

## What is signing modules in Niagara 4 all about?

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**With the latest releases on Niagara 4, no matter which distribution channel you use, comes a requirement for signing modules. I am going to try and explain why that is and what it means for you in a day-to-day work.**

### **Why do we sign code or software?**

Well, we do it for at least two main reasons, as with anything that we sign - so we can verify or trust the source and the content of

said code. I always try to use the below two examples when I explain it.



## The Source

Imagine you stroll through the supermarket and pick up a can of beans from the shelf, or Vegemite if you are in Australia. No matter what that product is, if you look at what is written on it, you would like to be able to find some information regarding who manufactured or distributed it, so if you don't feel well after eating it, you can contact that organisation and inform them about the issue. You probably would not buy one that says - 'producer unknown' or 'we don't want you to know who we are'. The same applies to the module or software code. You want to know where it

is coming from, so if you have any problems with it, you can contact that individual or organisation.



## The Content

Once you picked up that can of beans or Vegemite, and you take a closer look at it, you probably would not want to buy one that has signs of being previously opened or has part of the content missing. You want to buy a product with a content intact and stay assured about what is inside. When you buy a software module, you would also like to know that the content is intact. What if you install a piece of code into your building, which has been modified

with some malicious content, opening a back door for the hacker to take control of your system?

### **How does it apply to Niagara 4?**

 niagara<sup>4</sup>

We know the reasons for signing the code now, however what does it mean for us - engineers, service technicians, project managers when we use Niagara on a daily basis? If we use modules from the standard Niagara install, we do not need to worry about it, as they are all signed. It only applies to the modules created by yourself, downloaded from somewhere for free or potentially bought from someone (when you buy a module from someone you should expect the module to be properly signed by a CA certificate). Until recently, we did not have to worry about any of it, and a lot of us wouldn't even know anything about it. The changes came with the recent releases of Niagara 4:

- In Niagara versions all the way to 4.7 you can install any module you like, as long as it's correctly written and compiled.

- Niagara version 4.8 started reminding you, when it came across unsigned modules, that there will be a requirement to have these signed in the future releases.
- Niagara 4.9, in a default configuration, will not allow you to make use of unsigned modules, these will need to be signed with at least self-signed certificate. You can create a signing certificate and sign modules yourself in Niagara, and you do not need to have the source code for the modules that you wish to sign. Keep in mind however that when you sign the modules that were not created by yourself, you are effectively putting your name against something that was created by someone else. You can also lower the module verification mode of this version and make it work as if it was 4.8, from module signing point of view.
- Niagara 4.10 requires all modules to be signed by an official CA certificate as a default and can only be modified to lower the module signing verification mode to that of 4.9, which in reality means that from version 4.9 you will always need to have all modules signed by at least self-signed certificate (if you lower the verification settings) or ideally by a CA certificate.

*Note: A certificate authority (CA), also sometimes referred to as a certification authority, is a company or organization that acts to*

*validate the identities of entities (such as websites, email addresses, companies, or individual persons) and bind them to cryptographic keys through the issuance of electronic documents known as digital certificates.*

*(source - <https://www.ssl.com/faqs/what-is-a-certificate-authority/>)*



### **What does it mean in real life?**

A few things you should be considering when you work with the latest Niagara 4 version:

- When you create or download 3rd party modules, you will need to have them signed by a certificate.
- If you purchase a module from someone, you should always make sure it has been signed by a CA certificate.
- When you upgrade an existing system that is using custom modules from older Niagara 4 versions to the latest ones, they will not work until you have these modules signed.

## **Where to get more info?**

I talk about this topic as part of every Niagara 4 training course I run, and we go through a process of signing modules in detail as part of the N4 Extend course -

<https://thinktech.net.au/courses/niagara-4-extend-certification/>

You can also watch a video about signing modules from our N4 video library – <https://thinktech.net.au/n4videos>