INTERNET CARTOGRAPHY

USING SHODAN TO EXPLORE UNCHARTED TERRITORY

HI, I'M JOHN!

@ACHILLEAN

JMATH@SHODANHQ.COM

AGENDA

- 1. SHODAN HISTORY AND TECHNOLOGY
- 2. GENERAL OBSERVATIONS
- 3. Consumer Devices
- 4. INDUSTRIAL INTERNET

1. SHODAN HISTORY AND TECHNOLOGY



GOOGLE FINDS WEBSITES

SHODAN FINDS DEVICES

Home

Search Directory

Data Analytics/ Exports

Developer Center

Labs

EXPOSE ONLINE DEVICES.

WEBCAMS. ROUTERS.
POWER PLANTS. IPHONES. WIND TURBINES.
REFRIGERATORS. VOIP PHONES.

TAKE A TOUR

FREE SIGN UP



Popular Search Queries: Router w/ Default Info - Routers that give their default username/ password as admin/1234 in their banner.



DEVELOPER API

Find out how to access the Shodan database with Python, Perl or Ruby.



LEARN MORE

Get more out of your searches and find the information you need.



FOLLOW ME

Contact me and stay up to date with the latest features of Shodan.

IN THE PRESS

Shodan pinpoints shoddy industrial controls.



It greatly lowers the technical bar needed to canvas the Internet...



'Shodan for Penetration Testers' presented at DEF CON 18



It's a reminder to many to know what's on your network...



Shodan is the Google for hackers.



Shodan vereinfacht die Suche nach SCADA-Systeme erheblich...

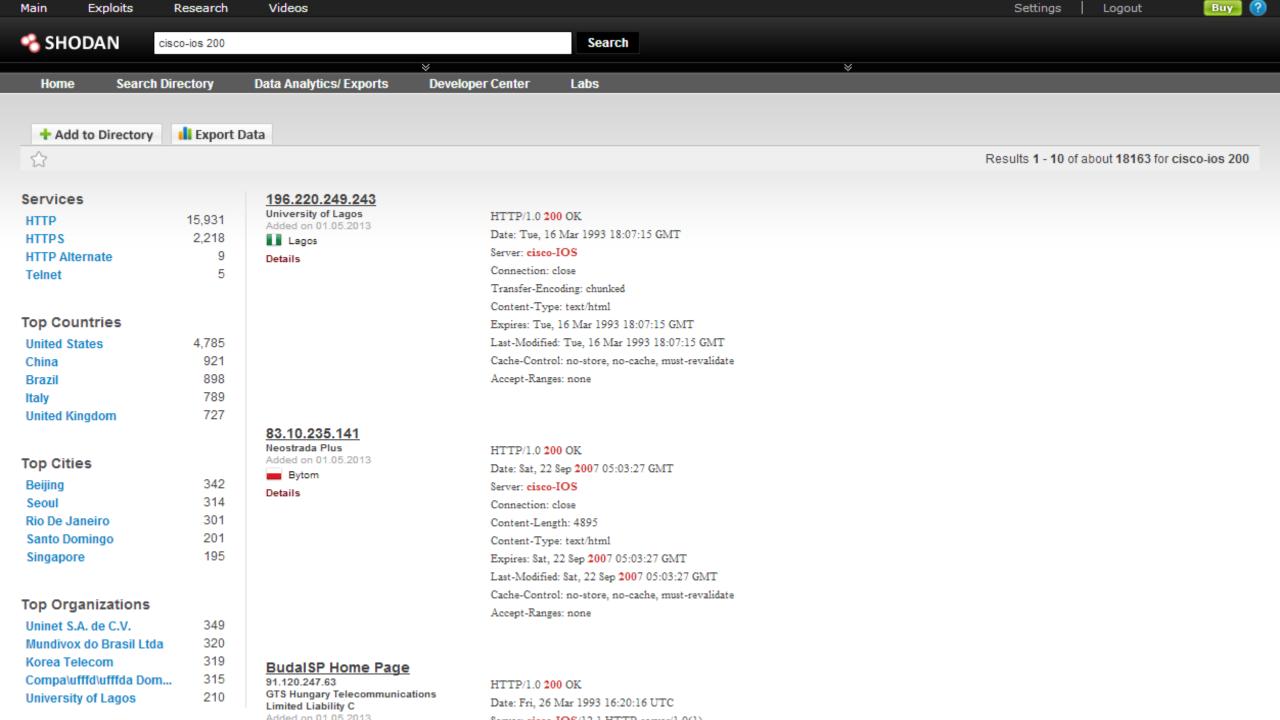
(heise online

Firmen öffnen Stuxnet und Co. selbst die Tür.



