204594	232646	250084	264772	286286	328543	390733	467407
11									
12									
13									

1. Right-click on the cell called **Sum of YTD Enrolments2** and select Value Field Settings (Figure 1).

The Value Field Settings dialogue box opens (Figure 2):

**Figure 2**



In the “Custom Name” box type “Growth”

Click the “Show value as”

Click the drop-down button (currently set to Normal)

Select “Difference From” from the “Show value as” box

Select Year from the “Base field” box

Select (Previous) from the “Base item” box

Click OK

Right-click on the cell called **Sum of YTD Enrolments3** and select Field Settings.

The PivotTable Field dialogue box opens

In the “Name” box type “% Growth”

Click the “Show value as” field

Click the drop-down button (currently set to Normal)

Select “% Difference From” from the “Show value as” box

Select Year from the “Base field” box

Select (Previous) from the “Base item” box

Click OK.

Your pivot table should now look like this (the Month filter and data may be different):

	A	B	C	D	E	F	G	H	I
1	Month	Jun ▼							
2	Sector	(All) ▼							
3	State	(All) ▼							
4	Nationality	(All) ▼							
5									
6		Year ▼							
7	Data	▼ 2002	2003	2004	2005	2006	2007	2008	2009
8	Sum of DATA YTD Enrolments	204,594	232,646	250,084	264,772	286,286	328,543	390,733	467,407
9	Growth		28052	17438	14688	21514	42257	62190	76674
10	%Growth		13.71%	7.50%	5.87%	8.13%	14.76%	18.93%	19.62%
11									
12									

Finally, move the Sector field into the row area, to the left of the Data fields to break the data down by sectors.

You can put the row items (in this case the sector names) into a different order.

To do this, click into the cell with the relevant sector name, hover over the cell border and place the pointer either on the upper or lower part of the cell border. Then click on that part of the border, drag the cell in the desired direction and release the mouse button.

In the example below, the sector names have been re-organised according to IE convention: Higher Education, VET, ELICOS, Schools, Other.

Your pivot table should now look like this (the Month filter and data may be different):

	A	B	C	D	E	F	G	H	I	J
1										
2	Month	Jun								
3	State	(All)								
4	Nationality	(All)								
5										
6			Year							
7	Sector	Data	2002	2003	2004	2005	2006	2007	2008	2009
8	Higher Education	Sum of DATA YTD Enrolments	93,265	110,301	124,988	137,865	143,947	145,969	149,282	166,604
9		Growth	17036	14687	12877	6082	2022	3313	17322	
10		%Growth	18.27%	13.32%	10.30%	4.41%	1.40%	2.27%	11.60%	
11	VET	Sum of DATA YTD Enrolments	40,869	44,229	44,716	49,175	59,465	83,894	122,643	170,789
12		Growth	3360	487	4459	10290	24429	38749	48146	
13		%Growth	8.22%	1.10%	9.97%	20.93%	41.08%	46.19%	39.26%	
14	ELICOS	Sum of DATA YTD Enrolments	36,287	38,910	39,866	39,192	45,588	59,865	76,488	85,777
15		Growth	2623	956	-674	6396	14277	16623	9289	
16		%Growth	7.23%	2.46%	-1.69%	16.32%	31.32%	27.77%	12.14%	
17	Schools	Sum of DATA YTD Enrolments	18,719	22,534	23,502	21,436	20,162	21,236	22,959	23,014
18		Growth	3815	968	-2066	-1274	1074	1723	55	
19		%Growth	20.38%	4.30%	-8.79%	-5.94%	5.33%	8.11%	0.24%	
20	Other	Sum of DATA YTD Enrolments	15,454	16,672	17,012	17,104	17,124	17,579	19,361	21,223
21		Growth	1218	340	92	20	455	1782	1862	
22		%Growth	7.88%	2.04%	0.54%	0.12%	2.66%	10.14%	9.62%	
23	Total Sum of DATA YTD Enrolments		204,594	232,646	250,084	264,772	286,286	328,543	390,733	467,407
24	Total Growth			28052	17438	14688	21514	42257	62190	76674
25	Total %Growth			13.71%	7.50%	5.87%	8.13%	14.76%	18.93%	19.62%
26										
27										
28										

