
Chapter 3: AMANDA Case Management and Compliance System



Why we did this audit:

- AMANDA has Nova Scotians' information such as:
 - personal information
 - permits and inspection results related to public safety; day cares, homes for special care, elevators, and lifts
 - \$530 million per year is monitored and/or collected.
- AMANDA was implemented in 1999 and has cost over \$50 million to date; \$4 million annually.

Overall conclusions:

- Department is better managing IT controls since our 2009 audit
- More work needed to fully comply with IT security standards
- Internal Services is managing technical services provided by Unisys but better contract management is required
- An assessment of the value for money of AMANDA is required
- User departments' needs are generally being met; however, improvements can be made in the management of services

What we found in our audit:

- Centrally-managed systems have improved consistency since our 2009 audit
- Security settings for systems supporting AMANDA are implemented, but need improvement to fully meet IT security standards
- Some departments do not have the expertise to customize reports to help them manage programs
- The Department should assess AMANDA to be sure it is providing value for money prior to the 2018 contract renewal
- Internal Services did not get feedback from user departments on how well their needs are met
- Internal Services is not reviewing Unisys reports on how well AMANDA is working
- Internal Services has not told departments to manage their own employee accounts



Recommendations at a Glance	Auditee Agreement and Page Reference
Recommendation 3.1 The Department of Internal Services should apply security configuration standards for AMANDA and its related infrastructure to protect the confidentiality, integrity, and availability of information. Configuration standards should include: <ul style="list-style-type: none">• password standards• Linux operating system configuration standards• Oracle database configuration standards	Agree 47
Recommendation 3.2 The Department of Internal Services should develop and communicate a policy requiring departments to periodically assess their employees' AMANDA access permissions.	Agree 49
Recommendation 3.3 The Department of Internal Services should better manage the Unisys contract to ensure it meets program needs and should reassess the contract terms before the 2018 renewal to ensure they meet the requirements of the Province.	Agree 50
Recommendation 3.4 The Department of Internal Services should assess the value for money of AMANDA before the June 2018 Unisys contract-end date.	Agree 51
Recommendation 3.5 The Department of Internal Services should develop and use a process to prioritize department change requests.	Agree 53
Recommendation 3.6 The Department of Internal Services should develop and use a process to periodically obtain and assess feedback from client departments on whether AMANDA and related services meet their needs.	Agree 54

3 AMANDA Case Management and Compliance System

Background

- 3.1 The AMANDA Case Management and Compliance System (AMANDA) is a commercial software product used by government departments to manage the processing of business licensing, permits, registration, certificates, rebates, and collections. AMANDA is also currently used for the regulation of alcohol, gaming, fuel, and tobacco activities. System information includes names, addresses, birthdates, debt owed, and inspection reports.
- 3.2 In the late 1990s, the Province relied on eight databases to store registration and licensing information. AMANDA was selected to centrally store information and eliminate the duplication of information contained in those eight databases. It was also integrated with systems from Workers Compensation Board and Canada Revenue Agency.
- 3.3 The Province approved AMANDA in 2012 to be the standard application to support the processing of business licenses and permits. Provincial departments, agencies, and commissions using AMANDA include:
- Agriculture
 - Community Services
 - Education and Early Childhood Development
 - Environment
 - Fisheries and Aquaculture
 - Labour and Advanced Education
 - Natural Resources
 - Nova Scotia Liquor Corporation
 - Service Nova Scotia
 - Tourism Nova Scotia
 - Workers' Compensation Board
- 3.4 In 2015, responsibility for AMANDA was transferred from Service Nova Scotia to the Department of Internal Services, Information Communications and Telecom Services division. That division's mandate is *"to provide quality services and supports that allow other government departments*



and public service entities to deliver the programs and services Nova Scotians rely upon.” It is responsible for the government’s IT infrastructure, including the hardware and software for departments’ business applications, the government network, telecommunications, and the provincial data centre.

