

GEIS – High-Availability Building Control

With GEIS (General Enterprise Information System), AdNovum offers modular integration of existing security and building service systems into a network-based master control system. GEIS supports central monitoring and management of security alarms and other incidents, automated mobilization of staff, and the generation of alarm statistics. Also, it enables visualization, management and recording of building service processes.

GEIS has been deployed by companies such as UBS, Rolex, and Avireal for many years now and has been refined continuously over the years.

GEIS – Top performance:

Key data of a GEIS sample application:

- 75 buildings
- 110 proprietary security and building control systems
- 50 code mappers
- 70'000 data points
- 500'000 GEIS events plus 200'000 phone-reported incidents per year

Independent

GEIS was developed by an independent consortium headed by AdNovum. It was designed to offer maximum flexibility and true vendor independence.

Modular & extensible

GEIS includes tools for the engineering of data points as well as the subsequent integration of additional front systems and standard data bases.

Open

GEIS is based on a client-server approach and integrates front and guide systems as well as all GEIS applications via an open interface. To support integration of additional applications at any time, GEIS provides a C++ interface with an integrated source code class library.

Advanced packaging

1. GEIS is available as a package.
2. GEIS is completely modular. It can easily be adjusted to integrate new technologies.
3. GEIS is based on standard technologies that are successfully applied not only in building automation, but also by other companies and in other fields of application.
4. GEIS has been refined continuously over the years and now supports the integration of over 50 different security and HKLSE systems.

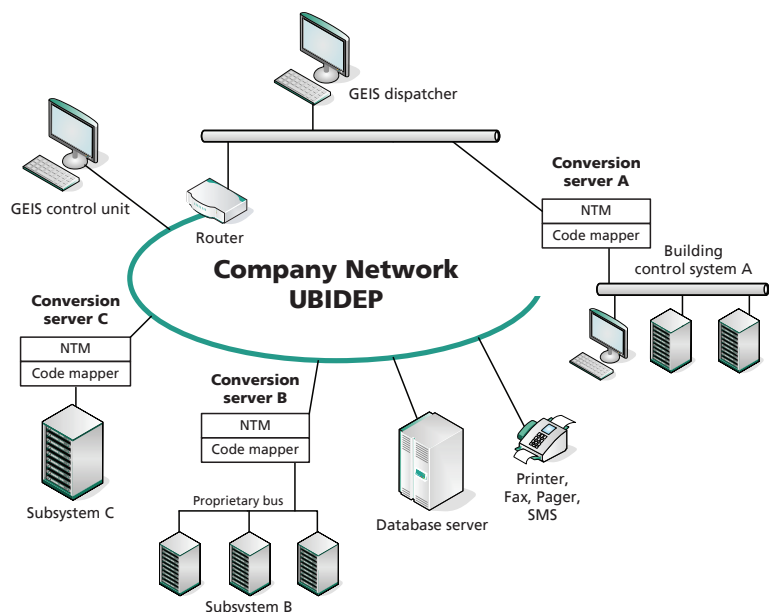
General Enterprise Information System

The building control system GEIS was first installed at the headquarters of UBS AG in Zurich in 1995. Integrating a whole variety of building control and security systems into one master system, GEIS enables centralized monitoring, management and automatization of building control. With over 50 mappings to front systems, GEIS permits systems of various vendors to be monitored and regulated over one and the same user interface. To enable distributed monitoring and control of integrated buildings, it supports the specification of user roles. GEIS proves a good investment mainly in complex system environments and/or for the integration of several locations.

