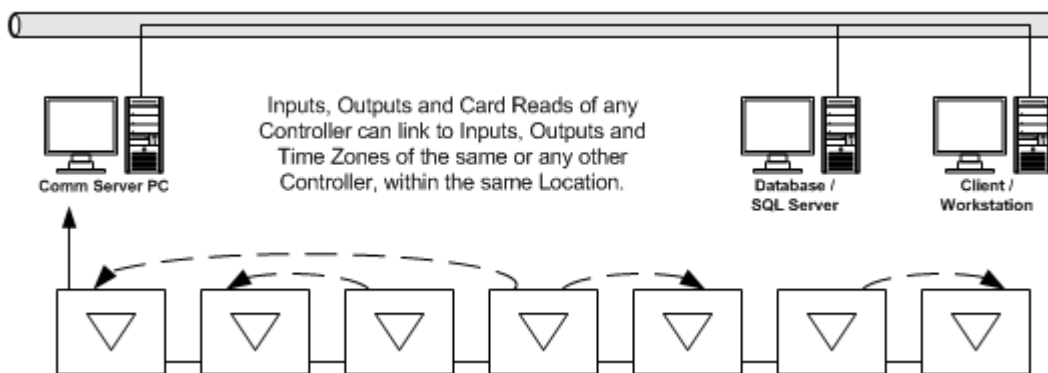




DSX Linking Logic

Global Code and Component Linking

Controllers can perform Local (within a controller) as well as Global (throughout a Location) I/O linking. Linking is very flexible with many capabilities. Inputs can link to other inputs, outputs and/or to time zones. Linking to an input allows for control of its armed state. Outputs can link to other outputs, inputs and/or to time zones. Linking to an output allows for control of its on/off state. Linking to a Time Zone forces it to be active (on) or inactive (off) thereby controlling anything it is assigned to. Codes can link to inputs, outputs, and/or time zones to control their armed and on/off states. With this flexibility it is simple to perform I/O interlocking without the use of PLCs, timers, and external relays.



This powerful linking logic provides DSX the ability to fulfill applications such as Man - Traps, Do Not Unlock Door Until First Card Read, and other assorted interlocking functions. Outputs can initiate links to inputs and/ or other outputs when they energize or de-energize. Inputs can initiate links when they go into alarm or when they go from a normal to abnormal (non-alarm) state.

The standard linking responses are Pulse, Follow, Latch, Toggle, and Time Zone. Pulse is a link for a pre-determined amount of time. Follow is a link that mirrors the state of an input or an output. Latch is a link that is indefinite until a Time Zone command or link is received. Time Zone is a link that sets the input, output or time zone that is being linked, to its pre-programmed schedule. Toggle is a link that causes the armed state or the on/off state to change to the opposite position each time the toggle link is received.

Inputs, Outputs and Codes initiate or activate Linking Groups. Linking Groups contain a single input, output or time zone and/or multiple inputs, outputs and time zones. Each component (input, output and/or time zone) in the group has its own response to the link. The group makes it possible to link to multiple components with each point responding differently.

Linking Groups can be triggered by inputs changing state from normal to abnormal and by inputs going into alarm. Linking Groups can also be triggered by Outputs going from either open to secure or from secure to open. Linking Groups can also be activated by a card read or keypad entry with the use of a Linking Level.

Linking Levels are assigned to access codes and determine which Linking Group will be activated when an access code is used at a card reader/keypad device defined for Code to Linking Logic. The same Linking Level can activate different Linking Groups depending on which reader or keypad the code is used at.

Linking Levels define the relationship between an access code, the reading device, and a Linking Group. Linking Groups can be defined as a list of components to be activated. Components are Inputs, Outputs, and Time Zones. Linking to an Output controls its On/Off State. Linking to an Input controls its Armed State. Linking to a Time Zone forces it to be Active-on or Inactive-off thereby controlling anything it is assigned to.

