Deloitte.

Queensland Department of Education and Training
OneSchool – Investigation into the 2015 failure of the OneSchool Student Protection Module

16 October 2015

Deloitte.

Deloitte Touche Tohmatsu
ABN 74 490 121 060

Riverside Centre
Level 25
123 Eagle Street
Brisbane QLD 4000
GPO Box 1463
Brisbane QLD 4001 Australia

Tel: +61 7 3308 7000
Fax: +61 7 3308 7001

Hon Kate Jones
Minister for Education and Minister for Tourism, Major Events,
Small Business and the Commonwealth Games
Level 22
Education House
30 Mary Street
Brisbane 4000

16 October 2015

Dear Minister

Re: Investigation into the 2015 failure of the OneSchool Student Protection Module

I refer to our appointment from 3 August 2015, in which you have requested Deloitte Touche Tohmatsu (**Deloitte**) to assist the Department of Education and Training (**DET**) with a review of the Student Protection Reporting Module in OneSchool.

I am pleased to provide you with our report. If you have any questions please do not hesitate to contact me on 3308 7065.

Thank you for the opportunity to work with the Department of Education and Training on this important engagement.

Yours sincerely

Chris Noble
Forensic National Lead Partner
Deloitte Touche Tohmatsu

Contents

1   Executive Summary

1.1 Background and Scope

On 3 August 2015 Deloitte was appointed by the Department of Education and Training (**DET**) to perform an investigation into the failure of the OneSchool Student Protection Module (**SPM**). The OneSchool SPM is a DET computer system that enables the confidential reporting of student protection information to DET, the Department of Communities, Child Safety and Disability Services (**DCCSDS**), and the Queensland Police Service (**QPS**).

The investigation focused on the circumstances surrounding a software update applied to the OneSchool SPM on 19 January 2015 which resulted in the failure of 644 student protection reports (**SPR's**) to reach the QPS. These SPR's, created and submitted by principals and teachers in the OneSchool SPM, related to concerns that students may have been sexually abused, or were at risk of being sexually abused.

1.2 Objectives

The objectives of this investigation were as follows:

a. Review the Department's response to the recommendations resulting from the Queensland Child Protection Commission of Inquiry (1 July 2013) with respect to notification and mandatory reporting including recent legislative requirements (mandatory reporting under the *Child Protection Act 1999*, from 19 January 2015). Examine and assess implementation of actions by the Department in response to these

b. Investigate the current incident and provide a report on the factors that led to the failure of the Student Protection Reporting module in OneSchool including the terms and conditions of any contracts with third party providers responsible for providing software development services

c. Review the fix made to the OneSchool SPM for *'QPS Only'* reports to determine if the fix allows the reports that are now entered into the system to reach the intended police recipient.

Full details of the scope of our work can be found in section 3.1 of this report.

1.3 Investigation of *'QPS Only'* incident

Our investigation was initiated in response to the failure of the OneSchool SPM to send *'QPS Only'* reports to intended QPS recipients. This resulted in 644 reports not being sent by DET to QPS between 19 January 2015 and 29 July 2015 (collectively, **the incident**).

1.3.1 Summary of findings

Our key findings arising out of the investigation are summarised below:

- On 30 September 2014 the planned January 2015 SPM update was approved by the OneSchool Application Board and was included within a tranche of other OneSchool updates. The January 2015 SPM update was considered *'business as usual'*

- The initial cause of the incident was an error made by Development Team Member 1 when he incorrectly coded software for the January 2015 SPM update

- When the software code was submitted for testing, the test script for the January 2015 SPM update developed by Test Team Member 1 was inadequate and the testing failed to identify the software code error

- On 12 January 2015 Test Team Member 1 updated the test script document to state that the testing for the January 2015 SPM update had passed

- On 16 January 2015 Test Team Member 1's Manager, the Test Team Manager, issued a test summary report stating that the January 2015 SPM update had been appropriately tested

- Following notification of successful testing, the Director Education Business Systems, initiated the *'Production Readiness Certificate'* for the January 2015 OneSchool release including the SPM update. The following persons approved the Production Readiness Certificate on the following dates:

    - Director Education Business Systems, 9 January 2015

    - OneSchool Program Director, 12 January 2015

    - Executive Director IT Solutions and Operations, 14 January 2015

    - Assistant Director General Information and Technology, 15 January 2015

- The January 2015 SPM update was deployed in the OneSchool system on 19 January 2015

- Deloitte identified six events, relating to eight SPR's between 19 January 2015 and 29 July 2015 that indicated that SPR's may not have been received by QPS. In all six events DET staff attempted to resolve the query.

    - In five of the events it is recorded that DET staff accessed OneSchool SPM records attempting to identify the cause of the issue, and the system indicated that the SPR's had been sent to QPS. We were unable to determine the outcome in the remaining event, as there is no further communication in the documented emails provided

    - On 18 March 2015 a meeting occurred which canvassed the ways SPR's were being submitted. An agenda for the meeting listed 18 enhancement points for the OneSchool SPM, one of which related to QPS and DCCSDS email delivery. The Senior Advisor, DET Child Safety, stated the item which was discussed in the meeting stemmed from two known cases (of the six mentioned above) by her of reports potentially not being received by QPS. Her thinking at the time was that the report delivery problem resided '*at the QPS end'*

- Once the code error was identified DET began steps to remediate the issue. The incident was escalated rapidly within DET, and QPS were asked to attend DET Head Office due to the gravity of the situation and the potential effect on student welfare and their families

- A fix was promptly applied to the OneSchool SPM and a manual checking process was instigated by DET to provide additional assurance that all SPR's reached the intended recipients

- The Minister for Education and the Director General applied a policy of transparency and held a press conference notifying the public within 24 hours of learning of the incident

- Deloitte undertook a reconciliation of emails sent by DET to QPS and DCCSDS recipients from the OneSchool SPM since 28 October 2013

- This reconciliation process was complex and involved the consideration of email logs and records from seven separate databases. It was an intensive and comprehensive process completed over approximately eight weeks

- As a result of the exercise undertaken 97 DET email logs were unable to be reconciled to a corresponding QPS or DCCSDS email log from a total of 21,764. These 97 DET email logs were identified as 29 to QPS and 68 to DCCSDS

- Additionally, we identified two short periods for which QPS logs were not available due to QPS logging outages. 247 DET logs were identified during these periods and provided to QPS on 25 September 2015. These 247 may have successfully been received by QPS, but due to the logging outage we were unable to verify receipt as we were not able to perform the reconciliation

- We were informed by DET that 27 SPM emails that were intended for transmission to DCCSDS were blocked by the DET BrightMail email spam filter. These are included in the 68 DET email logs mentioned above

- All reports related to the respective 97 and 247 email logs were delivered to the respective agencies on 25 September 2015.

1.3.2 Supplementary Findings

We address supplementary findings in relation to the incident in the seven points below.

1 ▶ **Context to the incident**

2 ▶ **What went wrong – Coding error Jan 2015**

3 ▶ **What went wrong – Testing error Jan 2015**

4 ▶ **Details of the software fix**

5 ▶ **Management of the incident**

6 ▶ **Earlier indicators of the problem**

7 ▶ **Forensic reconciliation of emails**
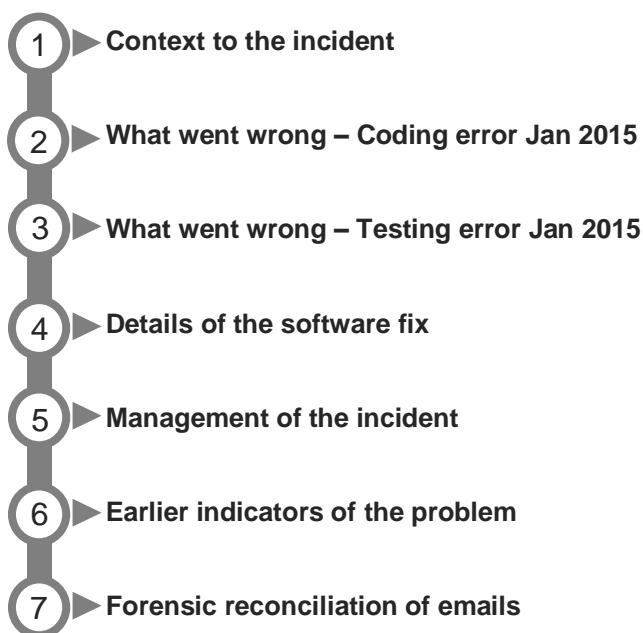
Further details can be found in the body of this report and attached appendices.

Context of the incident

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Points to note	Detail
Legal obligation to report student protection matters	DET teachers and principals have a legislated requirement to make a report when they reasonably suspect that a child has suffered, or is at risk of suffering, significant harm caused by physical or sexual abuse. To facilitate this obligation, the OneSchool SPM was established by DET in 2013 to transmit SPR's to QPS and DCCSDS as relevant to each specific case.
The former reporting system was manually fax based	In October 2013 the SPM was first released into OneSchool. Prior to the implementation of the SPM, student protection reporting was undertaken manually. A paper document was completed and attached to either an email or fax and sent to the relevant government agencies.
A 'decision matrix' channels the reports to QPS or DCCSDS based on the answers to three questions	In January 2015 the SPM was amended through a software development upgrade which was undertaken by OneSchool and its contractors from a third party software developer. The update was modelled on an '*OneSchool decision matrix*' outlined in table 5.1 on page 21 provided by DET Child Safety. The purpose of the matrix was to consolidate SPM reporting. Previously, a significant number of SPR's were being sent to QPS that did not meet evidential standards. The January 2015 SPM update was designed to reduce this from occurring.
The intention of the January 2015 SPM update was to enable '*QPS Only*' emails as an additional reporting channel	Prior to January 2015, reports submitted through the SPM were sent to either DCCSDS solely or to DCCSDS and QPS. The intention of the January SPM 2015 update was to enable, under certain circumstances, SPR's to be sent to '*QPS Only*'. As expanded upon below, it was an error within this software code that lead to the incident.
January 2015 SPM update was treated as a 'business as usual change' by OneSchool	On 30 September 2014 the planned January 2015 SPM update was approved by the OneSchool Application Board and was included within a tranche of other OneSchool updates. The January 2015 SPM update was considered '*business as usual*'.

What went wrong – Coding error Jan 2015

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Points to note	Detail
Software coding error was identified on 29 July 2015	On 29 July 2015 at approximately 2.20pm, Development Team Member 1 was reviewing the software code for an unrelated 'bug' when he identified a software coding error for the '*QPS Only*' SPR's. This code had been created by him for the January 2015 SPM update.
The former code required a DCCSDS email address	Prior to the January 2015 SPM update, the software coding logic for all SPR's required a DCCSDS email address to be present in any email before a SPR could be sent from the SPM.
The erroneous code failed to remove this	The January 2015 SPM update was originally designed to add a third reporting category of '*QPS Only*' into the intended mail recipient list. This was

requirement, hence all *'QPS Only'* emails were not sent	achieved however the previous logic step of checking that a DCCSDS recipient be present was not removed from the software. Therefore whenever a '*QPS Only'* email was generated, the logic would still check for a corresponding DCCSDS recipient. As a DCCSDS email address was not included in an email intended for *'QPS Only'* the software code stopped the email from being sent. This subsequently caused all '*QPS Only'* emails to fail.
No unit testing of the January 2015 code was conducted	When Development Team Member 1 developed the January 2015 SPM update code he did not undertake unit testing on his work. Unit testing typically involves a peer review of the code before it is released into the testing environment to ensure any potential errors are identified. Unit testing was not a documented requirement within OneSchool.

