Making IT
Work for You
Information Systems Services

www.dcu.ie/iss
Research Data Management

What is Research Data?

“... although the majority of such data is created in digital format, all research data is included irrespective of the format in which it is created.”

DCU Research Data Survey

- Research Support Office
- January 2016

Data Protection

- Covers data in all forms
- DCU Data Protection Officer - Next
Data Protection

Data Classification Policy – ISS Website

“Individual staff members are responsible for ensuring that sensitive information they produce is **appropriately protected** and marked with the **appropriate classification**”

http://www.dcu.ie/iss/policies
## Data Protection

### Data Classification Policy – ISS Website

<table>
<thead>
<tr>
<th>Security Objective</th>
<th>POTENTIAL IMPACT</th>
<th>LOW</th>
<th>MODERATE</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidentiality</td>
<td>Preserving authorised restrictions on information access and disclosure, including means for protecting personal privacy and proprietary information.</td>
<td>The unauthorised disclosure of information could be expected to have a limited adverse effect on DCU’s operations, assets, or on individuals.</td>
<td>The unauthorised disclosure of information could be expected to have a serious adverse effect on DCU’s operations, assets, or on individuals.</td>
<td>The unauthorised disclosure of information could be expected to have a severe or catastrophic adverse effect on DCU’s operations, assets, or on individuals.</td>
</tr>
<tr>
<td>Integrity</td>
<td>Guarding against improper information modification or destruction, and includes ensuring information non-repudiation and authenticity.</td>
<td>The unauthorised modification or destruction of information could be expected to have a limited adverse effect on DCU’s operations, assets, or on individuals.</td>
<td>The unauthorised modification or destruction of information could be expected to have a serious adverse effect on DCU’s operations, assets, or on individuals.</td>
<td>The unauthorised modification or destruction of information could be expected to have a severe or catastrophic adverse effect on DCU’s operations, assets, or on individuals.</td>
</tr>
<tr>
<td>Availability</td>
<td>Ensuring timely and reliable access to and use of information.</td>
<td>The disruption of access to or use of information or an information system could be expected to have a limited adverse effect on DCU’s operations, assets, or on individuals.</td>
<td>The disruption of access to or use of information or an information system could be expected to have a serious adverse effect on DCU’s operations, assets, or on individuals.</td>
<td>The disruption of access to or use of information or an information system could be expected to have a severe or catastrophic adverse effect on DCU’s operations, assets, or on individuals.</td>
</tr>
<tr>
<td>Data Classification</td>
<td>DCU Controlled: With this classification protection of information is at the discretion of the custodian and there is a low risk of embarrassment or reputational harm to DCU. Examples: Meeting minutes; unit working &amp; draft documents.</td>
<td>DCU Restricted: DCU has a legal, regulatory or contractual obligation to protect the information with this classification. Disclosure or loss of availability or integrity could cause harm to the reputation of DCU, or may have short term financial impact on the University. Examples: Student or employee records; grades; employee performance reviews; personally identifiable information.</td>
<td>DCU Highly Restricted: Protection of information is required by law or regulatory instrument. The information within this classification is subject to strictly limited distribution within and outside the University. Disclosure would cause exceptional or long term damage to the reputation of DCU, or risk to those whose information is disclosed, or may have serious or long term negative financial impact on the University. Examples: PPS numbers; Physical or mental health record relating to individuals; Critical research data.</td>
<td></td>
</tr>
</tbody>
</table>
## Data Protection

### Data Handling Guidelines – ISS Website

<table>
<thead>
<tr>
<th>Electronic Storage</th>
<th>Must be stored in systems accessible only to those covered under access above.</th>
<th>Must be stored in systems accessible only to those covered under access above.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Servers which hold this data must be housed in a secure datacenter environment.</td>
<td>Where data is held outside the source system it must be encrypted.</td>
</tr>
<tr>
<td></td>
<td>Storage of this data outside of the source system, for example on a laptop or memory stick; must be approved by the data custodian.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Where data is held outside the source system it must be encrypted.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Where a mobile device is used to access/store DCU sensitive data or email, appropriate security settings must be configured.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>USB devices must not be used for</td>
<td></td>
</tr>
</tbody>
</table>

http://www.dcu.ie/iss/policies/procedures-guidelines.shtml
Data Protection

Safe Storage & Encryption of Digital Data

DCU | APPS | Amazon Web Services

Office

Microsoft Azure

7-Zip

Making IT Work for You

ISS Information Systems Services
Research Data - Storage

Where is Research Data Stored in DCU?