- 3.5 The application support for AMANDA has been outsourced to Unisys Canada Inc. This includes providing access for government employees and making changes requested by government departments. Unisys also investigates and resolves IT issues impacting AMANDA and monitors system performance. Departments are responsible for ensuring their employees have access to AMANDA as needed to perform their job responsibilities.
- 3.6 Under its contract with Unisys, the Province pays monthly fees for two levels of service: base and extended.
- 3.7 Base service covers the day-to-day management of AMANDA and the provision of technical support to the Province’s employees who utilize the application. This includes providing, modifying, and removing access accounts and permissions, fixing the application when it is not working properly, or addressing difficulties employees may encounter, such as resetting forgotten passwords.
- 3.8 Extended service covers changes to the application to meet new business needs of client departments.
- 3.9 On average, the Province pays Unisys \$4.0 million a year for all technical services the company provides, including the base and extended services.

Year	Technical Support Fees (millions)
2015-16	\$3.3
2014-15	\$4.8
2013-14	\$3.6
2012-13	\$4.3
2011-12	\$4.0

Audit Objectives and Scope

- 3.10 In summer 2016, we completed a performance audit of the Province’s use of AMANDA. When this application was first implemented, Service Nova Scotia was responsible to manage the Province’s contract with Unisys; however, on April 1, 2015, responsibility was transferred to the Department of Internal Services.



- 3.11 Our audit period was January 1, 2015 to December 31, 2015. The audit period included the period from January 1, 2015 to March 31, 2015 when Service Nova Scotia was responsible for AMANDA; however, all recommendations in this chapter are addressed to the Department of Internal Services because it is now responsible for AMANDA.
- 3.12 We carried out audit work in a sample of five departments that utilize AMANDA to support their business needs.
- Community Services
 - Education and Early Childhood Development
 - Environment
 - Labour and Advanced Education
 - Service Nova Scotia
- 3.13 The purpose of the audit was to determine whether Internal Services has controls over the information stored in AMANDA to protect the privacy, reliability, and availability of the data and if AMANDA supports the operational and strategic needs of its users.
- 3.14 The objectives of the audit were to determine:
- if there are adequate controls to:
 - reduce risks impacting AMANDA; and
 - protect the confidentiality, accuracy, and availability of information in AMANDA;
 - whether there are processes in place to monitor and evaluate those controls;
 - whether contracts applicable to AMANDA are monitored to ensure services are received in compliance with contract terms and contract goals are achieved; and
 - whether AMANDA meets the operational and strategic needs of its users.
- 3.15 The information that is obtained and stored in AMANDA is used to collect money owed to the Province (2015-16 – \$530 million) and to complete inspections or licensing in such areas as day cares, homes for special care, food safety, elevators, and lifts. In 2015-16, the Province collected \$9 million in business registration, permit, and license fees.



- 3.16 We conducted the audit in accordance with sections 18 and 21 of the Auditor General Act and auditing standards of the Chartered Professional Accountants of Canada. Certain audit criteria were derived from Control Objectives for Information and Related Technology, an internationally recognized IT control framework, while others were developed by our Office specifically for this engagement. Criteria were accepted as appropriate by senior management of the Department.
- 3.17 Our audit approach consisted of interviews with management and staff; tests of relevant processes; and an analysis of IT security, data integrity, and contracts. We examined records for the period from January 1, 2015 to December 31, 2015 and evaluated system settings at the point in time of testing.

Significant Audit Observations

Management of Information Technology Controls

Conclusions and summary of observations

AMANDA and its supporting systems have settings that do not fully meet the Province's IT security standards. We found weak passwords, weak failed login settings, and other settings, which should be improved. We also found that Departments are not properly managing employees' AMANDA access permissions. However, we did note significant improvements in the management of IT controls from an audit we conducted in 2009. Additionally, Unisys is properly performing services under its contract with the Province.

► Settings do not fully meet provincial security policies and standards

- 3.18 *Internal Services* – The Department of Internal Services is responsible for defining and applying IT security policies and standards. Among other things, IT policies and standards address password length, password difficulty, and account lockout limits. Weak security settings give individuals the opportunity to gain unauthorized access to view, modify, or delete information.
- 3.19 We assessed settings in AMANDA, as well as those of supporting systems, against the Province's IT security policies and standards. Supporting systems are management software, monitoring software, operating systems, databases, and user access management software.
- 3.20 We identified systems that do not fully meet the Province's IT security policies and standards. We found weak passwords, weak failed login settings,



and other settings for both the AMANDA database and its operating systems which should be improved.

