

1. Room Event Reservation System Integration

The existing room event reservation system and the HVAC systems shall be integrated directly so that the scheduled room event reservations entered in the reservation system will automatically schedule the required HVAC systems to turn on and off for those events. The integration software shall be installed on a Windows server platform and will periodically query the current day's event schedules and command the appropriate HVAC equipment for the scheduled rooms automatically without operator interdiction.

1.1. ***Supported Reservation Systems***

The interface software will support the following reservations systems and multiple instances of the same type of system:

- EMS Software (Lite, Pro, Enterprise, Campus, Legal, District)
- CollegeNet Resource25/25Live web services
- Ad Astra Information Systems
- eSPACE
- Asure ResourceScheduler
- ShelbyNext
- SimpleChurchCRM
- FellowshipOne Go
- Microsoft Exchange (via Room Resources)
- Google (G Suite) Business Calendar (via Room Resources)
- Google Personal Calendar
- Manual schedule import using CSV format
- Other open API systems

1.2. ***Supported HVAC and Security Systems***

The interface software will support the following HVAC interfaces:

- BACnet/IP (Annex J) devices
- Johnson Controls MSEA web services
- Johnson Controls P2000 security system
- NetworkThermostat Net/X Thermostats & Controllers
- Kantech EntraPass Security
- Pelican Wireless Thermostats
- Founten Wireless Thermostats
- Honeywell Total Connect Comfort (TCC) Wireless Thermostats
- ecobee Thermostats (residential and commercial EMS)

1.3. ***Minimum Features***

The interface software shall have the following minimum features:

- Commands to HVAC system points can be issued at any or all of the following instances during an event:
 - Event Setup Start
 - Event Setup End
 - Event Start
 - Event End
 - Event Teardown Start
 - Event Teardown Stop
 - Zone First Start (Daily)
 - Zone Last Stop (Daily)
 - Zone First Setup Start (Daily)
 - Zone First Teardown Stop (Daily)

- Each command to HVAC system points can be started in advance of the event (Pre-Start time)
- Each command to HVAC system points can be stopped after a period of time after the event ends (Post-Stop time)
- Multiple rooms can be associated with a single HVAC equipment item or zone
- Multiple reservation systems or instances of reservation systems can be queried for control of zones
- User defined password-based, role-based security
- Software shall be capable of generating the following reports on demand or in PDF format
 - Daily event report
 - Daily equipment command report
 - Room Assignment report
 - Equipment Detail report
- Software shall be capable of emailing users if any scheduled commands fail to get executed
- Software shall be capable of emailing users any of the Daily reports above
- Software can aggregate multiple reservation systems and multiple instances of a reservation system into common HVAC schedules
- Software shall store locally at least 7 days of backup schedule data from the reservation system in the event of a loss of communication with the reservation system.

1.4. HVAC Integration

HVAC contractor is responsible for exposing (serving) the integrated room HVAC equipment objects in the accepted protocol. HVAC contractor will ensure that the system has the necessary communications protocols enabled across the network to allow point discovery and point read/write operations to the integrated objects.

Example: If the BACnet/IP protocol is used, the controlled point objects must be visible and writeable from the integration software client. Also, a BBMD may need to be enabled and

defined on the BACnet network to allow a BACnet client to discover objects over different LAN segments.

HVAC contractor is responsible for selecting the appropriate point objects that would be integrated and defining the priority for the commands coming from the integration software. Any potential safety issues or mechanical issues that could result from commands coming from the integration server shall be addressed using additional HVAC logic or programming to prevent unintended operations.

HVAC contractor is responsible for programming and documenting a reasonable switchover method from automatic scheduling (dynamic schedules) to default building schedules in the event of a problem with the integration server or communication between building controllers and the integration server (for communication loss, server failure, or user requirements, etc.). A schedule status signal or heartbeat signal at the integration server will be generated by the integration software for automating the switchover.

HVAC contractor is responsible for providing a list of integration points for each zone in Excel or CSV file format that includes: point name, point type, rooms served, point ID, occupied Mode value, Unoccupied Mode value, priority for writing, and a typical pre-start time in minutes. This list will be used by the integrator to map the reservation system rooms to the required points for control.

1.5. *IT Network Integration*

IT contractor or facility IT department is responsible for enabling necessary TCP/IP traffic to pass through any hardware firewalls, PC firewalls, switches and routers that may be between the integration server, the room scheduling system and the HVAC system.

(Requirements for this depend on the protocols and reservation systems used)

1.6. *IT Reservation System Integration*

Facility IT department is responsible for supplying the necessary login credentials and access permissions to read data from the existing room reservation systems.

(Requirements for this depend on the reservation systems used)