Computerangriffe werden einfacher. Zumindest für die Nutzer von Shodan.









The New York Times



AS SEEN ON



The Washington Post







HOW IT WORKS

- SCANS 24/7
- RANDOM
- DISTRIBUTED
- Non-intrusive
- SCANS THE INTERNET EVERY MONTH





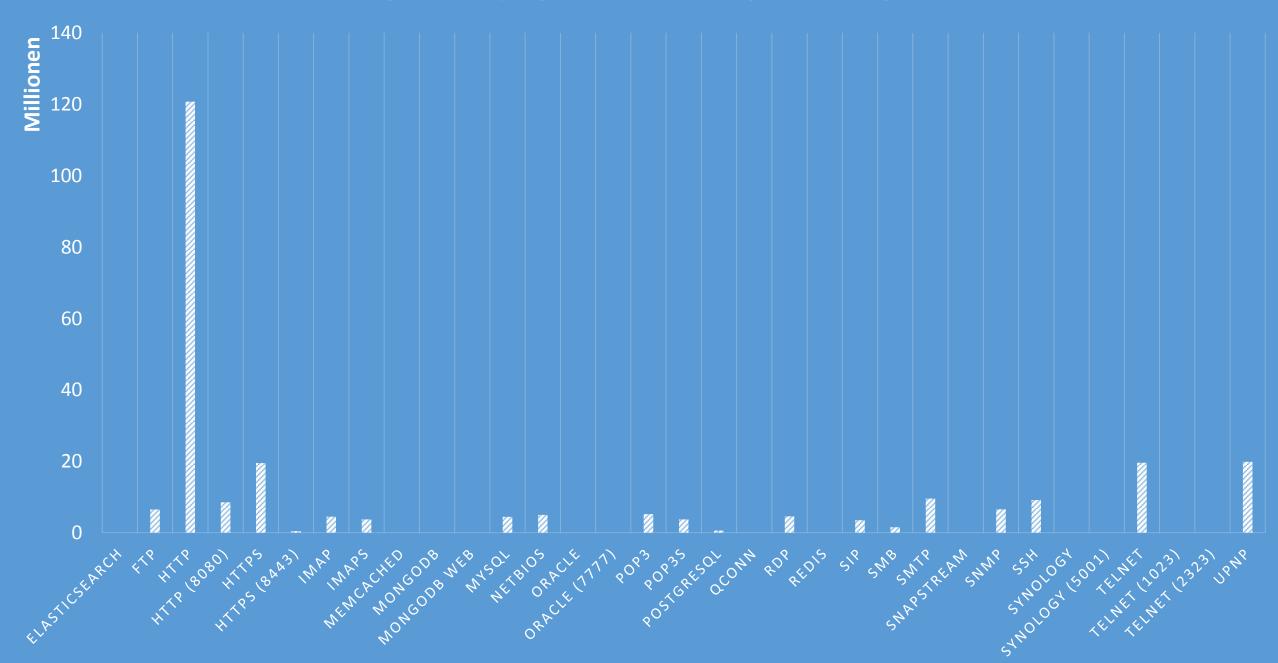


SERVICES

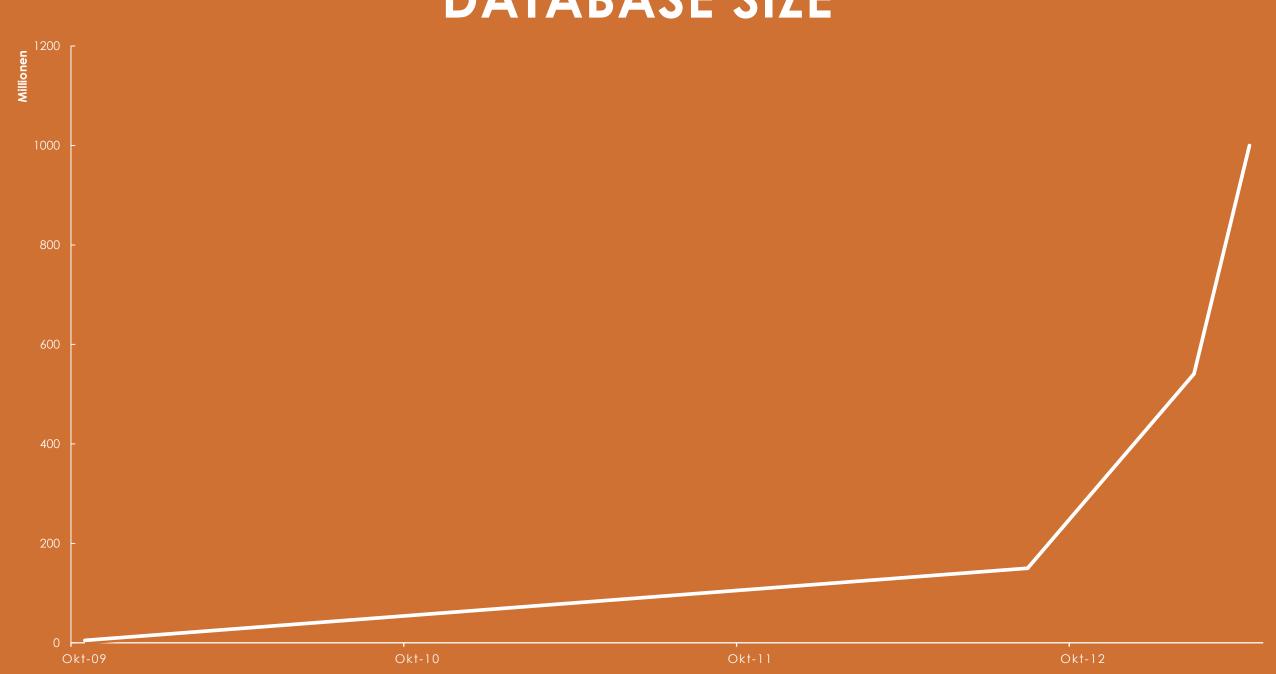
- HTTP
- FTP
- SMTP