- 3.21 While improvements are required to fully meet IT policies and standards, we did note significant improvements in the management of information technology from an audit we conducted in 2009. This includes the implementation of administrative software to centrally manage systems and to compare security settings against standards. This helps promote consistency across systems. However, not all improvements have been applied to AMANDA. Internal Services administrators told us that upgrades are required and will be performed within the next year to support these new management tools.

Recommendation 3.1

The Department of Internal Services should apply security configuration standards for AMANDA and its related infrastructure to protect the confidentiality, integrity, and availability of information. Configuration standards should include:

- password standards
- Linux operating system configuration standards
- Oracle database configuration standards

***Department of Internal Services Response:** As the steward of much of the Province's data, ICT Services understands the responsibility it has to protect the confidentiality, integrity, and availability of information. ICT Services currently uses standards and best practices to protect and secure the data. ICT Services will evaluate current standards and controls in place and additionally will ensure that AMANDA and related infrastructure meet the standards in the recommendation. The evaluation will be completed and a work plan developed Q2 of fiscal year 2016/17.*

► Unisys is performing the technical support services contracted by the Province

- 3.22 *Unisys* – The Province contracts with Unisys to provide day-to-day technical services related to AMANDA. This includes making requested changes, providing government employees with access, solving user problems, and managing IT resources to ensure they are available. We assessed these services and found that Unisys is properly:

- performing changes requested by the Province;
- granting access to AMANDA for government employees;
- addressing employee problems with using AMANDA;
- identifying underlying issues that could be causing recurring problems for employees; and
- monitoring and managing the performance and capacity of the system.



Internal Services needs to communicate departments' responsibility to manage employee access

- 3.23 *Access management: government departments* – While Unisys is responsible for managing and completing access changes, government departments are responsible to determine the access their employees require. This includes requesting that Unisys provide, change or remove access when it is no longer required.
- 3.24 We would expect user departments to periodically review their employees' permissions to ensure they only have the access they need to perform their job responsibilities. However, we found that Internal Services has not told department management it is responsible to periodically review permissions. Staff in some of the departments we visited told us they performed reviews of employees' permissions, but they were not aware that this was a requirement. Staff in other departments told us they were not aware of this requirement and have not reviewed employee access to confirm it is appropriate.
- 3.25 While we did not audit departments' reviews of their employees' access, we tested a sample of user accounts and found departments were not properly managing their employees' access. We looked at user accounts to determine if they were:
- Dormant – accounts owned by employees who no longer need access or accounts for terminated employees which should have been disabled or deleted
 - Generic – accounts for administrative or temporary training purposes. These are risky because often no one is monitoring the account
 - Excessive – accounts with more access than the employee needs
- 3.26 *Dormant* – Of the 1006 AMANDA user accounts, we identified 197 as potentially belonging to employees who are no longer employed by the Province. We examined 30 of those accounts and found 18 were no longer required. Department management told us that employees are assigned work in AMANDA and when they are no longer employed by the department or change job responsibilities, that work must be reassigned to other employees before the accounts can be deleted. There is no process to secure the account during this transition period to prevent someone from using it to access the system.
- 3.27 *Generic* – We identified 25 generic accounts and department management confirmed that 13 should have been disabled.
- 3.28 *Excessive* – We selected a sample of 30 employees with access to AMANDA to determine if they could only view those areas they required for their job.



We have concerns with 10 of the accounts we tested. Two accounts were not needed and should have been removed and eight employees had more access than required for their current positions. Staff told us they had asked for one of the accounts to be removed but that did not occur.

3.29 *Role-based access* – When computer administrators assign access to each individual employee, there is increased risk that mistakes can be made and employees will have more access than they need to do their job. Role-based access helps reduce this risk. It creates groups with access permissions related to performing specific job responsibilities. This reduces the need for IT administrators to assign individual permissions.

3.30 Internal Services management told us Unisys is working with some departments to create user roles; others had not created roles at the time of our audit. Unisys management told us that new or updated roles are not always tracked to ensure they have been properly approved and are appropriate.

