

Secure Unified Research Environment

Balancing access and confidentiality in the use of administrative data

6 October 2016

About the Sax Institute

- Help decision makers find and make the best use of research to solve real-world health and social problems
- Not-for-profit company limited by guarantee
- Has expert research and policy staff
- Unique structure with 46 research groups and universities as members

What is SURE?

- A secure, high-performance, remote-access computing environment launched in 2012, purpose-built for the analysis of large and complex datasets, e.g. hospital admission records, cohort studies
- Developed by the Sax Institute with funding from the Australian and NSW governments as part of the National Collaborative Research Infrastructure Strategy (NCRIS)
 - Australian Government Department of Education
 - NSW Ministry of Health and NSW Office of Science and Research
- Part of the Population Health Research Network (PHRN)

Why do we need SURE?

- Australia has a comprehensive range of routinely collected data across the health and human services sectors – valuable resource
- To make best use of data:
 - Researchers need access to first clean, then analyse data
 - Data providers need assurances over data confidentiality and information security
- Also, research collaborations are increasingly multidisciplinary, often teams have researchers from multiple organisations in diverse locations across Australia and internationally
 - need to facilitate safe and secure collaboration

Features of SURE

- Trusted user model – users gain access to the data
- Controls on data implemented through:
 - Technical infrastructure
 - Governance framework – agreements
 - Training – mandatory for users

SURE infrastructure

- SURE provides project workspaces that are accessed remotely over encrypted internet connections (using Citrix)
- Research team members have shared access to project workspaces
- Each project workspace exists in its own security perimeter within SURE so that data from different projects cannot be combined
- All data storage and analysis happens on dedicated SURE servers housed in a secure commercial data centre
- Movement of data in and out of SURE is carefully controlled via specially designed software called the Curated Gateway

Curated Gateway

- A purpose-built, secure web-based application
- Provides the only way for files to move in or out of SURE (no Internet, no printing, cannot copy/paste, cannot copy to removable media)
- Files uploaded to the Curated Gateway by data custodian/ researcher for use in SURE are subject to review before being made available within SURE
- Outbound files uploaded to the Curated Gateway for use outside of SURE are reviewed by the data custodian or the study's chief investigator
- All files that pass through the Curated Gateway are logged and are subject to audit

SURE External Curated Gateway
Secure Unified Research Environment

Logout Tim Churches

Inbound Outbound Activity Upload

Show 10 entries Search:

File name	File size	Study	Uploaded by	Upload time	Description	Current state	Actions
bp2a.png	22640	Research Study 02	Danushka Fox	Tue Jul 3 13:56:33 2012	Demo graphs	accepted	download
bp1.png	48692	Research Study 02	Danushka Fox	Tue Jul 3 13:56:32 2012	Demo graphs	accepted	download
NSW_map.png	52525	Research Study 02	Danushka Fox	Tue Jul 3 13:56:32 2012	Demo graphs	accepted	download
					Demo graphs	accepted	download

First Previous 1 Next Last

[Help](#)