What went wrong – Testing error Jan 2015

1 > 2 > **3** > 4 > 5 > 6 > 7

Points to note	Detail
Test script was inadequate to validate a correctly coded change	The test script used to test the January 2015 SPM update did not provide sufficient detail to fully explore each aspect of the business logic describing the distribution of SPR's. The various report distribution scenarios were grouped into one test step without a clear explanation of the expected results.
Testing of the *'QPS Only'* change had all test emails go to one inbox	Test Team Member 1 created a test environment for the January 2015 SPM update by assuming all roles and by including QPS and DCCSDS email recipients in a single mailbox. This involved Test Team Member 1 sending all test emails to their own OneSchool email address, instead of creating separate email addresses for each intended recipient (QPS and DCCSDS) which would have better simulated separate recipients.
The entire 'decision matrix' was tested	Test Team Member 1 undertook a separate test for each of the eight lines of logic as required in the '*OneSchool decision matrix'*.
Three emails should have been received for each line of the matrix related to *'QPS Only'* recipients	Test Team Member 1 should have received the following three emails for each line of the matrix related to *'QPS Only'* recipients:' • **Email 1** – An email, as School Principal, as a notification that the teacher had submitted a SPR • **Email 2** – An email, as QPS, containing the SPR • **Email 3** – An email, as cc'd School Principal, as confirmation that the SPR had been successfully sent to the QPS.
Failure to interpret test results	Test Team Member 1 only received 'email 1' and 'email 3' for each line of the matrix related to *'QPS Only'*. The number of emails received was miscounted and Test Team Member 1 failed to notice that the '*QPS Only*' software code was not generating the email to QPS (email 2) as intended.
Testing phase was signed off as 'successful'	On 12 January 2015 the testing was signed off as successful by Test Team Member 1 who updated the test script document to state that the testing for the January 2015 SPM update had passed.
Approval and deployment as part of a broader January release	The software was included in a broader release and signed off with a Production Readiness Certificate. Subsequently the January 2015 SPM update was deployed into the live environment on 19 January 2015 and the incident was not detected until 29 July 2015.

Details of the software fix

| 1 | 2 | 3 | **4** | 5 | 6 | 7 |

Points to note	Detail
Requirement to include at least one DCCSDS address	Prior to the January 2015 SPM update, a SPR could only be sent to either of the following email recipients: • Solely example@communities.qld.gov.au • Both example@communities.qld.gov.au and example@police.qld.gov.au The email address required at least one DCCSDS addressee.
The January 2015 SPM update failed to send QPS Only reports	On 29 July 2015, Development Team Member 1 identified an error in the initial software code he had written relating to the *'QPS Only'* reports. The error related to the logic requiring at least one DCCSDS email addressee to be present in every email. This logic should have been removed when implementing the *'QPS Only'* functionality but was not. Consequently the system did not allow the *'QPS Only'* emails to be transmitted.
The fix allowed reports to be transmitted to *'QPS Only'*	The fix was achieved by amending the logic of the *'QPS Only'* functionality to eliminate the need for a DCCSDS addressee to be present in every email.
The test plan for the fix was improved	The revised test script applied to the fix included the creation of multiple email recipient mailboxes within the DET environment to simulate the concept of multiple email 'roles' (QPS and Principals). However, this revised test plan did not send emails outside of the DET environment to test the pathway between DET and the external IT infrastructure at QPS.
Manual confirmation process was implemented	On 31 July 2015 DET added an additional safeguard to the *'QPS Only'* fix by implementing a manual validation exercise. OneSchool staff confirm that each SPR created in the OneSchool system has been received by the intended recipient, either QPS, DCCSDS or both. This process has been documented and includes twice daily updates to the Executive Director OneSchool.

Management of the incident

| 1 | 2 | 3 | 4 | **5** | 6 | 7 |

Points to note	Detail
The code error was identified on 29 July 2015	At approximately 2.20pm on the 29 July 2015 the *'QPS Only'* software coding error was identified. Throughout the course of that day and into 30 July 2015, OneSchool management worked to understand the full extent of the problem and ascertain the severity of the issue.
Escalation of the issue	On 30 July 2015 at approximately 2pm, a teleconference was arranged between OneSchool management. At this time the Director of Business Systems communicated the number of potential SPR's that had not been sent to QPS and informed the Director of Education Business Improvement and the Executive Director OneSchool that Developer Team Member 1 had *"completed the fix to the bug"*.

Notification to QPS	At approximately 4.30pm the Deputy Director General State Schools was informed by the Executive Director OneSchool of the '*QPS Only*' reporting issue. The QPS were contacted immediately.
Further escalation of the issue	Immediately after being informed at 4.30pm, the Deputy Director General State Schools and Deputy Director General Corporate Services met with the Director General and Minister for Education. They were notified of the situation and were told that Senior QPS officers had been asked to attend DET Head Office.
Identification of the '*QPS Only*' reports	Prior to the QPS arriving, the Senior Advisor, Child Safety prepared an extract from the OneSchool SPM identifying the 644 SPR's that were categorised as '*QPS Only*'. This summary report was provided to the QPS during their meeting at DET Head Office.
All '*QPS Only*' reports since 19 Jan 2015 were determined to be impacted and required immediate remedy	Senior QPS officers arrived at approximately 5.30pm and were briefed by senior DET staff. It was agreed, as a matter of urgency that all '*QPS Only*' reports from the commencement of the January 2015 SPM update through to the rectification of the coding error on 30 July 2015 would be collated for immediate referral to QPS.
DET & QPS staff triaged all 644 reports by the end Sunday 2 Aug 2015	Following the meeting, representatives from both agencies attended QPS headquarters and started to triage the 644 SPR's prioritising the most critical. This process continued late into the evening and throughout the weekend.

Earlier indicators of the problem

1	2	3	4	5	6	7

Key point	Detail
Early indicators	In our investigation we identified six events, relating to eight SPR's between 19 January 2015 and 29 July 2015 that indicated that SPR's may not have been received by QPS. These events included reports to the OneSchool IT helpdesk, and teacher and principal enquiries made to the Senior Advisor, DET Child Safety.
Early indicators	In all six events DET staff attempted to resolve the query. In five of the events it is recorded that DET staff accessed OneSchool SPM records attempting to identify the cause of the issue, and the system indicated that the SPR's had been sent to QPS. We were unable to determine the outcome in the remaining event as there is no further communication in the documented emails provided.
Early indicators	On 18 March 2015 a meeting occurred which canvassed the ways OneSchool SPR's were being submitted. An agenda for the meeting listed 18 enhancement points for the OneSchool SPM, one of which related to QPS and DCCSDS email delivery. The Senior Advisor, DET Child Safety, stated the item which was discussed in the meeting stemmed from two known cases by her of reports potentially not being received by QPS. Her thinking at the time was that the report delivery problem resided 'at the QPS end'.

Forensic reconciliation of emails

Reconciliation Process

We were instructed to undertake a full forensic reconciliation of all OneSchool SPR emails sent by DET against those received by both third party recipients, QPS and DCCSDS. This was designed to account for all emails and attached SPR's sent from the OneSchool SPM to QPS and DCCSDS from 28 October 2013 through to 31 July 2015.

Email logs (**logs**) for the relevant dates were requested and provided by DET, QPS and DCCSDS for this reconciliation to be performed. These were loaded into secure Deloitte databases for analysis and reconciliation. The raw logs were processed into a standardised format to facilitate the matching exercise. Other features inherent in the logs were accounted for including handling date/time records and time zone differences. This reconciliation process was complex and involved the consideration of logs and records from seven separate databases. It was an intensive and comprehensive process completed over approximately eight weeks.

Reconciliation Exclusions

From our forensic reconciliation of all OneSchool SPR emails we identified a total of 21,764 sent to QPS and DCCSDS since 28 October 2013. We excluded 893 DET logs from the reconciliation for the following reasons:

- the original '*QPS Only'* SPR's known not to have reached QPS

- SPR's sent during two identified QPS logging outages

- various system test logs that did not relate to actual SPR's

- duplicate logs generated due to the interactions between the various email systems and their respective filters and firewalls.

We were unable to perform the reconciliation for the two identified periods for which QPS logs were not available due to technical issues with their logging infrastructure. These periods were from 7 March 2014 to 8 March 2014 and 2 September 2014 to 9 September 2014. We identified 247 DET logs during this period. The related SPR's may have successfully been received by QPS, however due to the logging outage we were unable to verify receipt by QPS. Therefore all of the 247 unreconciled SPR's were delivered to QPS on 25 September 2015.

Reconciliation Output

From the remaining 20,871 DET logs, we were unable to reconcile 97. These 97 DET logs related to:

- 29 DET logs for which we were unable to see a corresponding log with QPS

- 68 DET logs for which we were unable to see a corresponding log with DCCSDS.

All of the 97 unreconciled SPR's were delivered to QPS and DCCSDS on 25 September 2015.

Additionally we were informed by DET that 27 SPM emails, included in the above 68 DET logs intended for transmission to DCCSDS, were blocked by the DET BrightMail email spam filter.

Overview of email Infrastructure

Email systems are inherently complex; and with increased complexity come increased risks. During the engagement we assessed the OneSchool SPM technical design, software code functionality and underpinning ICT infrastructure supporting the email delivery of SPR's.

Figure 1.1 summarises the various components of ICT infrastructure involved in the transmission of an email message from the OneSchool application to either DCCSDS or QPS. The diagram highlights a number of areas within the wider ICT environment, outside of DET's control, which have the potential to contribute to the unreliability of sending SPR's via email.

Figure 1.1 – Summary of ICT Email Infrastructure

Key Steps	Report Finalisation by Principal	Processing at internal mail server	Processing at internal mail queueing server	Processing at Symantec Messaging Gateway (SMG)	Processing at internal mail queueing server.	Email traverses DET and Govnet Networks.	Processing at Govnet Mail Server	Processing at QPS and Communities Mailer	Email Filtering at QPS and Communities	Email Opened
Human Interaction	Principal Clicks Commit	DET Infrastructure Team Manage Environment	DET Infrastructure Team Manage Environment	DET Infrastructure Team Manage Environment	DET Infrastructure Team Manage Environment	DET / CITEC Teams Manage infrastructure	CITEC Teams Manage infrastructure	QPS and Child Safety Teams Manage Infrastructure	QPS and Child Safety Teams Manage Infrastructure	Email Opened
Application Layer	SPM generates Emails	Postfix servers perform mail relay function	Sendmail relays mail to SMG	SMG filters inbound and outbound mail	Postfix Servers Directs mail to CITEC	Filter traffic at Layer 3/4 (No email filtering)	Core mailer does mail relay to QPS/Child Safety	SMTP and Mail Servers	Email Filtering	Email Client (Web, Outlook etc)
Data Layer	OneSchool commits report con	SMTP Log	SMTP Log	SMG Log	Log Entry	Log Entry	Log Entry	Log Entry	Log Entry	Email and data is stored locally on PC.
Server Layer	OneSchool DET Servers	DET SMTP	DET Server	DET Symantec	DET Server	DET & Govnet Perimeter Firewalls	CITEC mail relay.	QPS or Child Safety mail infrastructure	QPS or Child Safety email filtering	
Network Layer	DET Restricted / Controlled Zone	DET Restricted Zone	DET Restricted Zone	DET Restricted Zone	DET Restricted Zone	DET Restricted Zone / Externally Controlled Zone	Govnet Externally Controlled Zone	QPS or Child Safety Network	QPS or Child Safety Network	QPS or Child Safety Network
Observations	Potential risks highlighted in Code Review	No filtering or processing issues identified.	No filtering or processing issues identified.	Email filtering potentially blocks emails.	No filtering or processing issues identified.	Network firewalls do not filter emails..	Govnet core mail servers relay mail only, do not perform any filtering.	Mail servers perform relaying only, do not perform any filtering.	Potential for emails to be blocked.	Potential for local antivirus and email filtering to block mail

Department of Education Network

Govnet (Queensland Government Network)

Communities or QPS Network

2 Summary of Recommendations

Table 2.1 sets out the recommendations that were communicated to DET during the engagement for immediate action.