The table now shows:

- Enrolment volumes (**Sum of Data YTD Enrolments**)
- Volumes growth on the previous year (**Growth**)
- Percentage growth on the previous year (**% Growth**)

For year to date June of each year displayed (**Month filter = "Jun"**)

By Sector and Year (no filters applied to these fields)

## Creating and using Pivot Charts

Pivot Charts are a powerful and flexible way of visually representing data contained in pivot tables. The look and feel of the chart can be changed and the fields represented in the chart can be dragged and dropped, and filtered in the same way as in the pivot table.

Pivot Charts are linked to pivot tables. They are usually created in a separate worksheet in the pivot table file.

We will investigate how to use different types of summaries in the exercise below.

### ⇒ EXERCISE 2

#### Create a Pivot Chart to show Year-to-Date Enrolments by Year and Sector:

1. Close and re-open the IE Basic Pivot Table.
2. Organise the table as follows:

Month, State and Nationality fields are in the **Page Area**.

The Year field is in the **Column Area**.

The Sector field is in the **Row Area**.

The DATA YTD Enrolments field is in the **Data Area**.

The DATA YTD Commencements field is not displayed.

(Open the Data item selector, click the item called **Sum of Data YTD Commencements** to de-select it and click OK).

Check that the Month field has a filter for the current month applied.

Your pivot table should now look like this (the Month filter and data may be different):

	A	B	C	D	E	F	G	H	I
1									
2	Month	Jun							
3	State	(All)							
4	Nationality	(All)							
5									
6	Sum of DATA YTD Enrolments	Year							
7	Sector	2002	2003	2004	2005	2006	2007	2008	2009
8	ELICOS	36,287	38,910	39,866	39,192	45,588	59,865	76,488	85,777
9	Schools	18,719	22,534	23,502	21,436	20,162	21,236	22,959	23,014
10	VET	40,869	44,229	44,716	49,175	59,465	83,894	122,643	170,789
11	Higher Education	93,265	110,301	124,988	137,865	143,947	145,969	149,282	166,604
12	Other	15,454	16,672	17,012	17,104	17,124	17,579	19,361	21,223
13	Grand Total	204,594	232,646	250,084	264,772	286,286	328,543	390,733	467,407
14									
15									

Select the data for the chart or click a cell within the pivot table area then left click Insert to expose the pivot table tools in the ribbon, Click on Pivot Chart to display all charts available for the selection.

Show a picture of the Pivot Table tool bar:

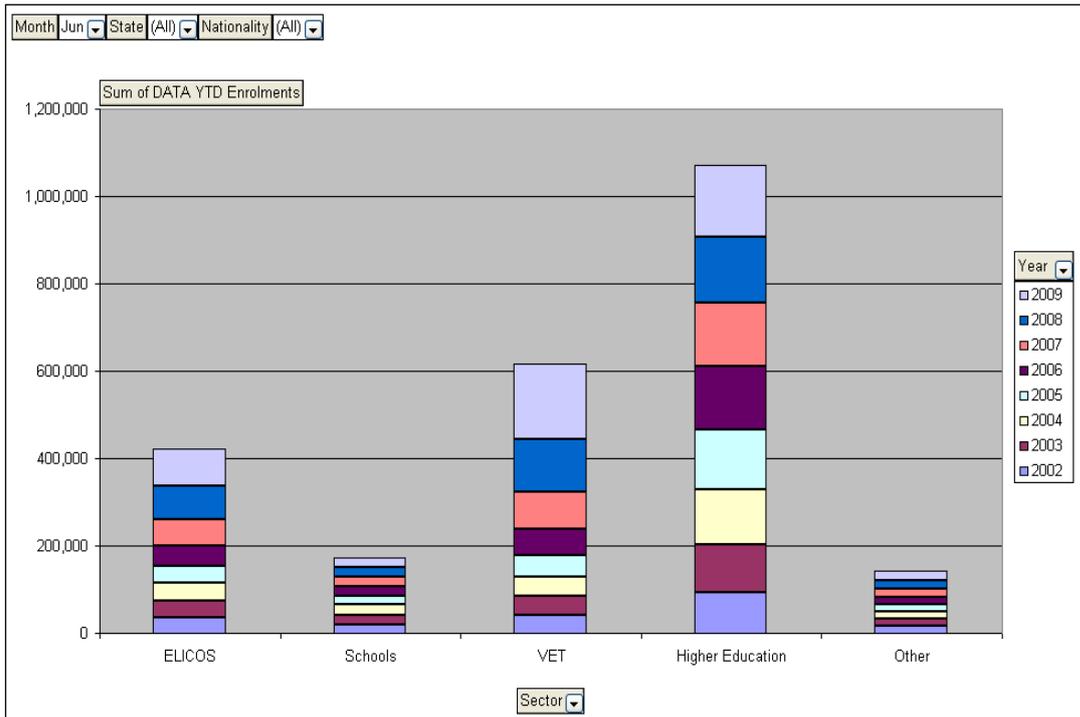


View ⇒ Toolbars ⇒ PivotTable

Select one chart from the chart icon ⇒  and click ok.

The chart is displayed in a new worksheet.

Your pivot chart should now look like this (the Month filter and data may be different):



Notice that the fields are represented in the chart with the same drop-down arrows to the right hand side.

The Month, Nationality and State fields are in the **Page Area** of the chart and can be used for filtering the data.

The DATA YTD Enrolments field is in the **Data Area** and the summary type is set to **Sum**.

The Sector field is providing values for the **X axis**.

The Year field is providing the breakdown within each sector value. A legend is automatically generated.

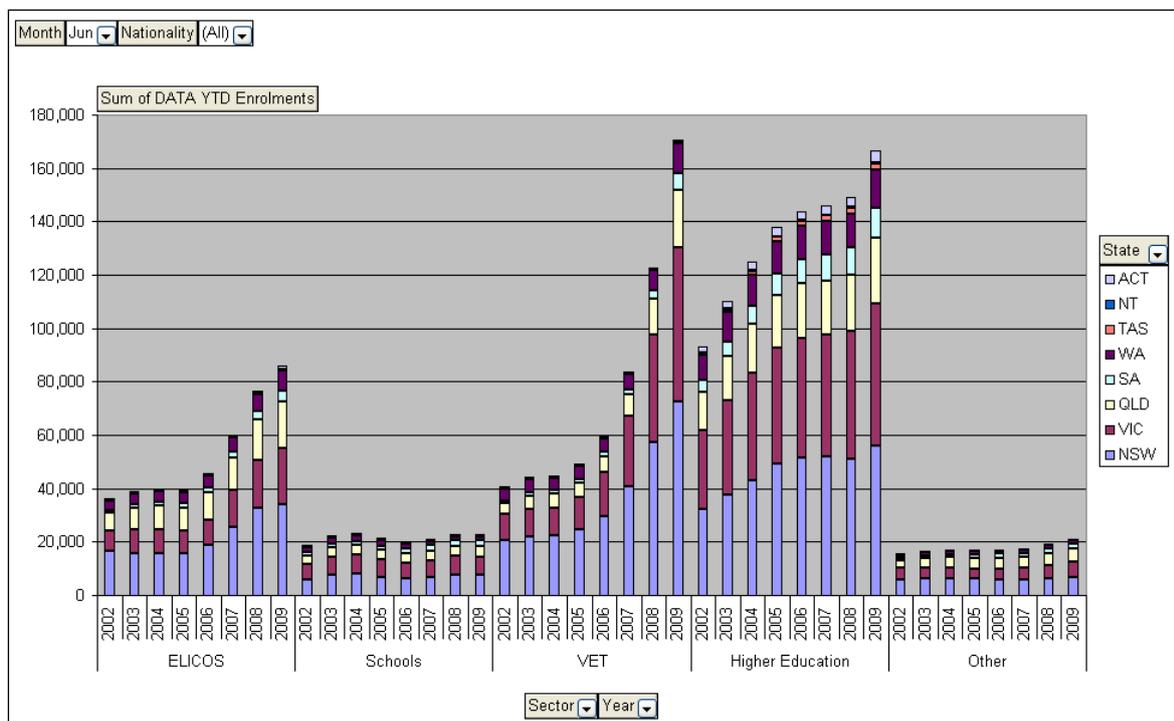
The chart is of limited use as currently set up. To make it more useful:

Drag/drop the Year field to the right of the Sector field.