Linking Levels are used primarily in Elevator and HVAC Control where it is necessary to activate many relay outputs from a single card read and different relay outputs depending on which card and where the card is read. Linking Levels also have applications involving linking to inputs for alarm control and to time zones for threat level management.

More on Component Linking

Component Linking basically provides the ability to link to Time Zones as well as Inputs and Outputs. Most things in the system that are controlled by a time zone can now be controlled through Linking. Just as the armed state of Inputs can be controlled, the on/off state of Outputs can be manipulated, Time Zones can now be forced into an On or Off State thereby controlling what ever that Time Zone is assigned to. Time Zones can control Access Levels, Devices (readers/keypads), Inputs, Outputs, and Linking Groups.

The powerful ability of Component Linking has many useful applications. Time Zones can now be turned on or off instantly without altering the database or the need of downloading data. A Time Zone can now be controlled with a Card Read (Code to Time Zone Link), with an input or output change of state (I/O to Time Zone Link), or manually from the workstation program with the use of a Virtual Output (Output that does not physically exist). Time Zones can be linked to by Inputs, Outputs, or Card reads without the Comm Server PC being online.

Let's cover first the basic Components that can be controlled then we will discuss the more specific applications. Access Levels, Devices (readers/keypads), Inputs, Outputs, and Linking Groups can all have the Time Zones that are assigned to them manipulated to an on or off status. This can be initiated with an Input alarm or change of state. It can be started by the status change of an output or the use of a Card or Code at a reader or keypad. These methods can be used with the Comm Server PC being offline. Another way to initiate a Link to a Time Zone is with a Virtual Output. Virtual Outputs do not physically exist on a Controller but they can be programmed into the system and used for a number of control applications. A Virtual Output can be controlled manually from the Output Control Window of Workstation. Virtual Outputs can also be controlled by Time Zones or by Scheduled Overrides.