Table 2.1 – Recommendations for immediate action

Date	Details	Actioned
3 August 2015	Include a sample of SPR's sent to DCCSDS as part of the manual confirmation process until the technology fix is confirmed to be working.	Yes
14 August 2015	Document the procedures for the manual process for checking SPR's are being received by the intended recipient.	Yes
	Automate the daily query so that it generates a daily report for the above manual process.	Yes
	Amend the daily query to include reports submitted over the weekend as part of the manual process for checking SPR's are being received by the intended recipient/s.	Yes
17 August 2015	Implement the Symantec recommendation to 'whitelist' the DET email address sending the reports. Note that this should only be a temporary measure.	Yes
	Inform QPS, DCCSDS & CITEC of the issue with the spam filter and recommend the specific DET emails are whitelisted on their email (spam) system.	Yes
	Alert the development team to the spam issue to ensure future modifications to the SPM consider this issue.	Yes
18 September 2015	DET should consider including the Concern ID in the 'subject field' of the notification email to provide a unique identifier when reconciling future email logs.	In progress
25 September 2015	Provide QPS with copies of the SPR's for which we are unable to see a corresponding email log.	Yes
	Provide DCCSDS with copies of the SPR's for which we are unable to see a corresponding email log.	Yes

3   Terms of Reference

3.1 Scope

On 3 August 2015 Deloitte was engaged by DET to perform an investigation into the failure of the OneSchool SPM.

The investigation scope and objectives below focus on the circumstances surrounding a software update applied to the SPM on 19 January 2015 which resulted in the failure of 644 SPR's to reach QPS.

a) Review the Department's response to the recommendations resulting from the Queensland Child Protection Commission of Inquiry (1 July 2013) with respect to notification and mandatory reporting including recent legislative requirements (mandatory reporting under the *Child Protection Act 1999*, from 19 January 2015). Examine and assess implementation of actions by the Department in response to these

b) Investigate the current incident and provide a report on the factors that led to the failure of the Student Protection Reporting module in OneSchool including the terms and conditions of any contracts with third party providers responsible for providing software development services

c) Review the fix made to the system for *'QPS Only'* reports and determine if the fix has worked allowing the reports that are now entered in to the system to reach the intended police recipient.

4 Background

4.1 OneSchool – Queensland online school management system

In 2003 DET recognised the need for a state wide online school management system to support teachers, administrators and students and commenced planning for a centralised solution. Prior to this, each state school across Queensland was responsible for its own individual records which highlighted issues of standardisation, retention and accessibility for DET.

As DET could not identify an off-the shelf solution at an acceptable level of risk, a decision was made to build a school management system using the department's own development team and ICT partners. This was the genesis of the OneSchool program.

The first release of OneSchool was deployed to all state schools across Queensland in 2008. Further releases occurred in 2009 and 2011 to broaden the services to schools through the online system. Today, OneSchool is used extensively by every teacher in every state school in Queensland. The platform currently comprises the modules outlined in Figure 4.1.

Figure 4.1 – Modules currently in the OneSchool platform
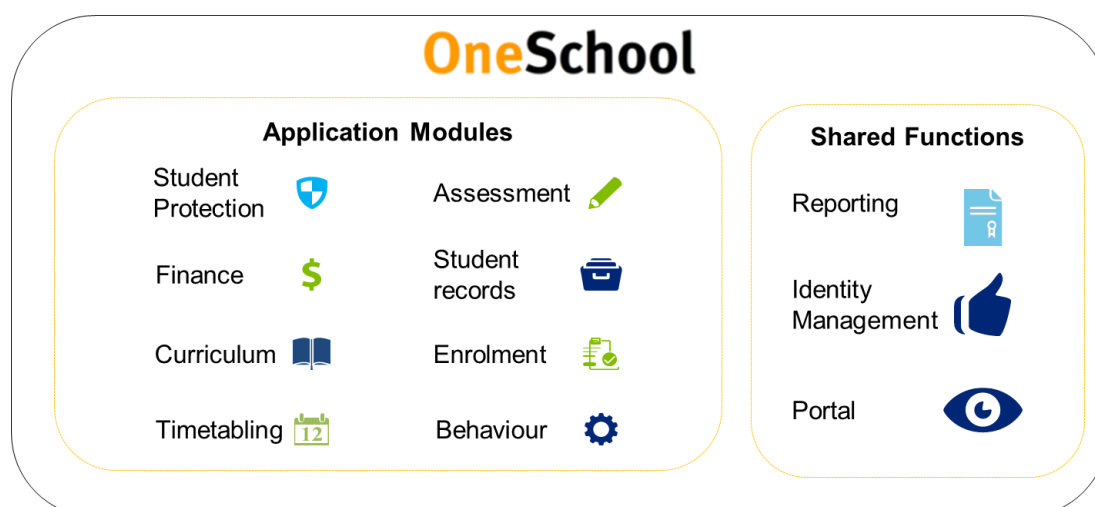
4.1.1 DET student protection reporting module (SPM): A Brief History

OneSchool is a large application consisting of several million lines of software code and a number of functional modules which support thousands of distinct users and stakeholder groups. The application has evolved extensively since the first deployment in 2007, with two major releases prior to 2011 and regular large quarterly releases since then.

The OneSchool SPM is a standalone module within the wider OneSchool system that enables the confidential reporting of student protection information to DET, the DCCSDS and the QPS. Prior to the implementation of the SPM in OneSchool in October 2013, the student protection reporting was undertaken manually, with a paper document completed and attached to either email or fax. This was then sent to the relevant agency/s.

The decision to integrate the student protection reporting process into OneSchool, and transform it into an online electronic reporting process was made following the issue of two internal reports on the subject in 2008 and 2009. These are described in Table 4.1.

Table 4.1 – Integration of SPM into OneSchool

Year	Key developments
2008	In 2008, a DET Internal Audit review recommended: '*a review to be undertaken to address short-comings in student protection reporting of policy SMS-PR-012. This review should cover the content of the policy itself, staff training, resourcing, design of reporting forms, and also any other concerns staff may have.*' Refer to Appendix B for a copy of this document.
2009	In 2009, the Director General commissioned an internal investigation into the handling of student behaviour. It recommended that '*consideration be given to enabling all student protection reporting forms to be completed and sent electronically via OneSchool.*' Furthermore, the report found the existing manual student protection reporting process to be time intensive and lacking safeguards surrounding privacy, security and confidentiality.
2010	In September 2010, a business case[1] was submitted to DET management to address the future of student protection reporting. The report outlined possible approaches to address the manner in which the 'end to end' process of student protection reporting was handled and recommended that '*DET leverage the OneSchool single point of truth of student data*' ensuring all reports are housed within a single application. The business case was endorsed by DET senior management. However, following this decision, due to a lack of funding and other priorities the implementation into OneSchool of student reporting did not occur until October 2013.

DET IT staffing

As at August 2015 the DET Information & Technologies Branch (**IT Branch**) comprises 476 staff which comprises 463.23 FTE employees. These can be further broken down into the following sub groups:

- Permanent - 153.52 FTE
- Temporary - 172.51 FTE
- Performing Duties - 137.2 FTE

A five year analysis of IT Branch staffing numbers provided by DET can be found in Table 4.2. OneSchool is reliant on some services from IT Branch for infrastructure, governance and some operational support activities. We note throughout this period there have been variations in headcount of IT Branch staff.

Table 4.2 – 2011-2015 IT branch staffing numbers

	June '11	June '12	June '13	June '14	June '15
Performing Duties[2]	184	207.96	144.9	119.4	138.3
Permanent	137.9	135.48	139.6	129.3	169.86
Temporary	226.23	276.53	169.86	142.81	171.96
Total FTE	**548.13**	**619.97**	**454.36**	**391.51**	**480.12**

---

[1] Refer to Appendix C for a copy of the DET SPM Business Case
[2] Refer to individuals acting in higher duties

4.2 Queensland child protection regime

The Queensland child protection regime exists to protect at-risk children from abuse and neglect. A portfolio of Queensland Government Departments have involvement in the protection of vulnerable children, however, the issues central to this report focus on DET, DCCSDS and QPS.

- DET primarily administers state school education across Queensland encompassing 1,234 Schools, over 524,823 students being taught by 47,831 teachers with a budget in excess of $5.4 billion

- DCCSDS is the lead agency for child protection in the State and is dedicated to protecting children and young people who have been harmed, or are at risk of harm

- The QPS are the primary law enforcement agency in Queensland and in their child protection role, investigate and prosecute criminal allegations of physical and sexual abuse of children.

This report focuses on the child protection reporting requirements of DET, however all three agencies have interconnecting roles prescribed by two Queensland Acts of Parliament:

- Queensland Child Protection Act

- Queensland Education Act.

DCCSDS are the lead agency for the Child Protection Act which specifies mandatory reporting requirements where a child has suffered, is suffering or is at unacceptable risk of suffering significant harm caused by physical or sexual abuse and does not have a parent able and willing to protect the child from harm. DET frontline staff, specifically teachers and principals, also have 'mandatory reporting requirements' under the Education Act to report sexual abuse to QPS.

4.3 Child Protection Legislation

To better understand the purpose and design of the OneSchool SPM, we have outlined the mandatory reporting requirements of the Child Protection Act and Education Act below along with the changes introduced as a result of the Queensland Child Protection Commission of Inquiry final report findings (**Carmody Report**).

4.3.1 Queensland Child Protection Commission of Inquiry

Key Development	Description
Establishment of Carmody Enquiry July 2012	The Queensland Child Protection Commission of Inquiry was established in July 2012 under the leadership of the Honourable Tim Carmody QC to *'develop a roadmap for the next decade to produce the best possible system for supporting families and protecting children that our state can afford.'*
Carmody Report issued July 2013	On 1 July 2013 the Carmody Report was publicly released. One of the report's findings, relevant to this review, related to the student protection reporting framework and the increasing volume of actual or suspected physical or sexual abuse reports that were being created by staff within DET.
Report recommendations	The Report proposed a consolidation of child protection arrangements which are outlined below. a) Recommendation 4.2 - the DPC and DCCSDS lead a whole of government process to review and consolidate all existing legislative reporting obligations into the Child Protection Act 1999, develop a single

standard to govern reporting policies across core Queensland Government agencies and provide support through joint training.

b) Recommendation 4.3 - the QPS revoke its administrative policy that mandates reporting to DCCSDS and replace with a policy reflecting the standard in recommendation 4.2.

c) Recommendation 4.6 - the Minister for DCCSDS propose amendments to the Child Protection Act 1999 to allow mandatory reporters to discharge their legal reporting obligations by referring a family to the community based intake gateway and afford them the same legal and confidentiality protections currently afforded to reporters.
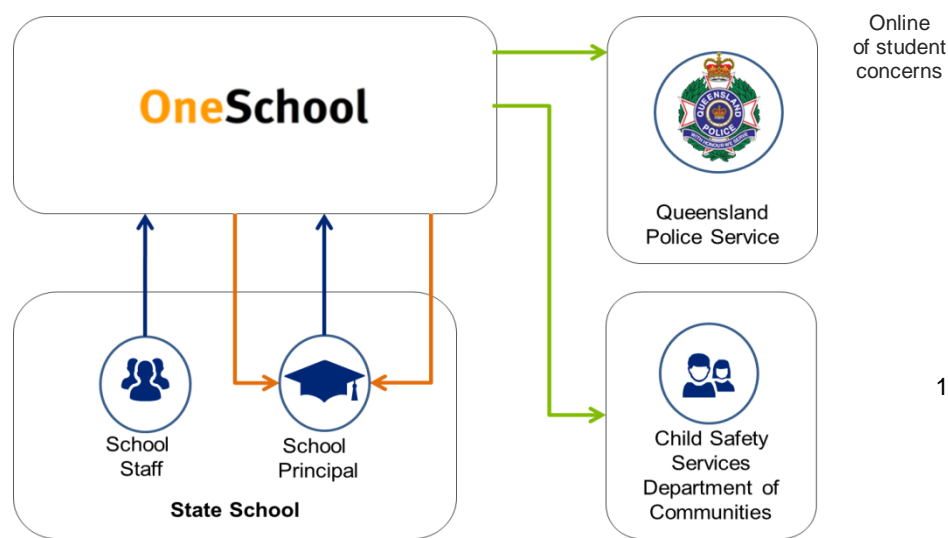
4.3.2 Key Legislation

Key Agency/ Requirements	Description
Child Protection Act 1999	The *Child Protection Act* upholds the principle that all children have the right to be protected from harm or risk of harm. The mandatory reporting requirement for school staff, outlined in section 13E of the Act, requires that a teacher or registered nurse must make a report when they reasonably suspect that a child: a) has suffered, is suffering, or is at unacceptable risk of suffering, significant harm caused by physical or sexual abuse; and b) may not have a parent able and willing to protect the child from the harm.
Education (General Provisions) Act 2006	The *Education (General Provisions) Act 2006* regulates the education of children living in Queensland. The mandatory reporting requirement for a school staff member of a State school states that a written report must be made to QPS if *'a staff member becomes aware, or reasonably suspects, that a student under 18 has been sexually abused, or is likely to be sexually abused by another person.'*

4.4 Implementation of the SPM into OneSchool - October 2013 and January 2015

The first release of the SPM into OneSchool went live in October 2013 following a staff training and awareness program. The SPM provided state school staff with online functionality to submit student protection concerns directly to DCCSDS and QPS which is illustrated in Figure 4.2.