Recommendation 3.2

The Department of Internal Services should develop and communicate a policy requiring departments to periodically assess their employees' AMANDA access permissions.

Department of Internal Services Response: The AMANDA system is currently undergoing a review of current policies and operating model. Work is anticipated to be completed before the end of Q2 of the 2017/18 fiscal year that will enable ICT Services to deliver AMANDA as a corporate service. ICT Services will as part of that work, create a policy that will require departments that use AMANDA to periodically review access permissions.

Contract Management

Conclusions and summary of observations

Internal Services is not properly monitoring its contract with Unisys. Although the company provides performance reports, Internal Services is not reviewing these reports. Since 2004-05, the Province has paid Unisys over \$50 million for its services, an average of \$4.0 million annually. A value-for-money assessment for AMANDA should be performed prior to renewing the contract in 2018.

► **Province is not properly managing its contract with Unisys for AMANDA technical support**

3.31 *Lack of oversight* – There is a lack of management oversight of the Province's contract with Unisys. The steering committee, consisting of Unisys and



department management, is responsible for the overall management of the contract and is contractually required to meet quarterly to review Unisys performance. We found the steering committee did not meet as required, but staff meetings at an operational level were held monthly to discuss performance issues. Internal Services management told us that organizational changes have resulted in the steering committee meetings not occurring as required.

- 3.32 Unisys is providing the contractually-required monthly performance reports, which include information on meeting targets as outlined in the contract. We found no evidence that the Department was reviewing these reports.
- 3.33 *Required contract terms* – In addition, provincial contracts with service providers are supposed to include terms to meet the Province’s IT security policies and standards. However, the contract with Unisys does not include such terms. Unisys staff must sign off indicating they have read Nova Scotia’s security policy; however, there is no indication that they have also read and agreed to the Province’s IT standards.
- 3.34 The Province has a long relationship with Unisys and management believes less oversight is needed than what was defined in the contract. Without proper oversight, the Department cannot ensure contract terms are fulfilled to the level required.

Recommendation 3.3

The Department of Internal Services should better manage the Unisys contract to ensure it meets program needs and should reassess the contract terms before the 2018 renewal to ensure they meet the requirements of the Province.

Department of Internal Services Response: ICTS Services is in the process of developing a governance structure that will engage clients and therefore will be able to assess whether the Unisys contract is meeting the program needs. Contract management is a critical component used to ensure value is delivered for the services that are paid for. The AMANDA contract is set to expire in 2018 and, as a result, ICT Services will soon begin the procurement process to obtain a new AMANDA support contract.



Province needs to assess the value for money of AMANDA

- 3.35 *Assessment of services* – Prior to the 2010 Unisys contract renewal, Service Nova Scotia hired consultants to perform an analysis for future technical support of AMANDA. The analysis considered three options.



Consultant Options Assessed	
Option 1	Move services in-house
Option 2	Tender from other companies for some or all services
Option 3	Maintain services with Unisys

- 3.36 The analysis concluded that it would take seven years for the Province to have savings if it selected option 1. The Province decided to continue with option 3 and maintain existing services with Unisys. However, there were other options which could have been considered. For example, processing credit card payments was not assessed separately from providing the day-to-day technical services Unisys provides. Similarly, the analysis did not assess if there would be savings if the Province completed system changes and provided day-to-day technical support for AMANDA while contracting with Unisys for other services.
- 3.37 The consultant report also noted the Province is highly dependent on Unisys for AMANDA and recommended contracting with more than one service provider. The Province did not implement that recommendation and all services supporting AMANDA are still provided by Unisys. If Unisys were no longer able to provide technical support services for AMANDA, it could take time to find a replacement; this could impact the Province's ability to use the application.
- 3.38 *Costs of operating AMANDA* – The Province has paid Unisys over \$50 million for AMANDA since 2004-05 (licensing fees – \$8 million, technical support fees – \$45 million). Unisys services include the daily maintenance and administration of the application and changes requested by departments. Annual spending is approximately \$4 million per year. The current contract expires in June 2018.
- 3.39 The continuous yearly costs for technically supporting and maintaining AMANDA warrant an analysis to determine if the Province is receiving value for money from AMANDA. This should be completed before the current contract ends in 2018. A value-for-money assessment would help identify whether the Province is receiving economy, efficiency, and effectiveness for the funds spent on AMANDA.