- SNMP
- SSH
- POP3
- IMAP
- NETBIOS
- HTTPS

- SMB
- TELNET
- UPNP
- MYSQL
- REMOTE DESKTOP PROTOCOL
- PostgreSQL
- MongoDB
- REDIS
- MEMCACHE

SERVICES BY THE NUMBERS



DATABASE SIZE



2. GENERAL OBSERVATIONS

OBSERVATIONS

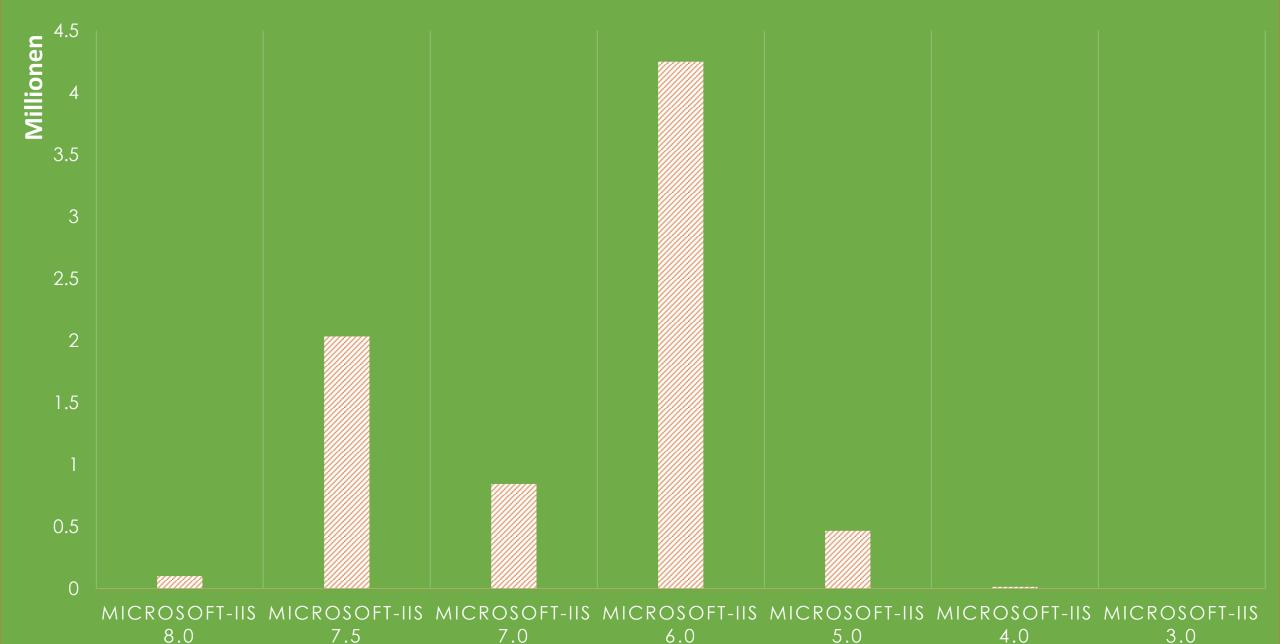
- 1. INTERNET IS OLD
- 2. EMBEDDED DEVICES EVERYWHERE
- 3. The 1% of the Internet Matters