Figure 4.2 – submission protection

Online of student concerns

OneSchool

Queensland Police Service

School Staff

School Principal

State School

Child Safety Services Department of Communities

The SPM workflow follows a creation and approvals process which is routed from either teacher or principal as the initiator, through to principal or principal supervisor as the approver, followed by the transmission of the student concern report, via email, to either or both of the QPS and DCCSDS, depending on the nature of the concern.

> **Example:** The initiator of the student concern logs in to the OneSchool SPM and completes a narrative relating to the particular report being made and confirms the type of activity they suspect is happening (sexual abuse, physical harm or other).This report is then routed within the OneSchool SPM to the approver, usually a principal, for ultimate editing and approval. Once approved, the OneSchool SPM creates an email and appends a Microsoft Word document containing the student protection concern details. Once finalised, the email is sent to a predefined QPS and/or DCCSDS email address, based on the location of the report initiator.

Following the release of the Carmody Report on 1 July 2013 and associated recommendations, the first prototype of the SPM had already been completed, presented and endorsed by the OneSchool Principals reference group. Therefore it was subsequently decided to go ahead with the October 2013 release with an upgrade to the SPM undertaken when it was more accurately understood how the Carmody Report recommendations would be operationalised.

Those recommendations were subsequently implemented into the SPM with the January 2015 SPM update. Under the legislation, the Principal is required, when notified of a student protection concern via the receipt of a SPR, to forward the report to:

- the QPS only when the content of the report indicates that a student may have been sexually abused, or is at risk of being sexually abused

- the DCCSDS only when the content of the report indicates that a student may have been significantly harmed or may be at risk of significant harm as a result of physical, sexual or emotional abuse and may not have a parent who is willing and able to protect them from harm

- both QPS and DCCSDS when the content of the report indicates that a student may have been significantly harmed or may be at risk of significant harm as a result of sexual abuse and the child may not have a parent who is willing and able to protect them from harm.

5 Investigation of '*QPS only*' reporting incident and subsequent fix

At approximately 4.30pm on 30 July 2015 the Director General and the Minister for Education were informed by Senior DET staff there had been a serious malfunction within the OneSchool SPM whereby reports in the '*QPS only*' category were not being transmitted for investigation. At that time the full extent of the problem and the exact details were not known apart from it being a serious issue affecting a large number of students and their families. Upon notification, the Director General and the Minister escalated the issue to the highest priority. At 5.30pm the same day, senior QPS officers attended DET head office to meet with senior DET staff and a process of triaging and remediation was immediately commenced.

(i) This section outlines the issues surrounding the SPM software modification, detection of the problem and the remediation undertaken by DET.

5.1 Introduction and context of 'QPS Only' reporting incident

On 19 January 2015 a change to the OneSchool system (**the January 2015 SPM update**) went live. This introduced a *'QPS Only'* reporting category for when a student may have been sexually abused, or was at risk of being sexually abused. This 'simple technical change' as it has been described, was to amend a system that was already operational.

The January 2015 SPM update and the background to the '*QPS Only*' reporting channel are further explained below.

5.1.1 The January SPM update – OneSchool decision matrix

The January 2015 SPM update was implemented via a software development upgrade undertaken by OneSchool and its contracted third party software developers, Third Party Company 1. The modification was modelled on the 'OneSchool SPM decision matrix' (**the matrix**) outlined in Table 5.1. The objective of the changes was to operationalise the consolidation in reporting requirements that arose from the Carmody Report and to reduce the number of reports going to the QPS which did not meet the evidentiary thresholds.

The matrix logic requires three questions to be answered that are aligned with legislative requirements. The combined answers to these questions determine whether the SPR will be escalated to a third party recipient (QPS, DCCSDS or both) or monitored internally at the school. A report will be classified as 'monitor at school', if the three answers do not meet the mandatory reporting requirements as outlined in the Acts.

Table 5.1 – OneSchool SPM decision matrix

Email Recipient	Is this report in relation to suspected sexual abuse or likely sexual abuse?	Does the information indicate that the student has been significantly harmed or is at risk of significant harm?	Based on the available information, do you suspect a parent may be able and willing to protect the child from harm?
QPS	Yes	Yes	Yes
QPS	Yes	No	No
QPS	Yes	No	Yes
QPS & Child Safety	Yes	Yes	No
Child Safety	No	Yes	No
Monitor at School	No	Yes	Yes
Monitor at School	No	No	No
Monitor at School	No	No	Yes

The SPM software coding error occurred in the 'QPS Only' component of the matrix, resulting in the failure of the software to generate a 'QPS Only' report. This critical software coding error occurred in the design of the January 2015 SPM update.

5.2 Design and build of the January 2015 SPM update

Regular updates to the software functionality of the OneSchool modules are undertaken by developing enhancements or fixing known issues or 'bugs' when they are identified. As previously mentioned, the January 2015 SPM update was an enhancement of the original SPM implemented in October 2013. The following sections outline the steps undertaken by OneSchool to design, build and test the January 2015 SPM update.

5.2.1 SDLC

The Software Development Life Cycle (**SDLC**) is a term used within the Information Technology industry to describe the process of designing and implementing changes to IT system functionality. To simplify what can sometimes be a highly technical workflow, we have outlined a generic set of steps that are included with any upgrade or new development of software. These are outlined in Figure 5.1. These steps are reflective of what occurred within OneSchool when the SPM was updated in January 2015.

Figure 5.1 – Generic SDLC

In each of the SDLC stages described above, DET and OneSchool relied on a number of software tools and processes. The key software tools used by the DET and OneSchool teams, as part of the development of the January SPM 2015 update, are shown in Table 5.2.

Table 5.2 – Software tools used in development of January 2015 SPM update

Software & Documents	Description
Team Foundation Server (TFS)	• A Microsoft tool used for the co-ordination of activities relating to the development and testing of software. Microsoft describe TFS as '*a set of collaboration tools that work with your existing IDE or editor, so your team can work effectively on software projects of all shapes and sizes*.' When software updates are planned, an identification code within TFS is allocated for each activity. The code CR66557 was allocated for the January 2015 SPM update and the code CR69118 was allocated for the subsequent coding error fix
TRIM	• A document management tool provide by Hewlett Packard. TRIM is used within DET to formally store, share and track documentation. TRIM is also used to electronically track the sign-off of documentation by the relevant approvers
Emails	• The OneSchool team relies on email communication to exchange information between team members and the relevant DET business unit, in this case the DET Child Safety team. Email is used by the DET Child Safety team to request changes to the OneSchool SPM utilising attached word documents to describe the specific modifications/updates
ServiceNow	• A service management tool used by the DET Application Support Centre (**call centre**) to manage help desk enquiries primarily from the school based users of DET services
Knowledge Based Articles (KBAs)	A number of guides known as 'Knowledge Based Articles' or 'KBAs' are stored within the ServiceNow system. These provide sample responses to help desk operators for common queries that support centre staff receive and were developed to provide a level of consistency and quality in the responses staff give to enquires. Further detail is outlined below: • The KBA documents are written by senior service centre staff and are based on 'good practice' agreed by OneSchool when responding to enquiries • The KBA documents list questions that might be asked of a Level 1 support centre staff member by a user of OneSchool services. Furthermore, they provide guidance to the support centre staff member to help them resolve the query. If the query cannot be resolved by the Level 1 service centre staff member they will escalate to the Level 2 support team member • There are currently 13 KBAs maintained by the OneSchool Support team that address items relating to the SPM. No specific guidance is documented that relates to the issue of *'QPS Only'* reports not being received by QPS.

5.2.2 January 2015 approval process and team members

Initiate → Design → Build → Test → Deploy → Support & Operations

A review of the formal approval process for the January 2015 SPM update identified multiple lines of approval within DET and OneSchool which were as follows:

1. An OneSchool program specific change request and release management approval process. This included the OneSchool business and technical teams and the OneSchool Application Board. It should be noted the January 2015 SPM update was included within a broader OneSchool January 2015 release, including other module updates

2. A department-wide ICT technical change management approval process for the deployment of changes to live technology systems.

A flowchart outlining the above two approval processes including personnel, approvers, dates and relevant documentation can be found in Appendix D.

5.2.3 Design and build of the January 2015 SPM update

Initiate → Design → Build → Test → Deploy → Support & Operations

As detailed previously, following the release of the Carmody Report, DET implemented a change to the reporting functionality within the SPM to introduce a *'QPS Only'* category. Accordingly, DET Child Safety and OneSchool developed a program to design and implement the proposed changes. Table 5.3 outlines DET staff who were involved in the January 2015 SPM update.

Table 5.3 – DET staff involved in the January 2015 SPM update

Job Title	Role in January 2015 SPM Update (CR66557)
Director of Child Safety	• Lead change management requests for SPM • Developed SPM decision matrix
Senior Advisor, DET Child Safety	• Supported Director of Child Safety in change management requests for SPM • Developed SPM decision matrix • Project Manager for SPM
Business Reporting Officer – SPM SME (OneSchool)	• Primary receiver of SPM change management queries from Child Safety (e.g. was receiver of early QPS only change management requests) • Coordinated communication between Child Safety, development and testing teams
Application Development Manager (OneSchool)	• Raised CR66557 in TFS on 14/10/2014
Application Development Team Member 1 (OneSchool)	• Sole developer for CR66557
Test Team Manager (OneSchool)	• Assigned the testing of CR66557 to Test Team Member 1
Test Team Member 1 (OneSchool)	• Undertook testing on CR66557
Director of Education Business Systems (OneSchool)	• Line Manager for developing and testing SPM teams • Managed the production readiness certificate for SPM • Approved the SPM release.

The following summarises the events that occurred in the design and build stages of the January 2015 SPM update. Refer to Appendix E for a timeline of these events:

- During August and September 2014 a document titled 'Changes to OneSchool SPM[3]' was circulated via email between DET Child Safety & SPM SME Staff members, listed in table 5.3. This referred to a request for the addition of *'a new pop-up box – Send Student Protection Report to QPS'* to enable the recommendations outlined in the Carmody report. Email communications between the staff focused on developing and refining the requirements for the update to the existing OneSchool SPM are located in Appendix F

- DET Child Safety, the project sponsor, led by the Director of Child Safety, initiated the January 2015 SPM update

- On 14 October 2014 a new project release, CR66557, was raised within TFS by the OneSchool developers to commence the design and build of the January 2015 SPM update

- On 7 November 2014, within CR66557, a document entitled 'Changes to OneSchool SPM' was loaded onto the TFS platform and Development Team Member 1 was instructed by the Application Development Manager to commence the design and build phase

- Between November 2014 and January 2015, Development Team Member 1 continued to refine the January 2015 SPM update prototype following further requests from DET Child Safety and the OneSchool Business Reporting Officer

- On 6 January 2015, Development Team Member 1 completed the development of the software code and updated the status of the TFS entry for CR66557 to 'resolved'. This indicated the design and build phase had been completed and was ready for testing

- Unit testing is a process of peer review undertaken by an independent party in order to identify easily recognisable errors or omissions. Unit testing was not undertaken on the software code developed for this update.