Majority of DCU Research Data is Digital
Research Data - Storage

External Media – Not Recommended

- Lost
- Stolen
- Damaged
- Degrade
- Unauthorised Access

See Data Handling Guidelines
http://www.dcu.ie/iss/policies/procedures-guidelines.shtml
Research Data - Storage

Hard Disks – Encrypt Data

http://www.dcu.ie/iss/encryption

- Hard disk drive of campus computer: 52 (60.5%)
- Hard disk drive of off-campus computer provided by funder or other partner in an externally funded project: 9 (10.5%)
- Hard disk drive of off-campus computer elsewhere: 16 (18.6%)
- Hard disk drive of laptop/netbook: 60 (69.8%)
- Hard disk drive of instrument/sensor which generates data: 16 (18.6%)
- External hard drive: 41 (47.7%)
- USB/Flash drive: 36 (41.9%)

Making IT Work for You

ISS Information Systems Services
Research Data - Encryption

Microsoft Office Files

- Encrypts
- Password Protects
- Safe to E-mail

- Mind Password!
- ISS Can Not Recover
Passwords

Primary method of protecting all our digital data

Weak Passwords
- names, places, words, DOB

Strong Passwords
- Long – use sentences
- e.g. “Icanneverremembermypassword”

LastPass

SOLVE ALL YOUR PASSWORD PROBLEMS.
Stop wasting time writing, remembering, and resetting passwords. Only remember one master password, and keep the rest locked up and easy-to-find in the LastPass password manager.

https://lastpass.com
Research Data - Encryption

Files and Folders

http://www.7-zip.org
http://www.dcu.ie/iss/encryption

The main features of 7-Zip

- High compression ratio in 7z format with LZMA and LZMA2 compression
- Supported formats:
  - Packing / unpacking: 7z, XZ, BZIP2, GZIP, TAR, ZIP and WIM
  - Unpacking only: AR, ARJ, CAB, CHM, CPIO, CramFS, DMG, EXT, FAT, GPT, HFS, IHEX, ISO, LZH, LZMA, MBR, MSI, NSIS, NTFS, QCOW2, RAR, RPM, SquashFS, UDF, UEFI, VDI, VHD, VMDK, WIM, XAR and Z.
- For ZIP and GZIP formats, 7-Zip provides a compression ratio that is 2-10% better than the ratio provided by PKZip and WinZip
- Strong AES-256 encryption in 7z and ZIP formats
- Self-extracting capability for 7z format
- Integration with Windows Shell
- Powerful File Manager
- Powerful command line version
- Plugin for FAR Manager
- Localizations for 87 languages

7-Zip works in Windows 10 / 8 / 7 / Vista / XP / 2012 / 2008 / 2003 / 2000 / NT. There is a port of the command line version to Linux/Unix.
Research Data - Encryption

Laptops

DCU Laptops
• Free encryption service - ISS
• Protects all files automatically
• Password recovery service
• No problems if lost or stolen – DPC

Non-DCU Laptops
• Should be encrypted if used for sensitive data

Encrypted Laptops
• Files are not encrypted once moved/shared
• E.g. attach to e-mail, copy to external drive
Research Data - Volume

Data Set Sizes in DCU

<table>
<thead>
<tr>
<th>Size Range</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 GB</td>
<td>4</td>
<td>4.7%</td>
</tr>
<tr>
<td>1 - 50 GB</td>
<td>18</td>
<td>20.9%</td>
</tr>
<tr>
<td>50 - 100 GB</td>
<td>8</td>
<td>9.3%</td>
</tr>
<tr>
<td>100 - 500 GB</td>
<td>8</td>
<td>9.3%</td>
</tr>
<tr>
<td>500 GB - 1 TB</td>
<td>10</td>
<td>11.6%</td>
</tr>
<tr>
<td>1 - 50 TB</td>
<td>12</td>
<td>14%</td>
</tr>
<tr>
<td>50 - 100 TB</td>
<td>3</td>
<td>3.5%</td>
</tr>
<tr>
<td>&gt; 100 TBs</td>
<td>1</td>
<td>1.2%</td>
</tr>
<tr>
<td>I don't know</td>
<td>22</td>
<td>25.6%</td>
</tr>
</tbody>
</table>
Large Data Sets in DCU