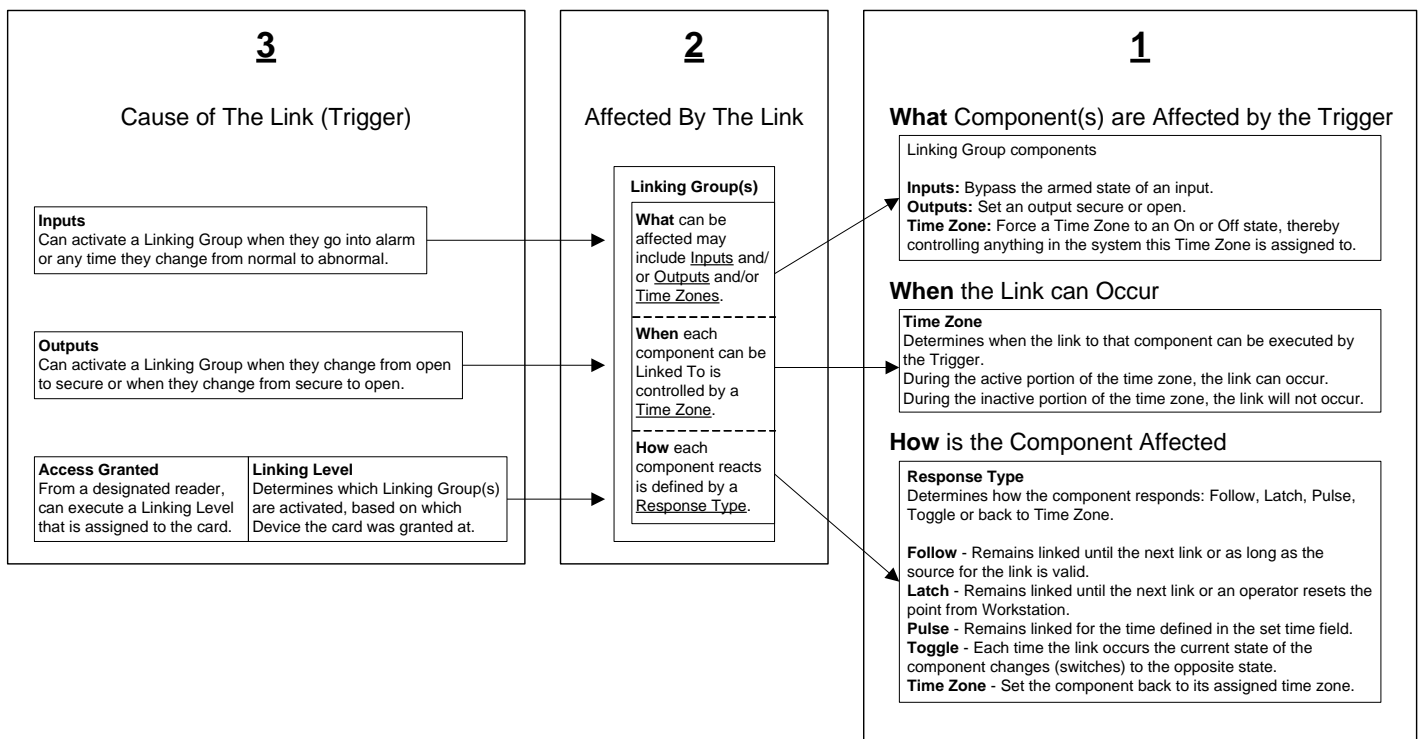
Requirements

WinDSX 3.7 and higher and WinDSX SQL 4.7 and higher must be used to achieve Component Linking. These revisions of software can be used in any existing system. However, to program a Link to a Time Zone requires that all of the controllers in that location be a 1040 series, a 1022, or 1030 PR5 with a minimum Firmware Version of 3129.

Linking Characteristics - The following applies to linking both inputs and outputs

| Link Response | Overridden by: | | | | |
|---------------|----------------|-------|-------|--------|-----------|
| | Follow | Latch | Pulse | Toggle | Time Zone |
| Follow | X | X | | X | X |
| Latch | | | | X | X |
| Pulse | X | X | X | X | X |
| Toggle | | X | | X | X |
| Time Zone | X | X | X | X | NA |

Flow Chart of DSX Linking Logic



Check List for Input to Input Linking

1. Enable Linking Logic under Location/Yes-No Options.
2. Add the input(s) that you want to link from and the input(s) to link to.
3. Add a Linking Group consisting of the input(s) to be linked to.
4. Assign the Linking Group to the input(s) that initiates the link.

Important Input Linking Notes

Add the "Input(s)" to be linked from and to. By linking to an input, the armed state of the input can be bypassed. The input must be initially armed by time zone so the input link can change its armed state. If the input that is linked to is armed when the link occurs, the input will be bypassed. If the input is not armed by time zone when the link occurs nothing takes place. When the link to an input expires, the input returns to its time zone.

Linking Responses

Latch = (the input is bypassed until reset from the WinDSX Workstation or until reset from another link that is programmed with a response of Time Zone to put it back to its schedule.)

Pulse = (the input is bypassed for the amount of time that is set using Pulse Time. "Pulse Time" can be from 1 to 32767 seconds or 1 to 546 minutes)

Follow = (The input armed state follows the normal/abnormal state of the point that initiates the link)

Toggle = (change the input to the opposite of its current armed state)

Time Zone = (return the input to its programmed time zone)

Check List for Input to Output Linking

1. Enable Linking Logic under Location/Yes-No Options.
2. Add the Input(s) that you want to link from and the Output(s) you want to link to.
3. Add a Linking Group consisting of the Output(s) to be linked to.
4. Assign the Linking Group to the Input(s) that initiates the link.

Important Output Linking Notes

Add the "Input(s)" to link from and the "Output(s)" to be linked to. On the Input "General" tab, select a "Time Zone" which defines when the Input is armed. In the Output/Options Tab select the "State When Linked To". This will be the state that the output should go to when it is linked to. It is suggested that the on or energized state of the output that is being linked to impede the operation of the other system it is controlling. This ensures that in the event of a failure, the other system returns to normal operation. The "Time Zone" is the state in which the output should be normally. The "State When Linked To" is the state that the output should change to when the link occurs. This only applies to the output that is receiving the link, not the input that is initiating the link.