The chart will change in appearance.

Drag/Drop the State field to where the year was.

Your pivot chart should now look like this (the Month filter and data may be different):



We now have a chart showing how enrolment grows from one year to the other as at Year-to-date June, by Year and Sector, with a breakdown by State. We can see from this that:

- VET sector enrolments grew quickly from 2007 to 2009.
- ELICOS enrolments also grew, but at a slower rate and from a smaller base.
- Higher Education enrolments grew at a decreasing rate.
- Schools and Other sector enrolments are relatively stable.

To finish the exercise, manipulate the fields to determine which state is growing the fastest.

This is a very brief summary of how to use Pivot Chart tools. There are many other things you can do such as change the chart type, manipulate colours, use calculated fields and more.

## Interpreting Data in Pivot Tables

Understanding the fields in a pivot table is a critical aspect of their successful use. Invalid interpretations of data can occur when fields are not properly understood.

This is particularly the case when using the **data fields** in the IE pivot tables. The data fields are **aggregated** each month throughout the year. So the March Enrolment and Commencement data are the sum of January, February and March data.

So you would not sum the year-to-date enrolments or commencements data over two months (say July and August) because you would be adding the data from January to July AND January to August, giving a highly inflated result.

Therefore, in most cases you would locate the Month field in the Page Area, and filter on the month required. For year to date information it would be the month of the most recent data update. For data on an entire calendar year you would set the month to December. In this case you would not see any data for the current year.

Looking at the fields we have used so far:

Type	Field Name	Interpretation
Display	Month	The month up to and including which the enrolments occurred
	Sector	The sector in which the enrolments occurred
	State	The state in which the enrolments occurred
	Nationality	The nationality of the students enrolling
	Year	The year in which the enrolments occurred
Data	Sum of YTD Enrolments	The number of enrolments from 01 January to the end of the reference month in the reference year.
	Growth	<p>This is the difference between the enrolments in one year up to the month selected and enrolments in the previous year up to the month selected.</p> <p>There is no figure for 2002 because there is no data for years prior to 2002.</p>
	% Growth	<p>This is the percentage difference between the enrolments in one year up to the month selected and enrolments in the previous year up to the month selected.</p> <p>There is no figure for 2002 because there is no data for years prior to 2002.</p>

## Copying Data from Pivot Tables

It is often useful to copy data summaries from a pivot table to another excel file for archiving, presentation or further analysis.

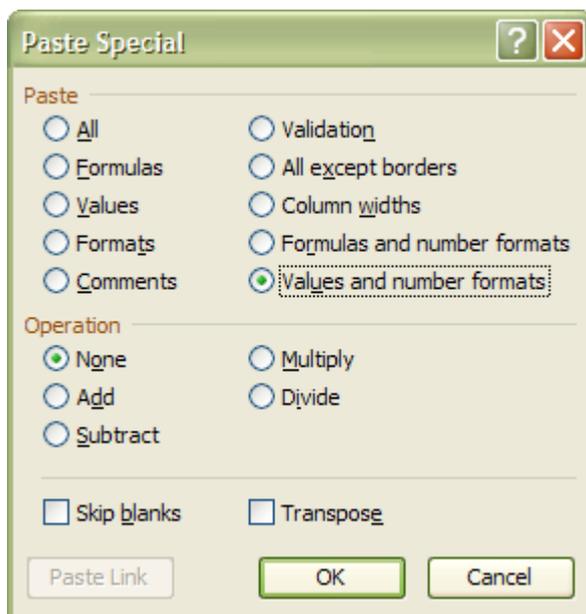
Care should be taken when copying data from a pivot table to another spreadsheet, especially if the new spreadsheet is to be subsequently emailed.