5.3 Testing of the January 2015 SPM update

Initiate → Design → Build → **Test** → Deploy → Support & Operations

The test phase was designed to test the functionality and accuracy of the January 2015 SPM update. A summary of key events in relation to the testing process for the January 2015 SPM update 'CR66557' is outlined below:

5.3.1 Testing of CR66557- key events

- On **17 November 2014** a meeting was held between the Test Team Manager and Test Team Member 1 to discuss the testing program required for the January 2015 SPM update

- Between **17 November 2014 and 8 January 2015** Test Team Member 1 developed a test script for CR66557. Test Team Member 1 undertook this testing between 8 January 2015 and 12 January 2015. Refer to Appendix H for a copy of the test plan

---

[3] Refer to Appendix G for a copy of Changes to OneSchool SPM document

- A summary of the testing performed on CR66557 by Test Team Member 1 involved the following:

  - A test environment was created in a single test session assuming all roles including external email recipients (QPS and DCCSDS). This testing scenario involved sending all test emails to the same OneSchool email address rather than creating separate email addresses for each recipient

  - Test Team Member 1 undertook a separate test for each of the eight logic steps as per the OneSchool SPM decision matrix, as shown on page 21

- Using this testing methodology, Test Team Member 1 performed the same test eight times to correspond with the eight logic steps in the OneSchool SPM decision matrix. More specifically, when undertaking the tests for 'QPS Only' reports Test Team Member 1 should have received the following:

  - **Email 1** - an email, as School Principal recipient, being notification that the teacher had submitted a SPR

  - **Email 2** - an email, as QPS recipient, containing the SPR

  - **Email 3** - an email, as cc'd to the School Principal, as a confirmation that the SPR had been successfully submitted and sent to the QPS

- Due to a coding error, Test Team Member 1 only received Email 1 and Email 3

- As all recipients in the test environment were set up within the email account of Test Team Member 1, this created confusion when verifying the number of emails received for each of the eight tests. As a result, he failed to notice the software code was not generating an email to QPS (Email 2) as intended

- On **12 January 2015** Test Team Member 1 updated the test script document located in the TFS system and indicated that CR66557 had successfully passed the test phase (see Figure 5.2 below for an extract from the TFS system)

Figure 5.2 – Screenshot of the test plan for CR66557

St	Action	Expected Result	Resul	Testers Comments	General Information
	Step 4: Action results changes Send to QPS - yes, yes, yes yes, no, yes yes, no, no Send to Child Safety & QPS - yes, yes, no Send to Child Safety - No, Yes, No Monitor at School - No, Yes, Yes No, No, No No, No, Yes Select Finalise	Action to be taken updates are implemented	PASS		
1.16	Select Save and Finalise	Report is finalised and sent to agencies depending on selection	PASS		
1.17	View available report: Student protection report	Report is generated	PASS		

- On **16 January 2015** the Test Team Manager issued an updated version of the test summary report that stated CR66557 had been appropriately tested. When asked why he did not undertake quality assurance (**QA**) on the test script he stated *"I didn't check it because I only do this when they either fail or when the testers have a problem with writing the test. This one passed so there was no reason for me to review it"*.

Refer to Appendix I for a copy of the Test Summary Report.

5.4 Deployment - Go-Live of the January 2015 SPM update

| Initiate | Design | Build | Test | Deploy | Support & Operations |

All updates to the OneSchool system are deployed into the 'live' system in stages, usually quarterly. A decision was taken to deploy the update CR66557 in the January 2015 package of OneSchool software updates. The following points summarise the key events that led up to the go-live upgrade of the OneSchool SPM in January 2015

- As previously documented, during **August and September 2014**, the DET Director of Education Business Systems, OneSchool Program Director and DET Education Business Support Director decided to include the SPM update in the January 2015 OneSchool release

- On **30 September 2014** the OneSchool Application Board approved the January 2015 OneSchool release. We were informed by the Director of Child Safety this change was considered as low risk by those involved as it was a small technical change to a system that was already in production. No specific consideration was given to the risk of the '*QPS Only*' change to the SPM

  Refer to Appendix J for copies of the minutes and emails relevant to the January 2015 OneSchool release

- On **12 November 2014**, a 'Production Readiness Certificate' was prepared by the DET Director of Education Business Systems for the January 2015 OneSchool release. This document captured a list of key actions and approvals relating to the January 2015 OneSchool release

- In **November 2014**, training for DET end users (teachers, principals and other educational staff) was delivered on the SPM update through face-to-face workshops and webinars. The program was designed by DET Child Safety and the OneSchool training team

- On **15 January 2015** the DET Assistant Director General, Information and Technologies branch signed the 'Production Readiness Certificate' for the January 2015 OneSchool release

  Refer to Appendix K for a copy of the 'Production Readiness Certificate' and approvals from relevant DET staff

- On **19 January 2015** the DET Change Stakeholder Committee approved the January 2015 OneSchool release and the new software code was moved into the live production environment

  Refer to Appendix L for a copy of minutes where the Change Stakeholder Committee approved the January 2015 OneSchool release

- Further on-line training webinars on the updated January SPM changes were held from week one, commencing 19 January 2015, for approximately four weeks. The webinar sessions were then downloaded and made available through the OneSchool online training platform.

5.5 Discovery of the coding error and escalation

Initiate → Design → Build → Test → Deploy → Support & Operations

At approximately 2pm on 29 July 2015, the Business Reporting Officer, OneSchool approached Development Team Member 1 with an issue related to the OneSchool SPM. The reporting of this issue led to the discovery of the software coding error which is detailed in chronological order below.

Wednesday 29 July 2015

29 July 15 → 30 July 15 → 31 July 15 → 1-3 Aug 15

- At approximately 2.20pm, while investigating another software bug, Development Team Member 1 noted a problem with the 'QPS Only' logic within the January 2015 SPM update

- Specifically, he identified the relevant QPS email address would not be included on the distribution email in the case of the 'QPS Only' category due to an error in his original software code. Therefore, any SPR categorised as 'QPS Only' would not have left the OneSchool SPM system nor reached the intended recipient

- At approximately 2.30pm, Development Team Member 1 alerted the Business Reporting Officer to this critical issue. This was allocated code 'CR69118' within TFS for immediate remediation

- Sometime between 2.30pm and 3pm, the Business Reporting Officer informed the Director of OneSchool Education Business Improvement about the 'QPS Only' reporting issue

- During the course of the afternoon software coding error CR69118 was investigated and rectified by Development Team Member 1[4]

- At approximately 5pm, the Director of OneSchool Education Business Improvement informed the Director of Business Systems of the situation.

Thursday 30 July 2015

29 July 15 → 30 July 15 → 31 July 15 → 1-3 Aug 15

- Between 7am and 8:30am a series of conversations and meetings were held in relation to CR69118 between the Director of Business Systems, Development Team Member 1 and the Business Reporting Officer. The Director of Business Systems, stated *"this is when I first knew of the full extent and the gravity of the issue that all QPS only reports had not been arriving at their destination since the January 2015 update"*

- Between 8.30am and 2pm the Director of Business Systems was in communication with the Director of Education Business Improvement who was in Townsville delivering a training course with the Executive Director OneSchool

- At approximately 2pm, an urgent teleconference was arranged between the Director of Business Systems, Director of Education Business Improvement and the Executive Director OneSchool. At this time the Director of Business Systems communicated the number of potential reports and informed the group that Developer Team Member 1 had *"completed the fix to the bug"*

---

[4] Refer to Appendix M for a detailed timeline of the remediation of the 'QPS Only' coding error

- Shortly after the teleconference the Executive Director OneSchool notified the CIO and the Acting Deputy Director Corporate Services that a serious issue had arisen with 'QPS Only' reports within OneSchool

- At approximately 3pm the Executive Director OneSchool telephoned the Assistant Director General, State Schools Operations and informed him that they had identified 644 'QPS Only' reports that had been created since the January 2015 SPM update. He believed these had not been transmitted through to QPS

- During the briefing, the Assistant Director General, State Schools Operations asked the Executive Director OneSchool *"are you sure, have you verified this".* The Executive Director OneSchool confirmed the issue and the number had been verified and that there was a serious problem

- At approximately 4.30pm the Assistant Director General, State Schools Operations met with the Deputy Director-General State Schools and informed her of the *'QPS Only'* reporting issue. The Deputy Director-General State Schools instructed him to call the QPS immediately. He was told to inform them the situation was *"urgent and extremely serious"*

- When asked by Deloitte why the QPS were called to the DET Head Office, the Deputy Director-General State Schools said *"it is very rare for the police to come to the Department but I knew this was serious and we needed to act quickly so I needed to get them here. It was the most serious situation we had ever faced at Head Office"*

- Following her meeting at 4.30pm the Deputy Director-General State Schools, along with the Acting Director General Corporate Services immediately met with the Director General and informed him of the issue. Recalling the meeting the Director General told Deloitte *"I get people coming into my office every day saying there is a serious problem so it wasn't until they told me what had happened that I realised this was very serious"*

- During that meeting the Minister for Education entered the room from her adjoining office and was immediately told of the issue. During the briefing the Minister asked *"when did this happen, how did it happen and what are we doing about it?"*

- At this meeting both the Director General and the Minister for Education made a decision to quickly gather and release as much validated information as possible to the public on the issue. Both stated it was critical that any information released to the public was factually correct as the issue related to the welfare of students and their families

- The Deputy Director-General State Schools informed the Minister for Education that the QPS had already been alerted and were due to arrive at DET head office within the hour to meet with her and the Assistant Director-General State Schools. The Deputy Director-General State Schools continued to provide a series of updates to both the Director General and the Minister throughout the evening and over the following days

- The Senior Advisor, DET Child Safety obtained an extract from the OneSchool SPM relating to the 644 SPR's identified previously. This summary report was provided to the QPS during their meeting at DET Head Office

- At approximately 5.30pm Chief Superintendent 1 and Detective Acting Superintendent 1 arrived at DET Head Office and were briefed by the Deputy Director-General State Schools and the Assistant Director-General State Schools

- At this meeting it was agreed between DET and QPS that as a matter of urgency, all OneSchool SPM *'QPS Only'* reports from the commencement of the January 2015 SPM update through to the rectification of the coding error on 30 July 2015 would be collated for immediate referral to QPS

- Immediately following this meeting the Assistant Director-General State Schools, Senior Advisor DET Child Safety and DET support staff attended QPS headquarters at Roma Street and assisted QPS officers to triage the 644 SPR's, prioritising the most critical.

Friday 31 July 2015

29 July 15	30 July 15	31 July 15	1-3 Aug 15

- The software coding fix and testing of CR69118 was determined to be functioning correctly so it was applied to the live OneSchool SPM, together with a 'manual validation process'[5]

- The Senior Advisor, DET Child Safety coordinated the extraction of seven further SPR's[6] that had been created the previous day on 30 July 2015 and provided these to QPS. These had been submitted prior to the fix being implemented but after the issue was identified

- The Minister for Education cancelled all scheduled meetings to meet with relevant DET staff and prepare for the public announcement. She told Deloitte *"it took a while for people to give me the correct information as I needed this before going public. I wanted to make sure the information I released was accurate"*

- At approximately 3pm, less than 24 hours after being informed of the incident, the Director General and Minister for Education briefed the press at Parliament House and outlined the actions that had already been taken

- At 6:52pm the Director General sent an email to all Queensland State School Principals notifying them of the system failure with child protection reporting mechanisms. Refer to Appendix N for a copy of this email

- At 7pm the Deputy Director-General State Schools emailed all Queensland State School Principals notifying them of the situation and provided background information on the incident. The email provided a specific DET Head Office contact email address should the School Principals require further information. Refer to Appendix O for a copy of this email

- In conjunction with this email, the Deputy Director-General State Schools issued a mobile phone text message to all Queensland State School Principals asking them to check their mailbox. The text was sent from the DET emergency mobile phone text facility, designed and operated to enable instant emergency communications with DET and Queensland State School Principals. In relation to sending the emergency text message, the Deputy Director-General State Schools told Deloitte *"this was only the third time that I had used this method of contacting everyone. I knew I had to do it though, because I had sent the email late on the Friday and I didn't want our Principals to hear about this from the press the next day"*.

