# *Preparing a KMDigital site for Niagara*

Revision A

This guide is the recommend process to integrate KMDigital controllers into a Niagara site. The integrated site will use KMD-5551E translators as KMDigtal-to-BACnet gateways and replace WinControl with Niagara for alarms, trends, schedules, and graphics. Because this guide is only an outline to the process, control technicians and engineers should be familiar with the detailed procedures in the following list of documents. Download or locate these documents and review them before beginning this process.

- KMD-5551E Application Guide
- KMC Workbench Software Manual
- Getting Started With Niagara (Located in the Niagara Docs folder as `docUser.pdf` and DocUser in the Workbench Help system.)
- Niagara BACnet Guide (Located in the Niagara Docs folder as `docBACnet.pdf` and DocBACnet in the Workbench Help system.)

You will need the following programs that are available to our partner organizations at `kmccontrols.com`. Downloading software or software tools requires a user name and password.

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- KMC Workbench or third-party workbench
- The KMD-5551E KMD translator module file or files for the correct version of Niagara.
    - Niagara$^{AX}$ uses a single module file, `kmcKmdTranslator.jar`.
    - Niagara N4 uses two module files, `kmcKmdTranslator-rt.jar` and `kmcKmdTranslator-wb.jar`.
- WinControl XL Plus
- Hardware Configuration Manager (HCM) located with WinControl XL Plus.
- KMC LAN Monitor located with WinControl XL Plus.

## Site evaluation and preparation

Careful site evaluation and preparation reduces the disruption to normal system operation. It will also reduce the time to install the translators, reconfigure the network, and commission a site.

1 Obtain or develop a system diagram with the location of all controllers and networks.

- Tier 1 controllers, their IP addresses, and KMD T1 addresses

- Tier 2 networks and KMD Tier 2 controller address

- IT subnetworks

2 Calculate the number of new translators based on splitting the Tier 2 networks into small segments. See *Before and after network example* on page 6.

- Add 1 translator for every Tier 1 controller and the first 32 Tier 2 controllers connected to the Tier 1 controller.

- Add 1 translator for every additional 32 Tier 2 controllers.

- Replace repeaters installed to break the network into 32 controller segments. Repeaters installed for long cable runs–runs that exceed 4000 feet (1220 meters)–can remain in place.

3 Correct any existing problems with the KMDigital network. For example, nuisance alarms, data dropped from graphics, gaps in controller (panel) numbers on Tier 2 networks, etc. Use LAN Monitor to diagnose system problems.

4 Verify that a network connection is available for every new translator and station. If necessary, add new switches.

5 From the IT department, request fixed IP address for the new translators and, if needed, for new station hardware devices.

## Prepare the stations

One station on the Niagara site will need a translator license and a BACnet driver. All other stations that will integrate the KMD points will need only a BACnet driver added to the station.

1 Connect the station to the network.

2 Add the BACnet driver and configure it for the BACnet networks that are involved.

3 To one station only, add the KMD license, translator module files, and KMC KMD Translator service to the station. See the KMD-5551E Application Guide.

- For Niagara$^{AX}$, add the single module file `kmcKmdTranslator.jar`.

- For Niagara N4, add both the `kmcKmdTransltor-rt.jar` and `kmcKmdTranslator-wb.jar` files.

## Install and temporarily split the network.

The procedure in this part temporarily reconfigures the KMDigital system and adds the translators. See the example diagrams in the KMD-5551E Application Guide and *Before and after network example* on page 6.

1 Disconnect the Tier 2 networks from the Tier 1 controllers.

2 Split the Tier 2 networks into segments of no more than 32 controllers. Keep in mind that this wiring will need to be temporarily reconnected.

3    Use a browser to configure the translators. See the KMD-5551E Application Guide.

- Assign BACnet device instances, IP addresses, gateways, and default subnet masks.

- Configure the BACnet networks.

- Configure the KMDigital Virtual Port and KMD Subnet Devices.

4    Use WinControl to remove Control Basic point sharing (want-points) that originates in Tier 1 controllers by moving it to other KMD devices on the network.

5    Use WinControl to locate all KMD alarms in Control Basic programs and make notes so that you can reproduce them in Niagara. For alarm examples, see the keywords ALARM and DALARM in the WinControl Help.