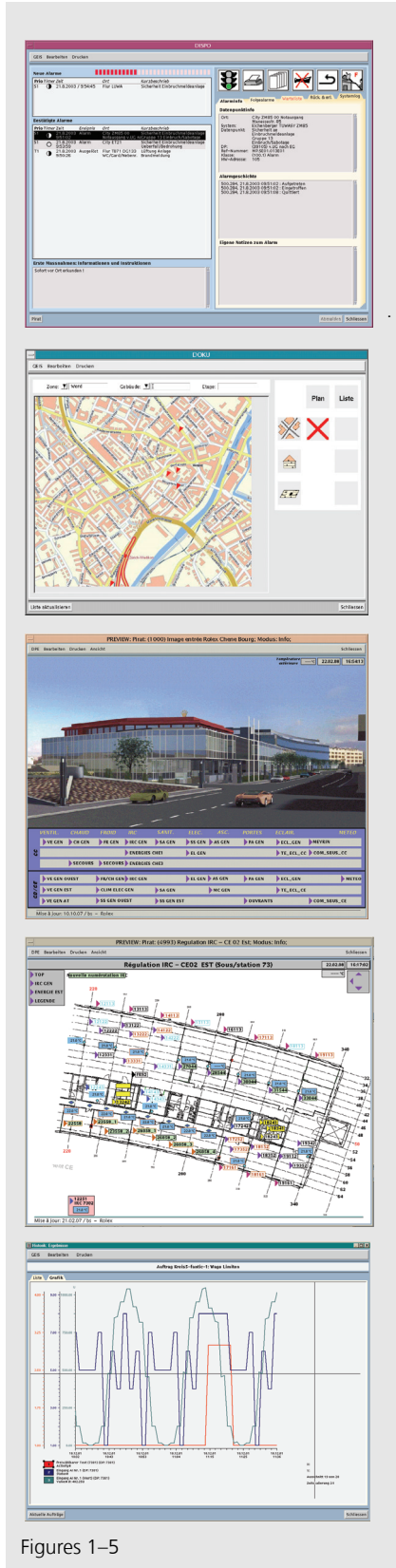
System overview

Protocol translation for communication between GEIS and integrated front systems is effected on conversion servers hosting a combination of system-specific code mappers and generic modules such as the node and topology manager (NTM). For the communication between individual GEIS components (applications, data base servers, conversion servers, etc.), GEIS relies on a fast and extremely reliable messaging daemon that uses the company's existing network. Within GEIS, all messages are transferred in the standardized UBIDEP format (see <http://www.ubidep.ch>).

GEIS-System Overview



GEIS Applications



Figures 1–5

GEIS offers the following features:

Alarm and incident management

- Dispo application for the central management of GEIS alarms (see Fig. 1)
- Centralized registration and handling of incidents reported by phone
- Online phone directory
- Summoning/notification of internal/external services (via fax or text message, staff search, telepage Swiss)
- Overview of incidents / regulation of individual data points
- Overview of all or selected alarm messages
- Statistics tool that supports configurable evaluations
- Simulation of individual alarms and alarm scenarios

Process visualization, remote control and recording

- Geographical Integration System (GIS) that shows all integrated locations with floor plans including the location of individual data points (see Fig. 2 to 4)
- Real-time dynamic representation of building control and security systems, selected parts of such systems, or arbitrary collections of data points for an immediate intuitive assessment of an incident
- Remote control options (remote regulation of data points, scheduling, opmode commands)
- Short- and long-term recording of values/trends of selected data points (s. Fig. 5)
- Operational data: recording of values of selected counters
- Remote control of selected components
- Scheduling: automated switching of selected data points

Web applications

- Key repository for Safetron systems
- Web-based display of incident and alarm messages

Administration modules

- User and system administration with role and group editor
- DPE tool: Tool for the engineering of individual data points

Easily extensible

GEIS integrates various building control front and subsystems into a comprehensive master building control system that provides UBIDEP protocol conversion, node and topology management and communication features. All applications are consistently integrated.

- PAD module: Packet assembler / disassembler that sends front system messages to the code mapper (usually serial protocols or TCP).
- Code mapper: Translates messages of front systems into UBIDEP structures and forwards them to the NTM.
- NTM: Interpretes messages and forwards UBIDEP-formatted content to the proper GEIS address (role).
- Hermes: Forwards the message to the respective physical address (server).

Communication

As GEIS is a distributed application, its components can be placed on locally separate servers connected by a LAN or WAN. Secure and reliable communication between the distributed components is of critical importance. GEIS therefore relies on the *Hermes* communication platform which offers:

- multicast transport service (delivery of messages to static or dynamic groups of recipients)
- n-to-n distributed application system
- dynamic system and application management
- secure and reliable transfer via (secure) TCP or ticots / store & forward
- highest system availability
- support of arbitrary message formats
- C++ programming interface
- integration of up to 1000 nodes
- compliance with key ORB requirements (Object Request Broker)

Base system

Every GEIS installation is based on a system consisting of:

1. low-level connection module (packet assembler/disassembler «PAD»)
2. code mapper
3. node and topology manager (NTM)
4. communication platform (Hermes)

Message handling

Before a message that has been sent by a front or subsystem (service, security, or building control system) can be displayed by the GEIS application, it has to be processed as follows:

- The message is first sent to a code mapper via a low-level packet assembler/disassembler facility. The code mapper then translates the message into the UBIDEP protocol (Universal Building Information and Data Exchange Protocol) and forwards the translated version to the node and topology manager (NTM).
- The *NTM* fits all messages with logical addresses (UBIDEP keys) and relays them to the *Hermes* message daemon responsible for the communication between GEIS components. Hermes ensures a prompt and secure delivery of the message to the GEIS component in charge of processing and displaying the message in the GEIS application system.