Linking Responses

Latch = (the output is opened or secured, according to its configuration, until reset from the WinDSX Workstation or until reset from another link that is programmed with a response of Time Zone to put it back to its schedule.)

Pulse = (the output is opened or secured, according to its configuration, for the amount of time that is set using Pulse Time. "Pulse Time" can be from 1 to 32767 seconds or 1 to 546 minutes)

Follow = (the output follows the open or secure state, according to its configuration, of the point that initiates the link)

Toggle = (change the output to the opposite of its current state)

Time Zone = (return the output to its programmed Time Zone Schedule)

Check List for Output to Input Linking

1. Enable Linking Logic under Location/Yes-No Options.
2. Add the Output(s) that you want to link from and the Input(s) you want to link to.
3. Add a Linking Group consisting of the Input(s) to be linked to.
4. Assign the Linking Group to the Output(s) that initiates the link.

Important Input Linking Notes

Add the "Output(s)" to be linked from and the "Inputs" to be linked to. By linking to an input, the armed state of the input can be bypassed. The input must be initially armed by time zone so the input link can change its armed state. If the input is not armed by time zone when the link occurs nothing takes place. When the link to an input expires, the input returns to its time zone.

Linking Responses

Latch = (the input is bypassed until reset from the WinDSX Workstation),

Pulse = (the input is bypassed for an amount of time that is set using Pulse Time. "Pulse Time" can be from 1 to 32767 seconds or 1 to 546 minutes)

Follow = (The input armed state follows the normal/abnormal state of the point that initiates the link)

Toggle = (change the input to the opposite of its current armed state)

Time Zone = (return the input to its programmed time zone)

Check List for Code to Input Linking

1. Enable Code to Linking Logic under Location/Yes-No Options.
2. Enable Device Used for Code to Linking Logic under Device/Options - on all devices to initiate the link.
3. Add the Input(s) to be linked to (inputs must have time zone assigned to be armed).
4. Add a Linking Group consisting of the Input(s) to be linked to.
5. Add a Linking Level.
6. Assign the Linking Level to the code(s)(cards) that should initiate the link. Codes (cards) must have an Access Level before they can be assigned a Linking Level.

Important Input Linking Notes

Add the "Input (s)" to be linked to. By linking to an input, the armed state of the input can be bypassed. The input must be initially armed by time zone so the input link can change its armed state. When the link to an input expires, the input returns to its time zone.

Linking Responses

Latch = (the input is bypassed until reset from the WinDSX Workstation or until it receives a Link with a response of Time Zone)

Pulse = (the input is bypassed for the amount of time that is set using Pulse Time. "Pulse Time" is 1-32767 seconds or 1-546 minutes)

Toggle = (change the input to the opposite of its current armed state)

Time Zone = (return the input to its programmed time zone)

Check List for Output to Output Linking

1. Enable Linking Logic under Location/Yes-No Options.
2. Add the Output(s) that you want to link from and the Output(s) to link to.
3. Add a Linking Group consisting of the Output(s) to be linked to.
4. Assign the Linking Group to the Output that initiates the link.

Important Output Linking Notes

Add the "Output(s)" to link from and the "Output(s)" to be linked to. It is suggested that the on or energized state of the output that is being linked to impede the operation of the other system it is controlling. This ensures that in the event of a failure, the other system returns to normal operation. The "Time Zone" is the state in which the output should be normally. The "State When Linked To" is the state that the output should change to when the link occurs. This only applies to the output that is receiving the link, not the output that is initiating the link.