Recommendation 3.4

The Department of Internal Services should assess the value for money of AMANDA before the June 2018 Unisys contract-end date.

Department of Internal Services Response: The AMANDA service was transitioned to ICT Services as part of the creation of the Province's Shared Services initiative in April 2015. A review of the AMANDA service and how to deliver it as a corporate service is underway and will necessitate a review of the



support model options going forward. This work will be completed prior to issuing an RFP for a new AMANDA support contract.

Service Management

Conclusions and summary of observations

Although AMANDA is the standard for business permitting and licensing, this system was selected without consultation with potential stakeholders. Internal Services can improve support provided to other departments using AMANDA to ensure the application is meeting their business needs. Departments identified inefficiencies in completing their work because of limitations in accessing information from the system. Improvements are required to prioritize requests from departments to ensure the most important changes are made first.

- 3.40 *Designated application for government* – AMANDA was implemented in 1999 for Service Nova Scotia; however, in 2010, AMANDA was assessed to determine if it could support the business needs of another department. The assessment found that it would be useful to many other departments performing similar functions. AMANDA was approved in 2012 to be the government standard for business permitting and licensing.
- 3.41 The ability to customize AMANDA to meet the needs of different departments was a key factor in making it the government standard. However, there was no consultation with potential stakeholders or a consideration of costs associated with making changes to the application over time. As departments began to use AMANDA, they were each responsible to cover the costs of customizing the application to meet their business needs. Internal Services management told us the assessment process to select standard applications has matured and now includes assessing costs and meeting with stakeholders.

► A formal process is required to prioritize department change requests

- 3.42 *Changing AMANDA to meet department needs* – The Department of Internal Services is responsible for working with departments to ensure AMANDA meets their needs. Unisys is primarily responsible for day-to-day technical support, including implementing changes to AMANDA to suit specific business requirements for individual departments. Under the Province's contract with Unisys, Nova Scotia pays minimum and maximum monthly fees (\$43,000 to \$72,000) for these services. Internal Services recovers costs from the department requesting the changes.
- 3.43 Historically, Service Nova Scotia's changes were prioritized separately from other departments' requests for change. This practice continued when Internal Services took responsibility for managing AMANDA. It results



in there being two lists of change requests and Internal Services having to decide which changes should take priority. There is a risk one department may not have its business needs met while it waits for another department to receive a less important change. There is also no forum for all users to share ideas or identify changes that could benefit all departments. This can lead to delays as each department waits for its own solution to a common problem.

Recommendation 3.5

The Department of Internal Services should develop and use a process to prioritize department change requests.

Department of Internal Services Response: *ICT Services has begun a review of the AMANDA service. This review includes the governance structure of AMANDA. It is expected that current prioritization challenges will be addressed by a modernized corporate governance model. This work is expected to be complete by end of Q2 in the 2017/18 fiscal year.*

► **Departments have concerns with the services supporting AMANDA**

3.44 *Supporting services* – We met with staff from five government departments that use AMANDA and asked if the application was effectively supporting their business and reporting needs. Staff told us that AMANDA generally supports their needs; however, they have concerns with the services supporting the application.

- Internal Services has not requested feedback from user departments about services provided.
- Some departments lack the expertise to create custom reports which would help them manage their program.
- The application is not very user-friendly and has a steep learning curve.
- There is no forum between departments to discuss success, issues, or changes related to AMANDA.

3.45 Staff in several departments also told us there can be difficulties using AMANDA in the field to complete checklists. In some cases, staff members complete their required checklists or inspection notes on paper and then enter those notes into AMANDA later. This duplication is an inefficient use of resources and staff time.



Recommendation 3.6

The Department of Internal Services should develop and use a process to periodically obtain and assess feedback from client departments on whether AMANDA and related services meet their needs.

***Department of Internal Services Response:** As the AMANDA corporate service is modernized, ICT Services will regularly engage with client departments to gather feedback. Feedback will be assessed looking for ways to add value to the corporate service and increase our client department satisfaction. The work to create this engagement model will be completed by end of Q2 of the 2017/18 fiscal year.*