

## ALARMADE™

*PREMIER offers instantaneous remote notification and escalation of plant alarms by using two-way radios and web-based configuration tools.*

### SPECIFICATIONS

#### Objectives

- Instantaneous Alarm Notification by Radio and Email
- Administrator Web Portal for Configuration
- Admin-Defined Escalation Plans by Alarm Group
- Remote alarm acknowledgement
- Event logging and reporting
- Alarm Acknowledgment accountability

#### Highlights

- **Equipment**
  - Motorola MotoTRBO Two-way Radios
- **Software**
  - Microsoft Visual C# .NET
  - Microsoft SQL Server 2005
  - Microsoft ASP.NET
  - Microsoft SQL Reporting Services
  - NeoTerra zapMail
  - Wonderware InTouch

A 24-hour manufacturing facility used HMIs and handheld radios to communicate the malfunction of equipment in their plant. When their personnel were unavailable or indisposed, critical alarms could go unnoticed for extended periods of time.

Personnel who marked alarms as being acknowledged did not always consistently follow up on the alarms they acknowledged, leading to an environment lacking in accountability. Since alarms were acknowledged anonymously, it was also difficult to manage who was responsible for responding to alarm conditions.

PREMIER was asked to develop an alarm distribution system that allowed the plant to become more autonomous in its handling of alarm conditions.

AlarmADE (Alarm Acquisition and Distribution Engine), prototyped in Microsoft C# .NET, is able to detect new alarms from a Wonderware HMI and report these new alarms via text message using the Motorola radio interface software zapMail. PREMIER worked with Canadian development firm NeoTerra Systems, Inc. to develop a new sockets-based communication protocol that allows AlarmADE to interface with zapMail.

AlarmADE was expanded to include a SQL Server 2005 database-driven escalation plan that allows groups of alarms to follow separate notification schemes.

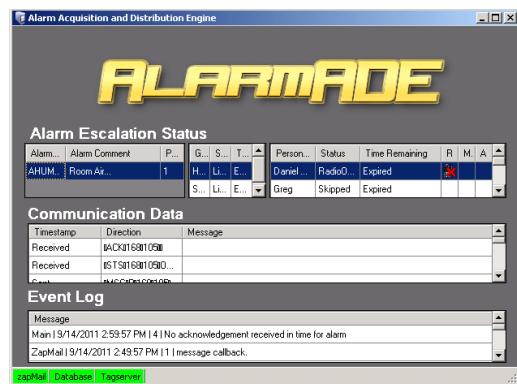
It was also necessary to enable users to acknowledge alarms remotely. Using zapMail, AlarmADE is able to receive "Ack" messages from maintenance staff. AlarmADE will then acknowledge the alarm in Wonderware, and notify other employees of who sent the acknowledgement.

An ASP.NET web-based Admin Console allows administrators to easily

and intuitively configure escalation plans.

Logging and Microsoft Reporting

Services reports were added to allow administrators to view the alarm history, including alarm details, notification steps taken, and whether certain personnel were available and received messages.

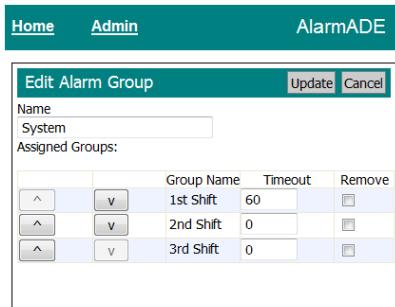


An email option was added as well, allowing users to be notified by email and/or SMS mobile phone messages when an alarm occurs.

Throughout the development of this project, PREMIER and NeoTerra collaborated to enhance zapMail's capabilities surrounding extreme messaging scenarios, including rapid messaging rates, and highly-populated radio networks.

AlarmADE runs continuously as a system tray application on the Wonderware Tag Server, displaying current status and requiring no additional user input to function.

As a result of this solution, the customer has benefitted from improved visibility of alarms as well as improved response times. Based on this success, plans have been initiated to incorporate similar AlarmADE systems at other customer facilities.



Administrator Web Interface