



@niagara^{AX}
NiCS Statement

Understanding the Niagara^{AX} Compatibility
Statement (NiCS)

TRiDIUM[®]

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Overview

Niagara^{AX} includes a new licensing model that provides OEMs with the ability to define the various levels and types of Niagara interoperability their products will support. The feature is referred to as the Niagara^{AX} Compatibility Statement or NiCS. There are two primary interactions that the NiCS addresses – the sharing of data between stations (JACEs and Supervisors) and the ability for a tool (i.e., WorkPlace^{AX}) to engineer a station.

The roots of the NiCS concept grew from gathering and understanding the requirements of the various users of Niagara technology consisting of end users (such as building owners), partners (such as BAS OEMs) and Tridium. Here's an overview of those requirements:

End User requirements include:

- The ability to control their system and determine which contractors can bid or engineer their system
- The ability to insure they can prevent unauthorized parties from accessing the system for engineering or system changes
- The freedom to individually manage authorized parties independent of Tridium
- A methodology that is easy to understand and use

Partner requirements include:

- The ability to define the various levels and types of interoperability their products will support
- The ability to prevent unauthorized parties from accessing an installed system to make engineering changes in order to adequately manage warranty/contractual commitments
- The freedom to individually manage their own compatibility rules independent of Tridium
- A methodology that is easy to understand and use

Tridium requirements include:

- To provide a highly flexible technology solution that will enable partners to achieve their individual business and product goals
- To provide the ability to individually manage software modules that support new features and options
- To create a methodology that is easy to understand and use

Elements of the NiCS

The NiCS provides a structure (or schema) that OEMs can use to define the various levels and types of Niagara interoperability their products will support. The NiCS definitions are contained in the license file which is checked by a station, or tool, when it starts up.

There are 5 simple elements to the NiCS: BrandID, Station Compatibility In, Station Compatibility Out, Tool Compatibility In, and Tool Compatibility Out. These elements can be combined in a variety of ways to achieve unlimited flexibility. Let's review the details and usage of each element:

BrandID

Every licensed station and tool has a Brand Identifier (BrandID). This field holds a text descriptor that the OEM chooses as the identifier for its product line. Each station or tool can have only one BrandID entry. For example, Tridium's Vykon products have the following:

BrandID = Vykon

Station Compatibility In

This field is a list of brands that this local station will allow Niagara^{AX} data to come in from. Simply stated from the point of view of a JACE, "this is the list of brands that can I can accept data from". For example, Tridium's products would contain:

Station Compatibility In = All

Note: The compatibility fields can contain; a single brand "ABC", a list of multiple brands "ABC, XYZ", no brand "None" or all brands "All".

Station Compatibility Out

This field is a list of brands that this local station will allow Niagara^{AX} data to be shared with. Simply stated, "This is the list of brands that I can share data with".

Tool Compatibility In

This field is a list of brands that this station will allow to be connected to it for engineering of its application. Simply stated, "This is the list of brands that can engineer me".

Tool Compatibility Out

This field is a list of brands that this tool is allowed to connect to and engineer. Simply stated, "This is the list of brands that I can engineer".

NiCS Examples

This section shows samples of potential NiCS that might be used by a manufacturer.

Example 1: No connectivity restrictions. There are no restrictions on which brand stations or tools can interact with the system. The station and tool NiCS would be as follows:

Property	Value
STATION COMPATIBILITY IN	All
STATION COMPATIBILITY OUT	All
TOOL COMPATIBILITY IN	All
TOOL COMPATIBILITY OUT	All

Example 2: Restrictions on engineering tool access to a station. Station can interact with any brand but can only be engineered by tools from a particular brand (ABC in this example). The station and tool NiCS will be as follows:

Property	Value
STATION COMPATIBILITY IN	All
STATION COMPATIBILITY OUT	All
TOOL COMPATIBILITY IN	ABC
TOOL COMPATIBILITY OUT	ABC

Example 3: Restricted system. Station can interact with only the specified brands and can only be engineered by tools from specified brands (ABC, XYZ, and DEF in this example). The station and tool NiCS will be as follows:

Property	Value
STATION COMPATIBILITY IN	ABC, XYZ, DEF
STATION COMPATIBILITY OUT	ABC, XYZ, DEF
TOOL COMPATIBILITY IN	ABC, XYZ, DEF
TOOL COMPATIBILITY OUT	ABC, XYZ, DEF

Example 4: Fully restricted system. The station and tools are restricted to work only with the same brand (ABC in this example). The station and tool NiCS will be as follows:

Property	Value
STATION COMPATIBILITY IN	ABC
STATION COMPATIBILITY OUT	ABC
TOOL COMPATIBILITY IN	ABC
TOOL COMPATIBILITY OUT	ABC

Station vs. Tool Compatibility

There are many facets to interoperability and open systems. Creating a distinction between data sharing and actual engineering of a database allows Niagara^{AX} partners to achieve the optimal solution for their customers while protecting their interests. A good example is found in the increasing use of Niagara^{AX} in equipment systems, a concept known as Niagara Appliance.

Having these two elements to define compatibility provides a manufacturer with the ability to enable their Niagara based products to work with other Niagara-based stations in a system, but protect their equipment system from activities that could damage it or adversely affect its operation. For example, an equipment manufacturer offering a Niagara Appliance would want that appliance to connect to any Niagara system that shares its data, but may not want anyone to be able to modify it with an engineering tool.



A Tool for Owners

The NiCS schema is an important tool for consultants, owners and operators of facilities. It enables them to specify the level of interoperability desired for their projects with a simple set of text descriptions. In this respect it can be considered similar to concepts such as BACnet™ PICS statements or BIB definitions or LONMark™ interoperability certification although it is far simpler to understand, interpret and utilize.

It Doesn't End With NiCS – Niagara^{AX} Includes a Comprehensive Security Infrastructure

The NiCS infrastructure provides high level, manufacturer defined, interoperability management, but it is only part of the security methodology for Niagara^{AX} -based software applications and products. This is where the security infrastructure comes in.

Access to an installed system by a user or by another station is limited at the device level by security and passwords. Niagara^{AX}'s extensive security model provides fine grained control over access to an engineering tool, a station, and even down to individual displays and components. Detailed information on the security model is provided in the White Paper "Niagara^{AX} Security" or by contacting Tridium, Inc.



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