Integration of new front systems

Due to its modular architecture, GEIS is highly flexible. Integration of a new front system only requires implementation of a new code mapper module. This permits the system to be extended at any time at low cost and without any risk for the existing installation. Over 50 code mappers for the conversion of front system protocols to UBIDEP have been implemented so far.

- ☛ All available code mapper modules are listed in *Integrated Front Systems* on page 4.

Integrated Front Systems

The table below provides an overview of integrated front systems.

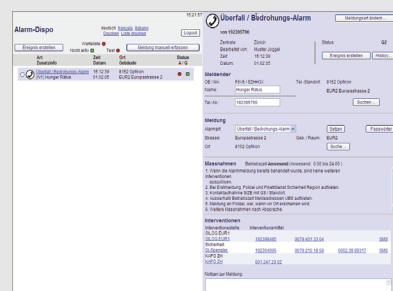
Vendor/system	Hardware	Protocol [number]	Interface
ABB-CMC, SattControl u.a.	Z.B. SPS SC15-20	COMLI (SattControl AB)	RS232c
Alarmflex TUS	ipZUM, ipLink3	low-level: TCP/IP high-level: Alarmflex	RS232c, TCP/IP
Alarmnet TUS	ALM Gateway, Swisscom Infranet	low-level: TCP/IP high-level: ALM dispatcher interfaces	TCP/IP
Borner AG	UNIGARD 300 family	low-level: DIN 66348 high-level: UNIGARD serial measured data	RS232c
EIB, European Inst. Bus	BCU 2.0	FT 1.2	RS232c
ESS	Siemens Simatic CP 524/525	low-level: 3964R high-level: Open ESS	RS232c
ESS TUWASY	Siemens Simatic CP 524/525	low-level: 3964R high-level: Open ESS	RS232c
Factorylink	Factorylink-PC		TCP/IP
Honeywell	Excel 500	Excel Connect 1.02	RS232c
Honeywell	XFI	Printerport	RS232c
LUXMATE Zumtobel Lighting management	LM-TLR /LM-GO	Luxmate LM-BMS	RS232c
Modbus: all compatible system	Modicon PC-A984, Wago, Selecontrol MAS CPU75x /71x,...	low-level: RTU high-level: Modbus	RS232c, TCP/IP
Neef / Bircher LON	Siemens Simatic CP 524/52 as GEIS interface	low-level: Siemens 3964R high-level: Open ESS	RS232c(1)
Neovac	Sontex Gateway	STX bus communication protocol	RS232
SafeTRON Schlüsselbund Depot	Direct connection	proprietary	RS232c
Sauter EY3600	novaNet-Router	low-level: novaNet EYZ291 high-level: novaNet EYL	RS232
Securiton EMA	IBM-compatible PC	low-level: BMP-TON high-level: SHP-TON 2.0/EMA	RS232c
Securiton BMA	IBM-compatible PC	low-level: BMP-TON high-level: SHP-TON 2.0/BMA	RS232c
Securiton SecuriPro	SIB71	low-level: BMP-TON high-level: SecuriPro 3.0 - 5.0	RS232
Siemens-Cerberus	CZ 10 / CZ 12 (BMA)	low-level: CK100-22/Cerloop high-level: DMS 7000	RS232c
Siemens-Cerberus	CZ 4 / CS 4-40(EMA)	low-level: CK100-22/Cerloop high-level: DMS 7000	RS232c
Siemens-Cerberus	Algorex CS11(BMA)	low-level: CK100-22/Cerloop high-level: DMS 7000	RS232c
Siemens Simatic S7	SPS S7 with CP-343, CP343-1IT, CP-443-1, CP443-1IT	low-level: Industrial Ethernet high-level: S7	TCP/IP

References

UBS GIKUS

In addition to GEIS, UBS deploys the web-based GIKUS application also developed by AdNovum (GIKUS = Gebäudeüberwachungs- und Interventions-Konzept der UBS in der Schweiz).