1-3 August 2015

29 July 15	30 July 15	31 July 15	1-3 Aug 15

- The Assistant Director-General State Schools continued to assist QPS throughout the weekend and told Deloitte "*by the end of the weekend all 644 reports had been triaged and distributed to the relevant CPIU's for further investigation*"

- The Director General worked through the weekend to prepare a cabinet submission as well as meeting with senior DET staff to commission the Deloitte independent investigation into the incident

---

[5] Refer to Section 5.7 for a detailed description of the OneSchool SPM Manual Validation Process
[6] These were created post software coding issue identification but pre 'fix'

- The DET CIO contacted the CIO DCCSDS to confirm they had received all their intended SPR's since January and asked the Executive Director OneSchool if he could confirm that all reports had been delivered

- On Monday 3 August 2015 the CIO was informed by DCCSDS that 27 SPR's had not been received by the DCCSDS recipients

- DET IT staff undertook an urgent review relating to the non-delivery of these 27 SPR's to DCCSDS. The review identified a spam filter within the DET network as a possible point of loss of the 27 DCCSDS emails

- The DET CIO told Deloitte "*I knew at this point that we would have to go back to the start. I rang the Acting Deputy Director-General of Corporate Services and told him that we needed to do a complete reconciliation as there was an issue with the reports for Communities. I also commissioned a Symantec expert to investigate the spam filter issue*".

5.6 Fixing the "*QPS only*" software coding error

Prior to the January 2015 SPM update, a SPR could only be sent to either of the following two email recipients:

Recipients	Email address
Solely communities	example@communities.qld.gov.au
Both QPS and communities	example@communities.qld.gov.au
	example@police.qld.gov.au

On 29 July 2015, when Development Team Member 1 was reviewing the software code for the SPM, he noticed a coding error relating to the '*QPS Only*' reports. The error related to the logic applied when sending SPR's to QPS and DCCSDS.

Prior to the January 2015 SPM update, the software code logic required a DCCSDS email address to be present in any email before an email containing a SPR could be sent from the OneSchool SPM.

The January 2015 SPM update was designed to add a third option of a '*QPS Only*' recipient into the software code. This was achieved; however, the previous logic step of checking that a DCCSDS recipient be present was not removed from the software. Therefore, whenever a '*QPS Only*' email was generated, the logic still checked for a corresponding DCCSDS recipient which was not present in '*QPS Only*' emails. This subsequently caused all '*QPS Only*' emails to fail to send.

5.6.1 Code fix

On discovery of the error Development Team Member 1 immediately updated the logic described above to remediate the issue, enabling emails to be sent to '*QPS only*'.

This fix, CR69118, was achieved by amending the logic for the '*QPS Only*' SPM notification by eliminating the need for a DCCSDS addressee to be present in every email.

Refer to Appendix P for a screenshot provided by OneSchool that illustrates the code amendments outlined above. This shows the original software code deployed as part for the January 2015 SPM update along with the remediated software code released for use by Development Team Member 1 on 29 July 2015.

5.6.2 Code test and deployment

As a result of the 'fix' implemented by Development Team Member 1, Test Team Member 1 developed a revised test script for CR69118, within the TFS system. Due to the urgent nature of the issue, this was undertaken between 3pm on the 29 July 2015 and 9am on 30 July 2015.

The revised test plan comprised multiple steps, designed to test the logic and expected output of the amended software code. These included the creation of multiple email recipient mailboxes within the DET environment to simulate the concept of multiple email 'roles', (principals and QPS). However this test plan still did not send emails outside of the DET environment to test the pathway between DET and QPS. These steps are documented in Figure 5.3.

Figure 5.3 – Extract from 30 July 2015 SPM Test Plan

Step	Path/Action	Expected Result	Result	Testers Comments	General Information
1.08	*Action to be taken* Edit Student Protection Concern Select Yes or No radio buttons	Selecting these options will determine if the report is sent to Child safety, Police, both or monitored at school level	PASS		
1.09	*Notification sent to Police* 1. Yes, Yes, Yes 2. Yes, No, No 3. Yes, No, Yes Select Finalise	These options will send the **Confidential Student Protection Report** (attached) to Police with the Principal copied. The creator of the concern will receive the **Confidential Student Protection Advice** email notification	PASS	Testers 2 & 3 receive report notification, tester 1 recieves advice notification	See report & advice tab for example
1.10	*Notification sent to Child Safety* 4. No, Yes, No	These options will send the **Confidential Student Protection Report** (attached) to Child Safety with the Principal copied. The creator of the concern will receive the **Confidential Student Protection Advice** email notification	PASS	Testers 2 & 4 receive report notification, tester 1 recieves advice notification	
1.11	*Notification sent to Police & Child Safety* 5. Yes, Yes, No	These options will send the **Confidential Student Protection Report** (attached) to Police & Child Safety, with the Principal copied. The creator of the concern will receive the **Confidential Student Protection Advice** email notification	PASS	Testers 2, 3 & 4 receive report notification, tester 1 recieves advice notification	
1.12	*Monitor at School* 6. No, Yes, Yes 7. No, No, No 8. No, No, Yes	These options will send the **Confidential Student Protection Advice** email notification to the creator of the concenrn only	PASS	tester 1 recieves advice notification	See advice tab for example
1.13	*View Available Report* Student Protection Report	Report is generated	PASS		
1.14	*Edit Student Protection report* Select Edit/View/Delete	Student Protection can be viewed. Edit only occurs if report has been submitted, but no action taken Delete only occurs if student protection is created but not submitted (status: incomplete)	PASS		

The activities undertaken by Test Team Member 1 in relation to test script CR69118 are detailed in Table 5.4.

Table 5.4 – Test Team Member 1 CR69118 test script actions

Chronology	Description
3:09pm on 30 July 2015	Development Team Member 1 transferred the software code into the testing environment
3.14pm on 30 July 2015	Development Team Member 1 amended the TFS entry for CR69118 to 'resolved'. This illustrated that the amended software code was ready for testing

5.45pm on 30 July 2015	Test Team Member 1 updated the test script document located in the TFS system noting that CR69118 had successfully passed the test phase
7.27pm on 30 July 2015	The Director of Business Systems provided approval, via email, for the CR69118 fix to be migrated to the live production environment
7.40pm on 30 July 2015 (approx.)	The updated and tested software code was migrated into the OneSchool SPM live production environment.

5.7 Development and implementation of the 'manual' process

On 31 July 2015 DET implemented an additional safeguard to the '*QPS Only*' fix designed to provide assurance that CR69118 was operating effectively within the OneSchool SPM. A process was developed whereby DET staff were required to perform a manual validation exercise on each SPR created in the OneSchool SPM since 30 July 2015. This 'manual validation exercise' was designed to provide assurance that each '*QPS Only*' report had reached its intended recipient. Table 5.5 outlines the steps that were undertaken by DET staff as part of this process:

Table 5.5 – Manual validation exercise for receipt of '*QPS only*' SPR's

Manual Validation Process Steps	
1	Three OneSchool staff were assigned full-time within OneSchool to undertake the manual validation exercisee
2	Throughout the day a manual database query was run across the OneSchool student protection database listing '*QPS Only*' SPR's. The results of these queries were maintained on a master spreadsheet which was used to track progress and for daily upward reporting to DET management
3	These staff were required to contact the intended QPS Child Protection Investigation Unit (**CPIU**) for each '*QPS Only*' SPR confirming its receipt
4	Following confirmation by the relevant CPIU, the originating Principal was contacted to provide assurance to them that their SPR had been received by the intended recipient
5	Twice daily, senior DET staff were provided with a progress report regarding the validation exercise including the numbers of '*QPS Only*' SPR's being generated within the OneSchool SPM.

On 3 August 2015, Deloitte requested the details from OneSchool for the '*QPS Only*' reports created since 30 July 2015. Deloitte were provided with the details of 11 '*QPS Only*' reports that had been submitted since that date for which OneSchool staff had validated.

Deloitte re-performed the validation process outlined above and contacted the respective CPIU recipients and school principals. All recipients confirmed they had received the relevant SPR.

On completion of this exercise Deloitte recommended this manual reconciliation process be widened to include SPR's intended for DCCSDS to provide additional assurance for all third party recipients. This was subsequently implemented by DET and is still in place at the date of this report.

5.8 Earlier indicators of the issue

In our investigation we identified six events, relating to eight SPR's between 19 January 2015 and 29 July 2015 that indicated that SPR's may not have been received by QPS. These events included reports to the OneSchool IT helpdesk, and teacher and principal enquiries made to the Senior Advisor, DET Child Safety.

In all six events DET staff attempted to resolve the query. In five of the events it is recorded that DET staff accessed OneSchool SPM records attempting to identify the cause of the issue, and the system indicated that the SPR's had been sent to QPS. We were unable to determine the outcome for the remaining event as there is no further communication in the documented emails provided.

We also identified a meeting of DET Child Safety and OneSchool staff, held on 18 March 2015, during which potential problems with delivery of QPS SPR's were discussed. The details of this meeting are provided following the details of the six events below.

16 February 2015 – Service Now Incident 3513931

The following incident was extracted from the ServiceNow system. Refer to Appendix Q for an extract of the ServiceNow records provided by DET.

- On 16 February 2015 the State School Principal 1 logged an incident with the OneSchool Application Support Centre (OneSchool ASC) that stated '*two SPR's submitted via OneSchool were not received by QPS*'

- The Operator, OneSchool ASC advised the principal that the OneSchool SPM audit log showed that the email had been sent to the QPS. The operator's internal ServiceNow work notes stated: '*There is NO way to resend a Student Protection Concern*'

- The principal informed the operator they had already contacted the QPS but wanted to confirm if the original email had been sent to the QPS

- The operator further advised the principal on how they could generate another report, attach the report to an email and then send directly to QPS. The operator confirmed in ServiceNow that they had already completed this process.

26 February 2015 – Service Now Incident 3549560

The following incident was extracted from the ServiceNow system. Refer to Appendix R for an extract of the ServiceNow records provided by DET.

- On 26 February 2015 an acting Senior Guidance Officer, DET, contacted OneSchool ASC as they wanted to know if a SPR had been submitted to QPS

- On 26 February 2015 an Operator, OneSchool ASC, received a call from a QPS CPIU officer. They asked when a SPR they had received directly via email was going to be sent by OneSchool

- After the call, the operator queried the OneSchool SPM and emailed the QPS officer a screenshot of the advice displayed in OneSchool. This showed that the concern had been 'finalised and sent to QPS.' The notes in ServiceNow show that the QPS officer stated that they had not received it

- On 27 February 2015 the Senior Guidance Officer, DET, requested the operator send them the above QPS officer's email address as the QPS were certain they had not received the SPR in question

- On 27 February 2015 an Operator, OneSchool ASC, emailed the Senior Guidance Officer, DET and wrote "*I can confirm our audit results shows the student protection concern would have been submitted to: [CPIU 1]*"

- This issue was notified to the DET Director of Child Safety by the OneSchool ASC operator via email on 27 February 2015

- The Director of Child Safety responded to the acting Senior Guidance Officer on 3 March 2015 and wrote: "*We've spoken with OneSchool about this case and they've confirmed that OneSchool did send the report to QPS and didn't receive a message saying that the email had bounced back. In cases where the QPS mailbox is full or the address is no longer working and the email bounces back, OneSchool will immediately send a message to the principal who created the report to inform them that the report wasn't received.*" Refer to Appendix R for a copy of the email.