SURE Windows 7 Desktop - Research A - Citrix online plug-in

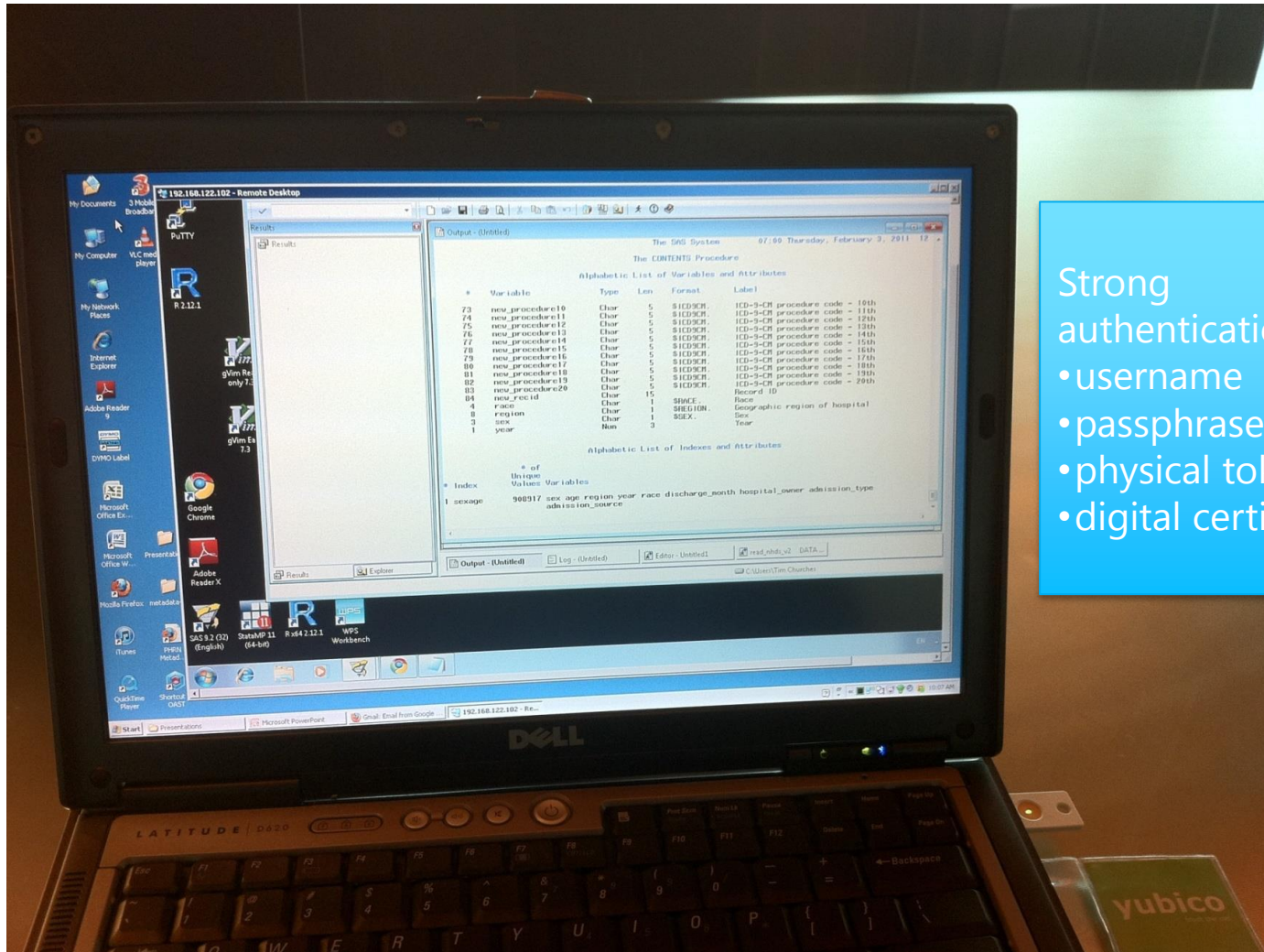
Recycle Bin
Adobe Reader X
R 2140
R 2140

Firefox
Curated Gateway Login
cy.sure.local/login.html

SURE Internal Curated Gateway Login
Secure Unified Research Environment

Username:
 Password:
 Token:

2:54 PM
8/02/2012



Strong authentication:

- username
- passphrase
- physical token
- digital certificate

Agreements

- Projects hosted by SURE must have approval from the relevant data custodian/s and a Human Research Ethics Committee (or equivalent legislative approval)
- Approvals specify the datasets, variables and level of confidentialisation
- Individual researchers AND their institutions must sign deeds of agreement regarding acceptable use, disciplinary arrangements before gaining access to SURE