## Discovering controllers and points

This procedure outlines discovering and adding the KMDigital controllers and points to the station as BACnet devices and objects. Once discovered, network connections are restored, and operation is returned to WinControl. The station database can then be programmed offline.

1    Turn off WinControl.

2    In the translator web pages, enable the IP and Tier 2 networks ports.

3    Start the station or stations

4    In the station with the license, discover and add the KMD-5551 Translators to the BACnet network.

5    With KMC Workbench, verify on the property sheet of the KMC KMD Translator service that the translators are licensed. If they are licensed, start discovering and adding the KMD devices to the station's BACnet network.

6    In the translator web pages, discover and assign device instance numbers to the KMDigital controllers. This can take several minutes.

7    Once the translators are done discovering controllers, use KMC Workbench to add them to the BACnet network in the station.

8    Once the controllers have been added to the station, start discovering and adding points to the devices.

9    After all the points have been added, save and back up the station. The station backup file will be used for programming.

## Temporarily restore the KMD network

To maintain normal system operation during the transition, restore the system to its original network configuration.

1    Remove the translators from the IP network by turning them off or unplugging the IP cable.

2    Restore the KMD Tier 2 networks or unplug them from the translators.

3    Start WinControl and connect it to the KMDigital network.

## Configure the station

Work offline with the Niagara station backup file to integrate the KMDigital devices and points.

1    Use Link To and Link Mark to replace KMDigital want-points.

2    Add alarms, histories, schedules and graphics to the station. The recommended point limits are

- 20 points per graphic page

- 20 points per Tier 2 controller

- 40 points per Tier 1 controller.

**3**  In the station, change the following in the Bacnet Local Device Property Sheet:

| | | |
|---|---|---|
| Apdu Segment Timeout | 2000 | ms [0 - max] |
| Apdu Timeout | 3000 | ms [0 - max] |
| Number Of Apdu Retries | 3 | |

**4**  In the station, change the following in the BACnet Driver IP Port Property Sheet:

Poll Service  (Bacnet Multi Poll)

| | | |
|---|---|---|
| Poll Enabled | 🟢 true | |
| Fast Rate | 00000h 00m 01s | [1ms - +inf] |
| Normal Rate | 00000h 00m 05s | [1ms - +inf] |
| Slow Rate | 00000h 00m 30s | [1ms - +inf] |

**5**  In the station, change the following in the BACnet Network Property Sheet:

Default Policy  (Bacnet Tuning Policy)

| | | |
|---|---|---|
| Min Write Time | 00000h 00m 00s | [0ms - +inf] |
| Max Write Time | 00000h 00m 00s | [0ms - +inf] |
| Write On Start | 🔴 false | |
| Write On Up | 🔴 false | |
| Write On Enabled | 🔴 false | |
| Stale Time | 00000h 00m 00s | [0ms - +inf] |
| Poll Frequency | Slow | |
| Use Cov | 🔴 false | |
| Use Confirmed Cov | 🟢 true | |
| Cov Subscription Lifetime | 15 | min |

## Final changeover and commissioning

Once station programming is complete, permanently change the system to run as a Niagara site. If additional changes are required for the KMDigital controllers, connect WinControl only as a temporary configuration tool. This will require connecting directly to a Tier 2 network with a KMD-5576 Communicator.

**1**  Split and reconnect the Tier 2 networks to the translators.

**2**  With Hardware Configuration Manager, change the KMD addresses to remove gaps in the addresses caused by splitting the networks.

**3**  In the translator subnetwork configuration page, match the new KMD controller addresses to their original BACnet device instance number.

**4**  Save backup files for commissioning.

- Use WinControl to save KMD panel files.

- Backup all stations with KMC Workbench.

- In the Advanced web page of each translator, save the translator configuration file.

**5** Shut off WinControl.

**6** Reconnect and start the translators.

## *Before and after network example*

For best performance, split and reconfigure the KMDigital network as shown.

- Disconnect the Tier 2 controllers from the Tier 1 controllers.
- Split the Tier 2 networks into 32 controller segments.
- Replace repeaters installed to break the network into 32 controller segments. Repeaters installed for long cable runs should remain in place.
- To prevent excess token cycle time, renumber the controller addresses on the new Tier 2 segments.

**Illustration 1: Translator network example**



Original

Split