

Top Four Mitigation Strategies to Protect Your ICT System

The National Cyber Security Centre is hosted within the Government Communications Security Bureau

Targeted cyber intrusions remain the biggest threat to government ICT systems

You should never assume that your information is of little or no value. Adversaries are not just looking for classified information. A lot of activity observed by the NCSC has an economic focus, looking for information about New Zealand's business dealings, its intellectual property, its scientific data and the government's intentions.

The threat is real, but there are things every organisation can do to significantly reduce the risk of a cyber intrusion. A vast number of intrusions involve adversaries using unsophisticated techniques that can potentially be mitigated by implementing the top four mitigation strategies as a package.

The top four mitigations are:

- **Application whitelisting;**
- **Patching applications;**
- **Patching operating systems and using the latest version;**
- **Minimising administrative privileges.**

This document is designed to help senior managers in organisations understand the effectiveness of implementing these strategies.

Application whitelisting

Whitelisting - when implemented correctly - makes it harder for an adversary to compromise an organisation's ICT system. Application whitelisting is a technical measure that only allows specifically authorised applications to run on a system. This helps prevent malicious software and unauthorised applications from running.

Patching applications and operating systems

A software patch is a small piece of software designed to fix problems or update a computer program. Patching an organisation's system encompasses both the second and third mitigation strategies. It is important to patch both your operating system and applications within a two-day timeframe for serious vulnerabilities. Once a vulnerability in an operating system or application is made public, you can expect malware to be developed by adversaries within 48 hours. In some cases, malware has been developed to take advantage of a publicly disclosed vulnerability within eight hours.

There is often a perception that by patching a system without rigorous testing, something is likely to break on the system. In the majority of cases, patching will not affect the function of an organisation's ICT system. Balancing the risk between taking weeks to test patches and patching serious vulnerabilities within a two-day timeframe can be the difference between a compromised and a protected system.

Restricting administrative privileges

When an adversary targets a system, they will primarily look for user accounts with administrative privileges. Administrators are targeted because they have a high level of access to the organisation's ICT system. If an adversary gains access to a user account with administrative privileges, they can access any data the administrator can access – which generally means everything. Minimising administrative privileges makes it more difficult for the adversary to spread or hide their existence on a system.

Administrative privileges should be tightly controlled. It is important that only staff and contractors that need administrative privileges have them. In these cases, separate accounts with administrative privileges should be created which do not have access to the internet. This reduces the likelihood of malware infecting the administrator as they should not be web browsing or checking emails while using their privileged account.

Creating a defence-in-depth system

As a package, the top four mitigation strategies are highly effective in helping achieve a defence-in-depth ICT system. The combination of all four strategies, correctly implemented, will help protect an organisation from low to moderately sophisticated intrusion attempts. Put simply, they will make it significantly more difficult for an adversary to get malicious code to run on your ICT system, or continue to run undetected. This is because the top four strategies enable multiple lines of defence against cyber intrusion.

Of course, implementing other mitigation strategies will provide additional protection for your ICT system. Several strategies have an overall security rating of 'excellent' which means that they are the most effective measures to protect ICT systems. However, an organisation should also conduct a risk assessment and implement other mitigation strategies as required to protect its ICT system.

There are a wide range of strategies identified to meet the needs of different organisations, allowing every organisation to assess the risk to its information and act accordingly. A suggested mitigation strategy implementation order starts with the threats of most concern to the organisation.

Further information:

The full list of strategies and their relative security effectiveness rating is available at <http://www.asd.gov.au/infosec/top-mitigations/mitigations-2017-table.htm>

Reference:

Australian Signals Directorate (ASD): http://www.asd.gov.au/publications/protect/top_4_mitigations.htm

The NCSC can be contacted by email via info@ncsc.govt.nz or by phone on: 04 498 7654.
We encourage you to contact us at any time if you require any further assistance or advice.