Depending on how you copy and paste the data, you can inadvertently copy all the data underlying the pivot table as well, which will increase the size of the excel file many-fold, although you may not be able to see the data.

To copy data from a pivot table to another excel file:

1. Select all the cells in the table and right-click
2. Choose "Copy"
3. Navigate to the desired cell in the new Excel file

Select "Edit ⇒ Paste Special" from the top menu, select "Values and number formats" and click OK



The data values will be pasted as unformatted values. The underlying data will not be pasted resulting in a smaller destination file.

See the result below:

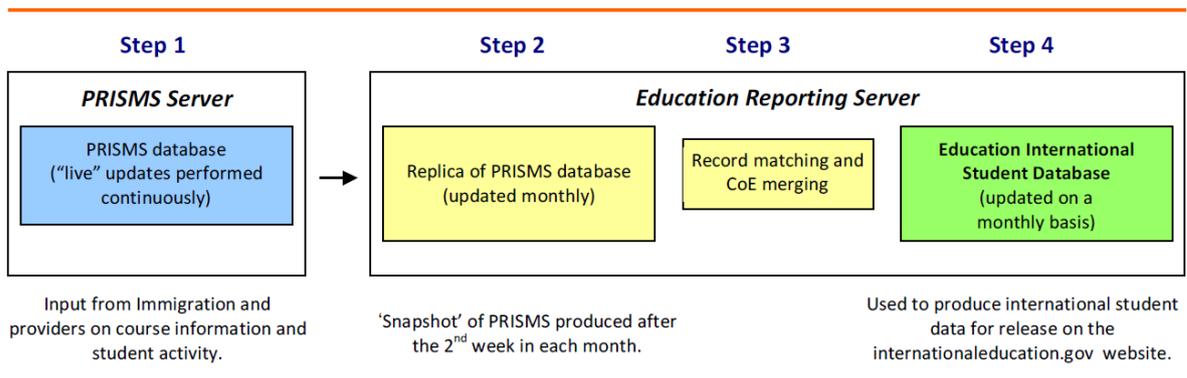
	A	B	C	D	E	F	G	H	I
1	Month	Aug							
2	Region	(All)							
3	Nationality	(All)							
4	Level Of Study	(All)							
5	Broad Field Of Education	(All)							
6	ProviderType	(All)							
7	State	(All)							
8	Broad Field Of Study	(All)							
9	DATA As at 1st Month	(All)							
10	DATA Enrolments for Month	(All)							
11	Data Commencements for Month	(All)							
12									
13	Sum of DATA YTD Enrolments	Year							
14	Sector	2002	2003	2004	2005	2006	2007	2008	
15	Higher Education	112,563	131,745	147,723	159,518	165,984	171,392	179,136	
16	VET	47,201	50,207	51,471	57,509	70,928	102,655	147,073	
17	ELICOS	44,294	47,358	48,527	48,493	56,736	75,793	92,627	
18	Schools	21,567	25,335	26,031	23,878	23,028	25,181	27,541	
19	Other	22,070	24,079	24,201	24,347	24,479	25,352	28,012	
20	Grand Total	247,695	278,724	297,953	313,745	341,155	400,373	474,389	
21									

This method also has the advantage that fields in the page area of the source file are copied across with the data, so users can see what filters are applicable to the data.

# Explanatory Note

The international student data derived from the commonwealth Provider Registration and International Student Management System (PRISMS) database counts actual course enrolments. They include enrolment data from the approximately 1,100 providers registered on the Commonwealth Register for Institutions and Courses for Overseas Students (CRICOS). The CRICOS registered providers offer courses to international students studying in Australia on student visa in education sectors such as: higher education; vocational education and training (VET); schools; English Language Intensive Courses for Overseas Students (ELICOS); and non-award.

There are four main steps involved in converting the information held on PRISMS into department’s international student data. These steps are summarised in the following diagram.



**Note:** As PRISMS is a “live” database, it is not uncommon for the data to change from month to month – providers are required to report any changes to a student’s enrolment within a required timeframe under section 19 of the ESOS Act. It should also be noted that the information retrieved by Education from PRISMS database is still protected by law. Information on individual providers or students is not publicly available.