THE INTERNET IS OLD

"WHO CARES? NOBODY RUNS THAT ANYMORE."

- ANONYMOUS

MIND SHARE VS MARKET SHARE



42 SERVERS WITH IIS 2.0 (WINDOWS NT 4.0)

SERIOUSLY? MAYBE HONEYPOTS?

ABS Reseller Center

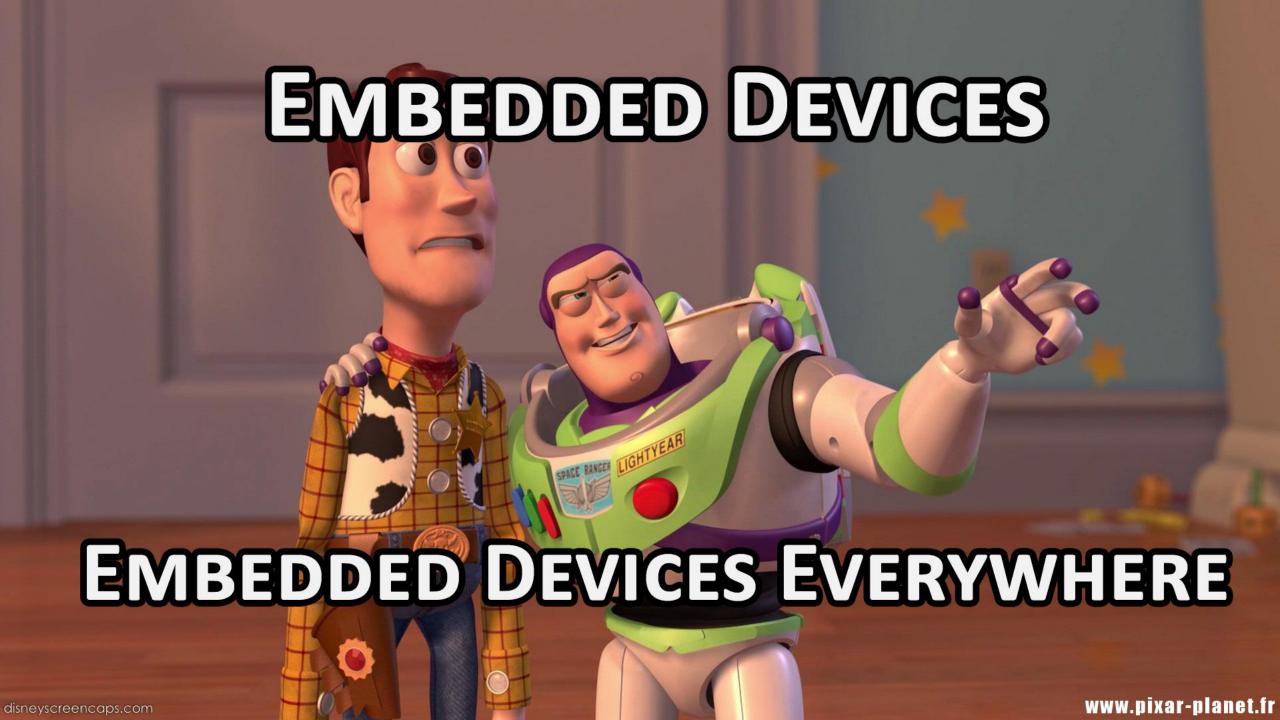
- Login
- Reports
- Download Updates
- Send E-mail
- ABS Home Page
- Web Search
- Download Windows
 Demo

American Business Systems, Inc.