11 March 2015 email

On 11 March 2015 a Senior Advisor, State Schools Operations, sent an email to the Senior Advisor of DET Child Safety regarding a concern from the Deputy Principal at State School 2 The Deputy Principal had logged a SPR on 5 March 2015 via OneSchool that had not been received by QPS. The Deputy Principal had initially contacted the Ethical Standards Unit regarding her concern.

On 11 March 2015 the Senior Advisor, DET Child Safety, forwarded the above information via email to the Manager of Application Training, OneSchool asking if the SPR had been sent to QPS. We were unable to determine the outcome as there is no further communication in the documented emails provided. Refer to Appendix S for a copy of the email.

19 March 2015 email

On 19 March 2015 a Senior Guidance Officer, Student Services, sent an email to the Senior Advisor, DET Child Safety, with regards to two SPR's that had allegedly not been received by QPS.

On 20 March 2015 the Senior Advisor, DET Child Safety, forwarded the above email to the Business Reporting Officer, OneSchool, and wrote: "*Have had another concern raised about QPS not receiving Student Protection Reports. Not sure if we can check on these two matters. Would love to hear your thoughts.*"

On 23 March 2015 the Business Reporting Officer, OneSchool, responded to the Senior Advisor, DET Child Safety, and wrote "*OneSchool is indicating that an email was sent. Once again we cannot guarantee that an email sent is received at the other end.*"

On 23 March 2015 the Senior Advisor, DET Child Safety, responded and wrote: "*I guess this is just another example of why it would be good to get the emails going from the Principal and see if we can get a receipt response.*" Refer to Appendix T for a copy of the emails above.

20 May 2015 - Service Now Incident 3749720

The following incident was extracted from the ServiceNow system: Refer to Appendix U for an extract of the ServiceNow records provided by DET.

- On 20 May 2015 a Guidance Counsellor, State School 3, contacted a OneSchool ASC Operator and informed them that a SPR had not been received by QPS

- They advised the Operator they had contacted the relevant CPIU and were told by QPS they did not have the report

- The incident was escalated to the Business Reporting Officer, who in turn sent an email to a OneSchool ASC Level 2 Operator and wrote "*Database indicates that an email would have been sent to [CPIU 2]*"

- The OneSchool ASC Level 2 Operator entered a comment into ServiceNow and wrote "*Audit results show email would have been sent to [CPIU 2]. We have no way to determine what happens to the email once it is sent*"

- The ServiceNow notes also state the Guidance Counsellor asked for advice on emailing a copy of the report to QPS directly. The OneSchool ASC Level 2 Operator informed them that this decision should be at the discretion of the principal.

29 May 2015 email

On 29 May 2015 the Senior Advisor, DET Child Safety emailed the Business Reporting Officer and copied the State Schools Administrator. Included in the body of that email is the following "*Have just spoken to State Schools Administration about concerns raised by the Principal from [State School 4] about a report finalised on 11 May QPS are saying they never received. Is there any way you can check the system to confirm what happened to the report?*"

On 1 June 2015, the Business Reporting Officer responded to the Senior Advisor, DET Child Safety and wrote "*There was only one report finalised on the 11 May for [State School 4]. All I can tell you is that the email would have been sent to [CPIU 3]. Like all emails, we cannot control what happens with the email once it is sent from OneSchool.   We cannot guarantee that an email is received at the other end.*"

On 1 June 2015, Senior Advisor, DET Child Safety, responds via email and wrote "*I suspected that might be what you said. Am hoping that we will get further funding in the 2015-16 financial year so we can progress the work we scoped about changing the email address and looking at whether we can get a read receipt.*" Refer to Appendix V for a copy of the emails above.

OneSchool meeting in March 2015

A meeting was held on 18 March 2015 between the following DET staff:

- Senior Advisor, DET Child Safety

- Director, Child Safety

- Business Reporting Officer

- Development Team Member 1

- Development Team Member 2

- Education Business Support Director

- Other OneSchool staff

An agenda prepared by Senior Advisor, DET Child Safety, was sent with an email meeting invite. The agenda listed 18 discussion points related to OneSchool SPM enhancements. One of these 18 discussion points related to QPS and DCCSDS email delivery and is reproduced in full in Table 5.6.

Table 5.6 – Extract of OneSchool meeting agenda on 18 March 2015

Additional changes to the Student Protection Reporting module	Comments
Changes the way the email and attached SPR are forwarded from OneSchool to QPS and Child Safety. Currently the email is generated in the OneSchool system and sent from a generic OneSchool email box. Because it is generated from OneSchool the	By sending the email from the Principal's email account in Outlook it allows the Principal to attach other documents to support the report rather than having to send a second separate email. The received/read functionality will also ensure the Principal is made aware when QPS/Child Safety receive/read their report and

Principal is not able to attach other supporting documents, the Principal does not know when the email and report are received/read and QPS/Child Safety cannot reply directly to the Principal via the email in relation to the report.

We want to change this so that after the Principal selects the relevant QPS/Child Safety email address and hits finalise, a new email box opens in Outlook. The email would already include the addresses selected for QPS/Child Safety, the SPR and the standard text in the email message.

The Principal can review the information and attached other documents that may be required to support the statutory report. We also want the email to go from the Principal's EQ email address and have a read/received receipt function set into the email - this ensures the Principal is informed when the report is received/read by QPS/Child Safety.

they can save this record of the successful transmission of the report.

It will also enable QPS and Child Safety to reply directly to the relevant Principal when they receive a report and need to seek further information or commence and investigation.

We were informed by the Senior Advisor, DET Child Safety that the purpose of this meeting was to discuss the ways OneSchool SPR's were being submitted. She stated the item outlined above which was discussed in the meeting stemmed from two known cases by her of SPR's potentially not being received by QPS.

Her concern, at that point in time, was that DET staff were informing her that the OneSchool SPM system was reporting that SPR's were being sent to QPS, but she had received reports that they had not been received. Her thinking at the time was that the issue resided '*at the QPS end'*.

She stated that the meeting agenda relating to read receipts for emails sent from the OneSchool SPM was an attempt to provide some confirmation that the SPR's were being delivered. When Senior Advisor, DET Child Safety was asked if she knew at the time of this meeting that the SPM OneSchool system was not functioning correctly, she replied '*no, not at all.*' She stated the potential changes discussed at this meeting relating to OneSchool SPM email read receipts was not implemented at the time due to a lack of funding and other priorities. She further stated that funding for this upgrade was subsequently approved in early August 2015 for future development in the 2015/16 year. The full agenda and Microsoft Outlook meeting invitation can be found in Appendix W.

Further, a timeline of all seven events described above is provided in Appendix X.

5.9 Contracts with Third Party Providers

Deloitte were asked to review the terms and conditions of third party providers responsible for providing software development services associated with the incident. We have identified Third Party Company 1 as a third party providing software development and support services for OneSchool.

Specifically, Third Party Company 1 supplies the services of seven contractors, including Development Team Member 1 under contract DETESOA-101349. This contract was executed on 3 September 2013 between Third Party Company 1 and the State of Queensland. A summary of the contract conditions is outlined below:

- Third Party Company 1 was engaged to provide a service that 'supplements the existing services by providing suitably qualified .NET specialist resource hours, primarily in the Corporate Applications Team within the Applications Operations Unit'

- Development Team Member 1 is contracted out at the rate of $110.00 per hour inclusive of GST

- The contract period is for two years commencing 3 September 2013 with scope for an extension for a further 12 months

- Liability under the contract for indirect or consequential loss is excluded. Liability is capped to the amount of $20,000,00.00 for any one claim and in the annual aggregate

- Indemnity under the contact is uncapped.

Refer to Appendix Y for a copy of the customer contract.

6   Forensic Email Reconciliation

6.1 Background

Deloitte undertook a reconciliation of emails sent by DET to QPS and DCCSDS recipients from the OneSchool SPM since inception. This was designed to account for all emails sent from the OneSchool SPM to QPS and DCCSDS from 28 October 2013 through to 31 July 2015.

Email logs (**logs**) for the relevant dates were requested and provided by DET, QPS and DCCSDS for this reconciliation to be performed. These logs were provided as de-identified of individual's details and were loaded into secure Deloitte databases for analysis and reconciliation. The raw email logs were processed into a standardised format to facilitate the matching exercise. Other features inherent in the logs were accounted for including handling date/time records and time zone differences.

This reconciliation process was complex and involved the consideration of logs and records from seven separate databases. It was an intensive and comprehensive process completed over approximately eight weeks.
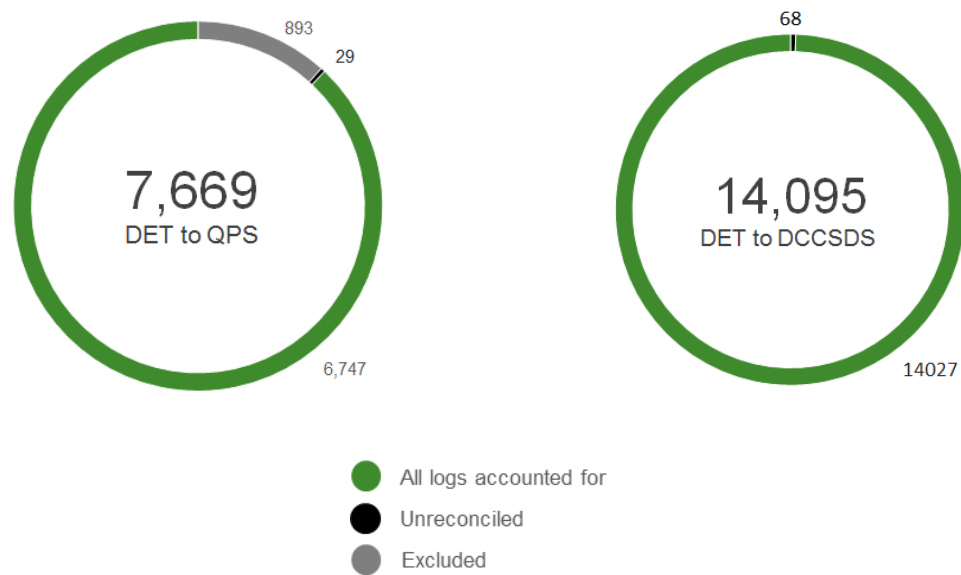
6.2 Overall findings

We were able to reconcile 20,774 DET email logs from a total of 21,764 sent to QPS and DCCSDS since 28 October 2013. For the remaining 990 email logs, valid exclusions were removed. These related to:

- the original '*QPS Only'* SPR's known not to have reached the QPS

- SPR's sent during two QPS logging outages

- various system test logs that did not relate to actual SPR's

- duplicate logs generated due to the interactions between the various email systems and their respective filters and firewalls.

As a result, a total of 97 DET email logs were unable to be reconciled to a corresponding QPS or DCCSDS email log. More specifically, 29 related to QPS and 68 to DCCSDS. To remediate this gap, on 25 September 2015 DET provided QPS and DCCSDS with all relevant SPR's corresponding to the following:

- 29 DET email logs for which we were unable to see a corresponding log with QPS

- 247 DET email logs sent during the QPS email log outages

- 68 DET email logs for which we were unable to see a corresponding log with DCCSDS.

This was undertaken to ensure that all SPR's had been referred in compliance with legislation.

7,669
DET to QPS

893
29
6,747

14,095
DET to DCCSDS

68
14027

- All logs accounted for
- Unreconciled
- Excluded

6.3 DET to QPS Reconciliation

6.3.1 QPS Log Data

The logs provided by DET and QPS are summarised in Table 6.1. Due to the way an email traverses IT infrastructure within an organisation, a single email can result in multiple log entries. Accordingly, in preparation for the analysis the QPS recipient logs were de-duplicated. We have relied on the information and logs supplied by DET and QPS as being complete, and in the case of DET, have assumed there are no duplicates for the purpose of this analysis.