Linking Responses

Latch = (the output is opened or secured, according to its configuration, until reset from the WinDSX Workstation or until reset from another link that is programmed with a response of Time Zone to put it back to its schedule)

Pulse = (the output is opened or secured, according to its configuration, for the amount of time that is set using Pulse Time. "Pulse Time" can be from 1 to 32767 seconds or 1 to 546 minutes)

Follow = (the output follows the open or secure state, according to its configuration, of the point that initiates the link)

Toggle = (change the output to the opposite of its current state)

Time Zone = (return the output to its programmed Time Zone Schedule)

Check List for Code to Output Linking

1. Enable Code to Linking Logic under Location/Yes-No Options.
2. Enable Device Used for Code to Linking Logic under Device/Options on all Devices that should initiate the Link.
3. Add the output(s) to be linked to.
4. Add a Linking Group consisting of the output(s) to be linked to.
5. Add a Linking Level.
6. Assign the Linking Level to the code(s) (cards) that should initiate the link. Codes (cards) must have an Access Level before they can be assigned a Linking Level.

Important Output Linking Notes

Add the "Output(s)" to be linked to. In the Output/Options Tab select the "State When Linked To". This is the state that the output should go to when the link occurs. It is suggested that the on or energized state of the output that is being linked to impede the operation of the other system it is controlling. This ensures that in the event of a failure, the other system returns to normal operation. The "Time Zone" is the state in which the output should be normally. The "State When Linked To" is the state that the output should change to when the link occurs. This should only apply to the output that is receiving the link, not the output that is initiating the link.

Linking Responses

Latch = (the output is opened or secured, according to its configuration, until reset from the WinDSX Workstation or until reset from another link that is programmed with a response of Time Zone to put it back to its schedule.)

Pulse = (the output is opened or secured, according to its configuration, for the amount of time that is set using Pulse Time. "Pulse Time" can be from 1 to 32767 seconds or 1 to 546 minutes)

Toggle = (change the output to the opposite of its current state)

Time Zone = (return the output to its programmed Time Zone)

Note /// For Elevator Control it is recommended that each output be placed in a Linking Group by itself.

Check List for Time Zone Linking

1. Enable Linking Logic and/or Code to Linking Logic under Location/Yes No Options.
2. Enable Device Used for Code to Linking Logic under Device/Options. (for code activated linking only) on all readers involved.
3. Add the time zone(s) to be linked to. Set the Time Zones to be On or Off when linked to.
4. Add a Linking Group consisting of the time zone(s) to be linked to.
5. Assign the Linking Group to the Inputs and/or Outputs that should initiate the link.
6. For Code initiated linking, Add a Linking Level and Assign the Linking Level to the code(s) that should initiate the link.

Important Time Zone Linking Notes

Add the "Time Zone (s)" to be linked to. On the "Time Zone" > "General " tab select the "Time Zone is On or Off" when Linked to. This is the state that the Time Zone should go to when the link occurs. Select On if you want the Time Zone to become active when linked to. Select Off if you want the Time Zone to become inactive when linked to. Linking to a Time Zone can force it to a pre-selected state of on or off as chosen here. Anything this Time Zone is assigned to is subsequently affected. This could be used to control Access Levels, Devices (readers/keypads), Inputs, Outputs, and Linking Groups.

The Time Zones that are being linked to cannot be assigned to what is initiating the link. In other words – What links to the Time Zone cannot be controlled by the Time Zone.

Build as many Time Zones as necessary to make sure that when you link to a Time Zone it only affects those things you want affected. Re-using Time Zones could cause something to be controlled from a Link that was not desired.

If you link to a Time Zone with a Latch response you must have another Linking Group that links to that same Time Zone with a response of Time Zone.

Linking Responses

Latch = (the time zone is turned On or Off, according to its configuration, until reset from another link that is programmed with a response of Time Zone to put it back to its schedule.)

Pulse = (the time zone is turned On or Off, according to its configuration, for the amount of time that is set using Pulse Time. "Pulse Time" from 1 to 32767 seconds or 1 to 546 minutes)

Follow = (the time zone on or off state is following the status of the input or output that initiates the link)

Toggle = (the time zone is turned to its opposite state, if it was active it becomes inactive and vice versa)

Time Zone = (return the time zone to its programmed Schedule)