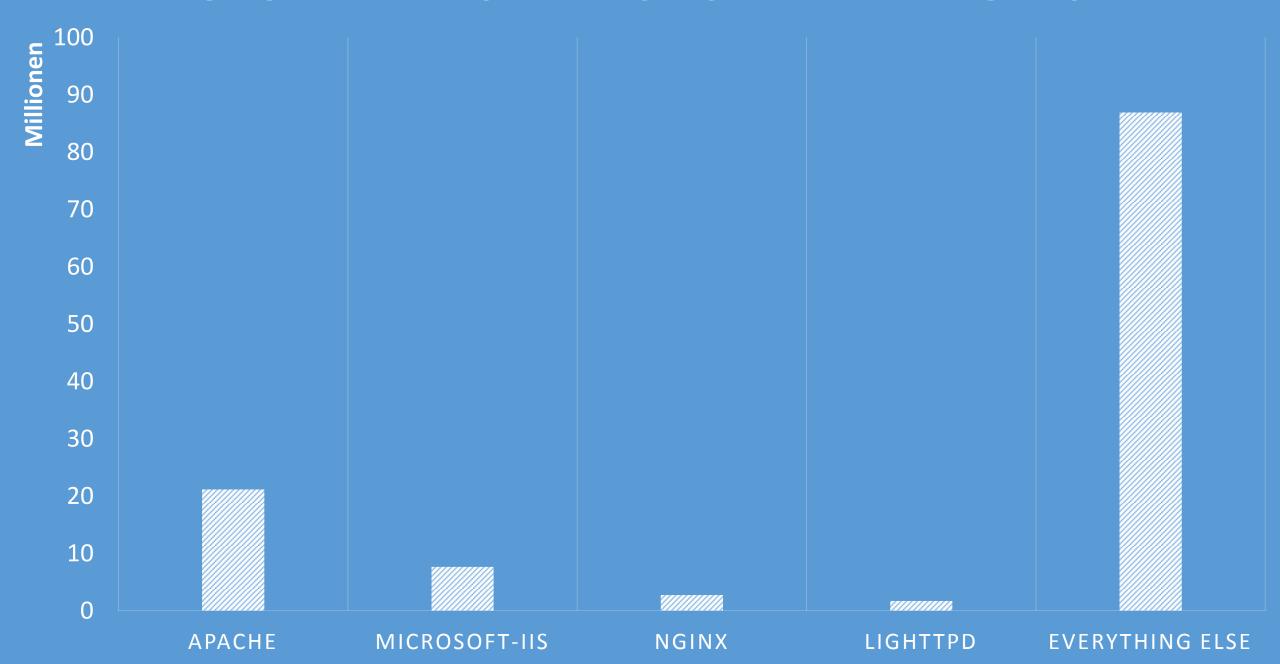
Login to the System

We welcome your <u>questions and comments</u> regarding your account. Phone: 800-356-4034 or Fax: 978-250-8027.