- 1 GB: 4 (4.7%)
- 1 - 50 GB: 18 (20.9%)
- 50 - 100 GB: 8 (9.3%)
- 100 - 500 GB: 8 (9.3%)
- 500 GB - 1 TB: 10 (11.6%)
- 1 - 50 TB: 12 (14%)
- 50 - 100 TB: 3 (3.5%)
- > 100 TBs: 1 (1.2%)
- I don't know: 22 (25.6%)
Research Data - Storage

Where is Research Data Stored in DCU?

- Hard disk...
- Hard disk...
- Hard disk...
- Hard disk...
- Hard disk...
- External h...
- USB/Flash...
- DCU ISS...
- School/Unit...
- Web base...
- DCU Loop...
- Institution...
- CD/DVD...
- E-mail cli...

Web based/cloud service (e.g., Amazon Web Services, Google Docs, Dropbox) 44 51.2%

Making IT Work for You

ISS Information Systems Services
Research Data - Storage

Cloud Storage - Dropbox

No agreement with DCU
Not approved by DP Officer
Research Data - Storage

Cloud Storage - Dropbox

Agreement with DCU
Approved by DP Officer

Making IT Work for You
Research Data - Storage

Cloud Storage – Microsoft Azure

Agreement with DCU
Approved by DP Officer
Research Data - Storage

Cloud Storage - Google

Agreement with DCU
Approved by DP Officer

Making IT Work for You
Research Data - Storage

Cloud Storage - Google

Agreement with DCU
Approved by DP Officer
Research Data - Storage

Cloud Storage - Google

DCU | APPS = Google

Agreement with DCU
Approved by DP Officer

Making IT Work for You

ISS Information Systems Services
Research Data - Storage

Cloud Storage - Google

DCU | APPS ≠ Gmail by Google
Research Data - Storage

Cloud Storage - Google

DCU | APPS = Google™

Making IT Work for You
Research Data - Storage

Cloud Storage - Google

Data is safe and secure in core apps
Multiplatform
Unlimited Storage
Can encrypt before store/backup

http://www.dcu.ie/iss/dcuiapps
Research Data - Storage

Cloud Storage - Google

Data is safe and secure in core apps
Multiplatform
Unlimited Storage
Can encrypt before store/backup

http://www.dcu.ie/iss/dcuapps
Thank You

Justin.Doyle@dcu.ie
Making IT Work for You

DCU Glasnevin Campus
Deirdre Thornton Room
Henry Grattan Extension (Opposite Canteen)
08:30 - 17:30 (Mon-Fri)

Library
Ground Floor
(Beside Photocopiers)
08:30 - 20:00 (Mon-Fri)
12:00 - 15:00 (Sat)

Email: iss servicedesk@dcu.ie
Phone: +353 1 700 5007
Website: www.dcu.ie/iss

DCU St. Patrick’s Campus
IT Support Desk
Room B132
08:30 - 17:30 (Mon-Fri)

Library
Reception Ground Floor
10:00 - 1800 (Mon-Thurs)
10:00 - 17:00 (Fri)

Email: IT Support@spd.dcu.ie
Phone: +353 1 884 2190
Twitter: @SPDITServices
Website: www.spd.dcu.ie/

DCU Mater Dei Campus
IT Support Desk
Room C13
9:00 - 13:30,
14:00 - 17:00 (Mon-Fri)

Email: mdi.support@dcu.ie
Phone: +353 1 8086509
Twitter: @ISSLifescience
Website: www.materdei.ie

DCU All Hallows Campus
IT Support Desk
All Hallows College
Coláiste na Naomh Úile
Gracepark Rd, Drumcondra,
Dublin 9

Email: ithelpdesk@allhallows.ie
Phone: +353 1 8520714
Website: www.allhallows.ie