- GIKUS is a browser-based application for the management of high priority security alarms and other incidents that is used throughout UBS Switzerland.
- For the supra-regional propagation of alarms, TUS Alarmnet is used.
- GIKUS supports remote opening of buildings and safe deposits.
- GIKUS offers CTI (Computer Telephone Integration) that enables efficient management of reported incidents including the summoning of the required security and maintenance staff.



GEIS Reference Installations

Below you will find some examples of representative GEIS installations.

Please note that the extent to which customers rely on AdNovum maintenance and support services may vary. While some customers require 1st- or 2nd-level support, other customers prefer to operate and maintain their GEIS installations independently.

UBS

GEIS was originally designed for UBS. At the head quarters of UBS in Zurich, all high- and medium-priority alarms of security and building automation systems in over 50 individual buildings are centrally managed in GEIS. In addition, all security systems and many other building automation systems are centrally regulated and visualized via GEIS, while some of the building automation systems are still controlled via vendor-proprietary control units. GEIS is also used for the central recording and handling of all fault reports by phone within UBS Switzerland. GEIS integrates 70'000 data points and is used for the central handling of about 500'000 incidents per year. Also, the energy consumption data of all UBS buildings in the wider Zurich area is recorded, evaluated and analyzed in GEIS.

Rolex

Rolex mainly uses GEIS for the central control and visualization of HVAC systems (Heating, Ventilation, Air Conditioning) and other building service systems. Monitoring and control of the lighting system is also integrated, with individual lamps engineered as data points. Since excellent lighting is of crucial importance in watchmaking, defective lamps have to be replaced without delay. The Rolex GEIS installation integrates a total of over 50'000 data points.

Avireal

Avireal deploys GEIS as a master control system that offers integrated alarm handling for the various HVAC systems. In addition, GEIS is used for the management of incidents reported by phone.

Portrait AdNovum

References

AdNovum's software solutions are employed by customers who work with highly sensitive data.

UBS AG

- E-Banking via Internet / Mailbox / CC
- CMS, Web solutions
- Market data systems, research info
- Point of sale / counter workstations
- UBS security stack / certificate mgmt.
- Facility management (GEIS/GIKUS)

Private Banks

- PB IHAG Zurich AG: IHAG Net
- Bank CIC: Authorization concept
- RBS Coutts: nevisGate
- Wegelin & Co. Private Bankers: Wegelin Online

Insurance Companies

- CSS: Reviews (SW Eng., MDA)
- Die Mobiliar: SSO portal / nevisBox
- SwissLife: Security consulting
- Zurich: Project review and optimization / nevisProxy infrastructure / ZIB NFO

PostFinance / SPI / PostLogistics

- SSO solutions / portals, IDM
- E-finance / yellownet
- SPI ERP solution GLOBE

FDJP

- FOR: CEMIS information system / eDossier
- ISC-FDJP: SSO portal FDJP

Tax Office of the Canton of Zurich

- Registry / warehouse management

Telekurs / PayNet

- SSO portal / EBPP solution (Electronic Billing and Payment)

The Swiss software engineering company AdNovum specializes in the development of top-quality software solutions. Its trademarks are technological competence, innovation, and consistency.

AdNovum Informatik AG
Röntgenstrasse 22, 8005 Zürich
Tel. +41 44 272 61 11
info@adnovum.ch, www.adnovum.ch

Managing Director: Ruedi Wipf
President of the Board: Gratian Anda, IHAG Holding AG
Staff: 260 staff; 70% engineers
Locations: Zurich (HQ), Bern, Budapest, Singapore

Core Competences

'Make it work' focus, extensive project knowhow:

Software / Security Engineering

- Comprehensive system solutions for large-scale distributed IT environments
- High-security features for revisable systems

Application Engineering

- Business applications, e-banking, CRM, Call Center, Logistics/ERP
- Enterprise content management
- Management of electronic dossiers / registry

Integration

- Continuous upgrade to latest technologies
- Legacy integration / software renovation

Consulting, Reviews

- Security, technology, architecture

Managed Operation

- Hosting, ASP, 7*24 support

Contact

Do not hesitate to contact us if you require further information or would like to visit a productive installation:

Bruno Kaiser, CPO AdNovum
Phone +41 44 272 61 11
info@adnovum.ch