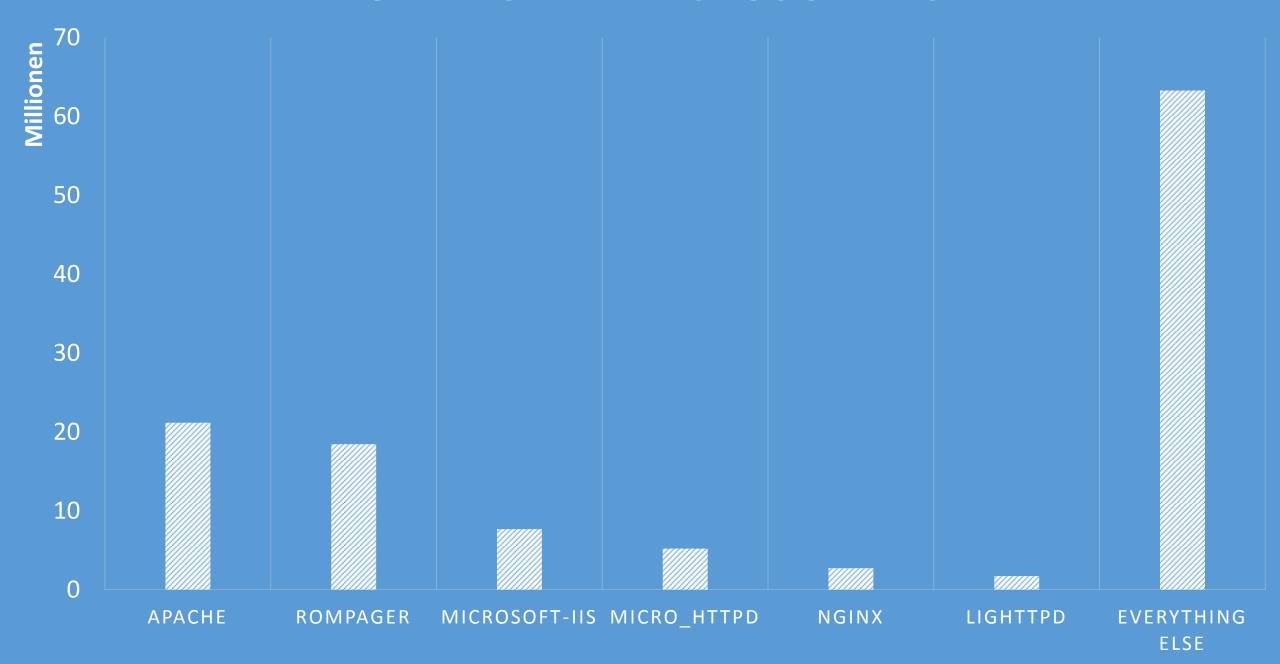
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POPULAR WEBSERVERS VS EVERYTHING ELSE



ROMPAGER > MICROSOFT-IIS



ROMPAGER?!



Internet Software for Embedded Devices

Home Solutions Products Downloads News/Events Company Contact

RomPager® Embedded Web Server Toolkits

Build Web-based device management into your design using Allegro's Embedded Web Server Toolkits

Download Datasheet Information

Description

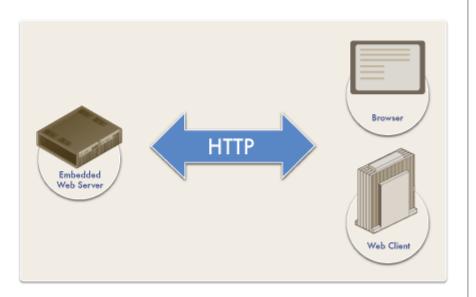
Features/Benefits

Specifications

Options

Embedded Web Server Overview

The RomPager® suite of products enable your engineering team to leverage proven Web-based technologies in your smart, network connected device. For more than fifteen years, Allegro has delivered embedded http server technology to customers worldwide with the RomPager suite of products. Currently deployed in more than 175 million devices shipped to markets around the globe, RomPager is recognized as the most widely used OEM embedded Web server in many diverse products and applications on the market today. Available in three versions (Basic, Standard and Advanced) with an extremely flexible and comprehensive array of features, the RomPager software development toolkits are specifically designed for the embedded market to be compact, efficient, high performance and include features normally found only in enterprise environments.



RomPager Basic

The RomPager Basic Web Server is a basic Hyper Text Transfer Protocol (HTTP)
engine that serves content to browsers and other Web clients. Fully compliant with HTTP 1.0/1.1 specifications, the RomPager Basic Web server offers superior
performance and can be configured to handle thousands of concurrent requests. RomPager Basic also provides access to a high performance CGI-style interface, optional

THE 1% MATTERS

POSTGRESQL CLI VULNERABILITY



Are there any known exploits "in the wild" for this vulnerability?

There were no known exploits at the time of release.

Who is particularly vulnerable because of this issue?

Any system that allows unrestricted access to the PostgreSQL network port, such as users running PostgreSQL on a public cloud, is especially vulnerable. Users whose servers are only accessible on protected internal networks, or who have effective firewalling or other network access restrictions, are less vulnerable.

This is a good general rule for database security: do not allow port access to the database server from untrusted networks unless it is absolutely necessary. This is as true, or more true, of other database systems as it is of PostgreSQL.