Table 6.1 – Summary of logs provided by DET and QPS

Data Source	DET Logs	QPS Logs
Number of Records[1, 3]	7,669	7,331
Maximum Date[2]	9 August 2015	9 August 2015
Minimum Date[2]	28 October 2013	3 October 2013

[1] DET logs include all emails sent to QPS and DCCSDS but for 6 system test logs prior to the OneSchool SPM go live in October 2013
[2] In AEST
[3] DET logs in this partition only show the records relevant to emails sent to QPS or DCCSDS based on the email address of the recipient listed

6.3.2 Gaps identified in QPS logs

Our analysis identified two gaps[7] in the QPS logs for the following time periods:

- 7 March 2014 – 8 March 2014

- 2 September 2014 – 9 September 2014.

These logs were subsequently requested from QPS, but due to advice received from QPS regarding logging outages in these periods, they were unavailable for analysis. It should be noted it is not unusual for logging outages to occur in live email systems from time-to-time.

---

[7] The identified gaps were confirmed by QPS as an outage in their email logging records

Accordingly, the corresponding 247 DET logs identified during these periods were excluded from our analysis and the corresponding SPR's identified. The details of these were provided to DET on 25 September 2015 for subsequent notification to QPS.

6.3.3 Accounting for Time Zones

The QPS logs were recorded using GMT whilst the DET logs were recorded on AEST. The QPS logs were subsequently brought forward to AEST for analysis. We note neither time zone is impacted by daylight savings.

6.3.4 Time Accuracy within Logs

The DET logs were provided to us at the level of accuracy of a second, whereas the QPS logs were provided at the level of accuracy of a minute. Matching of these logs has been accomplished at the 'minute' level of accuracy.

6.3.5 Alternate Matching

A characteristic of the data was observed during the matching process whereby an email log on the DET side could not be accurately matched with its correct counterpart on the recipient side as there was no unique identifier. This can be illustrated with the following example whereby three DET logs are sent to the same QPS email address in a narrow time frame, with only two possible matching logs observed on the QPS side.

In this event we only match two DET logs; the other would be noted as unreconciled. As we are matching on time and date attributes with no unique identifier, we would be unable to definitively identify which two of the three DET logs match the two corresponding QPS logs. When this happens, we are required to provide all three DET logs for remediation to ensure that all SPR's are accounted for. This occurs as we are unable to uniquely match one for one on either side. This characteristic of the data was observed in both QPS and DCCSDS logs and is referred to throughout this analysis as '*alternate matches*'.

6.3.6 Matching Methodology & Key Points

The steps we undertook with respect to the email log reconciliation are detailed below along with some key points.

- The email logs were matched on as many fields as possible. These fields primarily consisted of the sender/recipient addresses, the date, and the time of the respective emails

- To account for the difference in the level of accuracy, the DET date/time logs were truncated to the nearest minute. These were then matched to QPS logs when the date/times were identical at this level of accuracy

- Two subsequent rounds of matching were undertaken to widen the time window. However we imposed a rule whereby an email must have been sent prior to it being received based on the log records. This rule was applied for the remainder of the analysis

- Where multiple emails had been sent and received for the same recipient within a time window, these were recorded as a 'many to many' match. For example, if two emails to JohnSmith@QPS.qld.gov.au were observed leaving DET on 1 January 2015 between 12:01pm and 12:02pm and they arrived at QPS on 1 January 2015 between 12:01pm and 12:02pm these emails were collectively taken to have been matched

- 'Many to many' matches were limited to '2:2' only, with all larger clusters being matched on a subsequent round of '1:1' or '2:2' matching so that no over-matching occurred

- After we completed three rounds of computer assisted matching, the remaining logs were matched on a manual basis. We observed that in a small minority of cases there were large time gaps between the send and receipt times

- We were informed by DET IT staff that the DET email system is capable of prioritising mail, potentially resulting in substantial delays for routine email traffic. For example, this may occur when a large organisational wide email is sent for payroll or messages that need to be communicated to the whole Department. Given this explanation the cases that showed a substantial time delay appeared feasible

- As a first principle rule, we relied on the fact that all valid DET emails received by QPS with the OneSchool SPM attributes originated from the OneSchool SPM

- For the Wide Bay Burnett region, we noted that some of the DET logs were addressed to the regional QPS Child Protection email address. However, due to the routing in the QPS email system, they were delivered to one of three subregional email addresses. These subregional email addresses were reflected in the logs. These cases have been accepted as a match to the subregional address.

6.3.7 Reconciliation:

The results of the work we undertook to reconcile the DET logs against the supplied QPS logs are shown below.

- Three rounds of computer assisted matching were conducted, using time windows of 1 minute, 2 minutes, and 5 minutes

- Manual reconciliations were performed on the remaining logs to be matched

- We were unable to reconcile 29 DET logs to those supplied by QPS

- Due to the potential for alternate matches on the identified 29 DET logs against the QPS logs, a list of all potential matches was identified. This totalled 69 logs. We note that although we identified a total number of 29 logs as not being reconciled to a corresponding QSP log, the actual identification of these corresponding 29 email logs cannot be narrowed beyond a total of 69 potential logs. Accordingly, these 69 were flagged for remediation by DET

- Of the logs that were unable to be reconciled, four DET logs to QPS had a very close match to a corresponding QPS log. However these all violated the rule that emails need to be sent by DET before they were received by QPS. We note that in an email system environment, it may be possible for delays to occur in the recording of email logs. While it would appear these four cases may be valid matches, they have been recorded as unreconciled, and the relevant SPR's have been provided to QPS

- 247 DET logs were sent within the time gaps identified within the two QPS email log outages.

The outcome of this analysis identified a total number of 316 SPR's that were provided to DET for notification to QPS, which accounted for any unreconciled or potentially unreconciled SPR's.

6.4 DET to DCCSDS Reconciliation

6.4.1 DCCSDS Log Data

The logs provided by DET and DCCSDS are summarised in Table 6.2. Due to the way an email traverses IT infrastructure within an organisation, a single email can result in multiple log entries. Accordingly, in preparation for the analysis the DCCSDS recipient logs were de-duplicated. We have relied on the information and logs supplied by DET and DCCSDS as being complete, and in the case of DET, have assumed there are no duplicates for the purpose of this analysis.

Table 6.2 - Summary of logs provided by DET and DCCSDS

Data Source	DET Logs to DCCSDS	DCCSDS Logs
Number of Rows[1,3]	14,095	14,064
Maximum Date[2]	9 August 2015	31 July 2015
Minimum Date[2]	28 October 2013	3 October 2013

[1] DET logs - excluded 212 email logs for August 2015 being after the initial incident
[2] In AEST
[3] DET logs in this partition only show the records relevant to emails sent to QPS or DCCSDS based on the email address of the recipient listed. 675 DCCSDS logs relating to individual DCCSDS staff member emails were disregarded for the purposes of this analysis as they were not from the OneSchool system

6.4.2 Accounting for Time Zones

Both DET and DCCSDS logs were recorded using AEST. It is our understanding from discussions with DET that the OneSchool SPM went live on 28 October 2013. Consequently all logs prior to this time were identified as test logs and were disregarded for this analysis.

6.4.3 Time Accuracy within Logs

Both DET and DCCSDS logs were provided to Deloitte at the level of accuracy of a second.

6.4.4 Matching Methodology & Key Points

- The email logs were matched on as many fields as possible. These fields primarily consisted of the sender/recipient addresses, the date, and the time of the respective emails

- Emails were matched to the exact time on a 'one for one' basis as the first round of matching

- Subsequent rounds of matching widen the time window for acceptable matches

- 32 subsequent rounds of matching were undertaken widening this window out to eight minutes. We imposed a rule whereby an email must have been sent prior to it being received based on the log records. This rule was applied for the remainder of the analysis

- Where multiple emails had been sent and received for the same recipient within a time window, these were recorded as a 'many to many' match. For example, if two emails to JohnSmith@QPS.qld.gov.au were observed leaving DET on 1 January 2015 between 12:01:01 and 12:01:02 and arrived at DCCSDS on 1 January 2015 between 12:01:01 and 12:01:02 these emails were collectively taken to have been matched

- Many to many' matches were limited to '2:2' only, with all larger clusters being matched on a subsequent round of '1:1' or '2:2' matching so that no over-matching occurred

- After we completed a number of rounds of computer assisted matching, the remaining logs were matched on a manual basis. We observed that in a small minority of cases there were time gaps of up to several days between the send and receive times

- We were informed by DET IT staff that the DET email system is capable of prioritising mail, potentially resulting in substantial delays for routine email traffic. For example, this may occur when a large organisational wide email is sent for payroll or messages that need to be communicated to the whole Department

- Given this explanation the cases that showed a substantial time delay appeared feasible

- As a first principle rule, we have relied on the fact that all valid DET emails received by DCCSDS with the OneSchool SPM attributes originated from the OneSchool SPM system

- From our discussions with DET we were informed that 27 SPM emails that were intended for transmission to DCCSDS were blocked by the DET BrightMail email spam filter. As the respective identities of these SPR's are unknown at the time of this analysis, they are contained in the list of those unreconciled.

6.4.5 Reconciliation

The results of the work we undertook to reconcile the DET logs against the supplied DCCSDS logs are shown below.

- 33 rounds of computer assisted matching were conducted, using time windows of 1 second through to 8 minutes

- Manual reconciliations were performed on the remaining logs yet to be matched

- We were unable to reconcile 68 DET logs to those supplied by DCCSDS

- We note that although a total number of 68 DET logs were identified as not being received by DCCSDS, the actual identification of these corresponding 68 email logs cannot be narrowed beyond a total of 85 email logs. Accordingly, these 85 were flagged for remediation by DET

- Of the logs that were unable to be reconciled, six DET logs sent to DCCSDS had a very close match to a corresponding DCCSDS log. However these all violated the rule that emails need to be sent by DET before they were received by DCCSDS. We note that in an email system environment, it may be possible for delays to occur in the recording of email logs. While it would appear these six cases may be valid matches, they have been recorded as unreconciled, and the relevant logs have been provided to DCCSDS.

The outcome of this analysis identified a total number of 85 email logs that were provided to DET for notification to DCCSDS, to account for any unreconciled or potentially unreconciled SPR's.

7   Limitation of our work

This report has been prepared exclusively for the Department of Education & Training as per the purposes set out in the contract dated 17 August 2015. This report should be read in conjunction with the terms and conditions agreed in the Professional Services Panel Arrangement (QGCPO 878-13). This report is not intended to and should not be used or relied upon by anyone else and we accept no duty of care to any other person or entity.

Deloitte Forensic staff are not lawyers, and our report should not be relied upon as legal advice. Our work was not conducted in accordance with any auditing or assurance standards issued by the Audit and Assurance Standards Board, and consequently no opinions or conclusions were made under these standards. We will not provide any assurance or opinion on the matter including for example, whether you should proceed with any form of formal action against a third party.

This report is based on the information provided to us by Department of Education & Training, OneSchool and other stakeholders. Other than where specified, Deloitte does not assume responsibility for the validity and accuracy of the information obtained in this regard. For the purposes of preparing this report, reliance has been placed upon the material, representations, documentations, information and instructions obtained. We have not undertaken any audit, testing or verification of the information obtained as we assumed that this information is true, correct and complete and not misleading. If this is not the case or the information changes after we receive it, then our work may be incorrect or inappropriate for you.

Deloitte completed its field work on 9 October 2015 and has not updated its work since that date. The services will be limited by the agreed scope, information available, the accessibility of information sources and clarity or lack of clarity of your objectives. We reserve the right to revise any opinion or conclusion in our work if material information becomes known to us after the date our work is issued.