Training

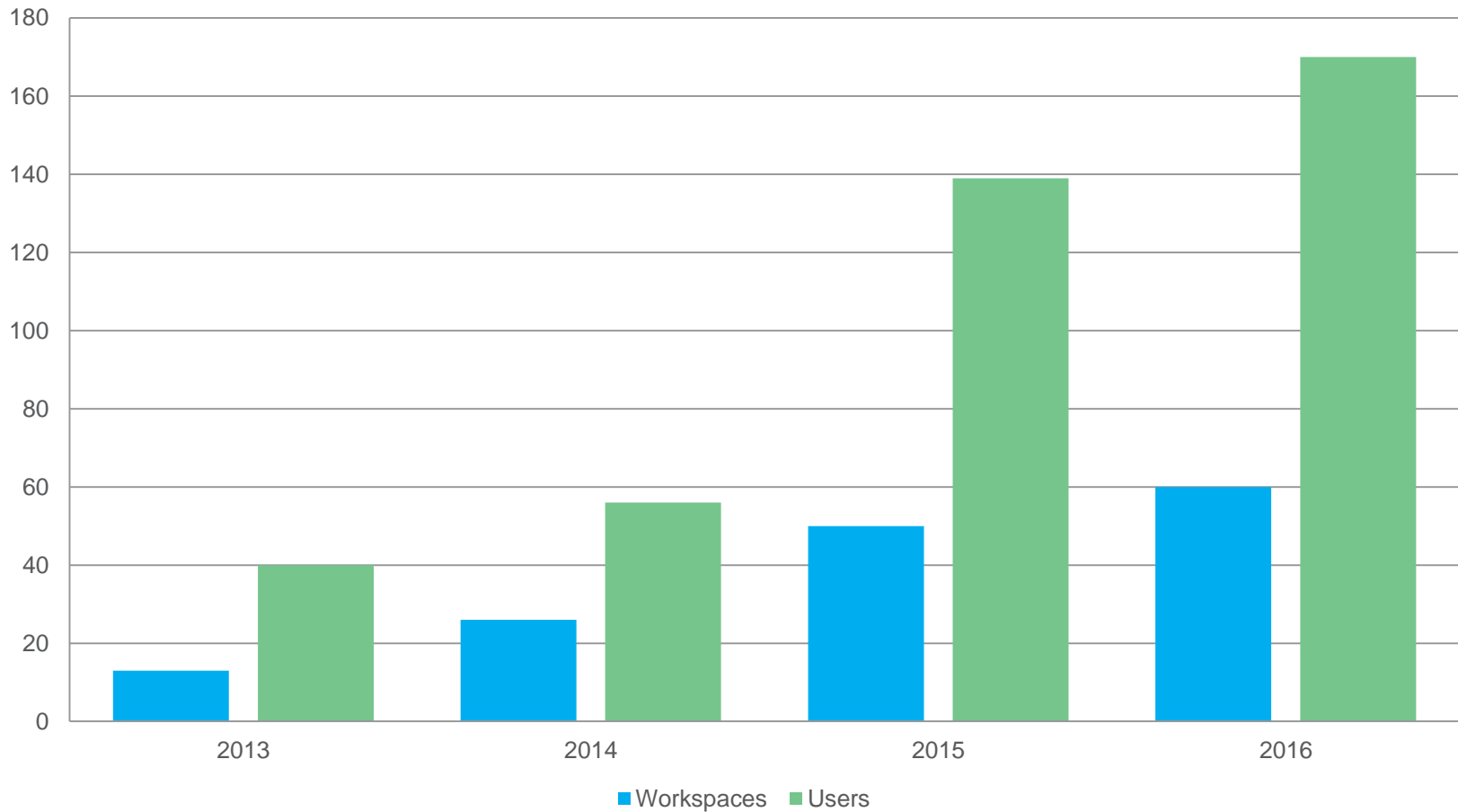
- SURE training programs has four modules:
 - Data linkage in Australia
 - Responsibilities of a researcher
 - Information security
 - Statistical disclosure analysis and control
- 360 participants have completed the training program (online since 2013)

Use of SURE

- Data custodians include the Australian Institute of Health and Welfare, Department of Social Services, state and territory health departments, cohort studies and clinical registries
- More than 30 data collections used by SURE researchers
- 60 active study workspaces involving over 170 users
 - researchers based in NSW, ACT, South Australia, Queensland, West Australia, Victoria and overseas

SURE growth

SURE usage



Collaborations

Australian Institute of Health and Welfare

- 6 cross-jurisdictional data linkage projects, AIHW act as curator

CSIRO

- Project: Approaches to confidentialisation of research outputs using linked data conducted in secure analysis laboratory environments

Clinical registries and cohort studies

- Australian and New Zealand Intensive Care and Cardiac Thoracic Surgery Registries
- Australian Longitudinal Study on Women's Health, 45 and Up Study and Pathways of Care (NSW FACS)

Why SURE has been successful

- Strict controls on access but ability to tailor arrangements for different needs
 - For example: Permissions for Curated Gateway approval
- Balance between needs of custodian and research
 - Custodians need to be assured of data security but also have resource limitations on setting up their own secure facilities
 - Researchers (by and large) want to do the right thing but can be let down by their own computing environment or lack of knowledge

Keeping ahead of the cybersecurity challenges

- Continue to monitor and implement security controls to defend networks and systems
 - Protect critical assets by minimising access and external footprint
 - Continuous monitoring
 - Automation of defence
 - Information security awareness for customers
- Regular penetration testing utilising internal and external expertise as required
- Preparation for ISO 27001 underway to achieve accreditation in first half 2017

THANK YOU

Website: <https://www.saxinstitute.org.au/our-work/sure/>