What is the nature of the vulnerability?

The vulnerability allows users to use a command-line switch for a PostgreSQL connection intended for single-user recovery mode while PostgreSQL is running in normal, multiuser mode. This can be used to harm the server.

What potential exploits are enabled by this vulnerability?

- Persistent Denial of Service: an unauthenticated attacker may use this vulnerability to cause PostgreSQL error messages to be appended to targeted files in the PostgreSQL data directory on the server. Files corrupted in this way may cause the database server to crash, and to refuse to restart. The database server can be fixed either by editing the files and removing the garbage text, or restoring from backup.
- Configuration Setting Privilege Escalation: in the event that an attacker has a legitimate login on
 the database server, and the server is configured such that this user name and the database
 name are identical (e.g. user web, database web), then this vulnerability may be used to
 temporarily set one configuration variable with the privileges of the superuser.
- Arbitrary Code Execution: if the attacker meets all of the qualifications under 2 above, and has
 the ability to save files to the filesystem as well (even to the tmp directory), then they can use
 the vulnerability to load and execute arbitrary C code. SELinux will prevent this specific type of
 exploit.

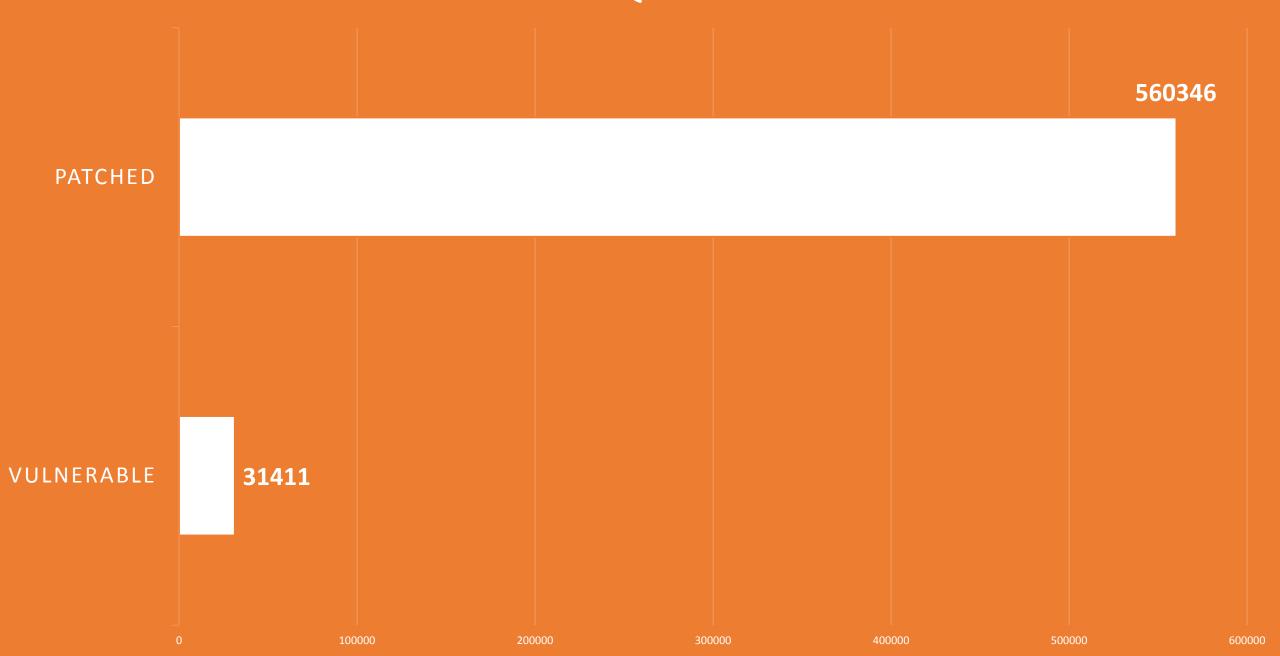
Which major versions of PostgreSQL are affected?

Versions 9.0, 9.1 and 9.2.

Users of version 8.4 are not affected. Users of version 8.3 and earlier are not affected by this issue, but are vulnerable to other unpatched security vulnerabilities, since those versions are EOL.

How can users protect themselves?

POSTGRESQL PATCHING

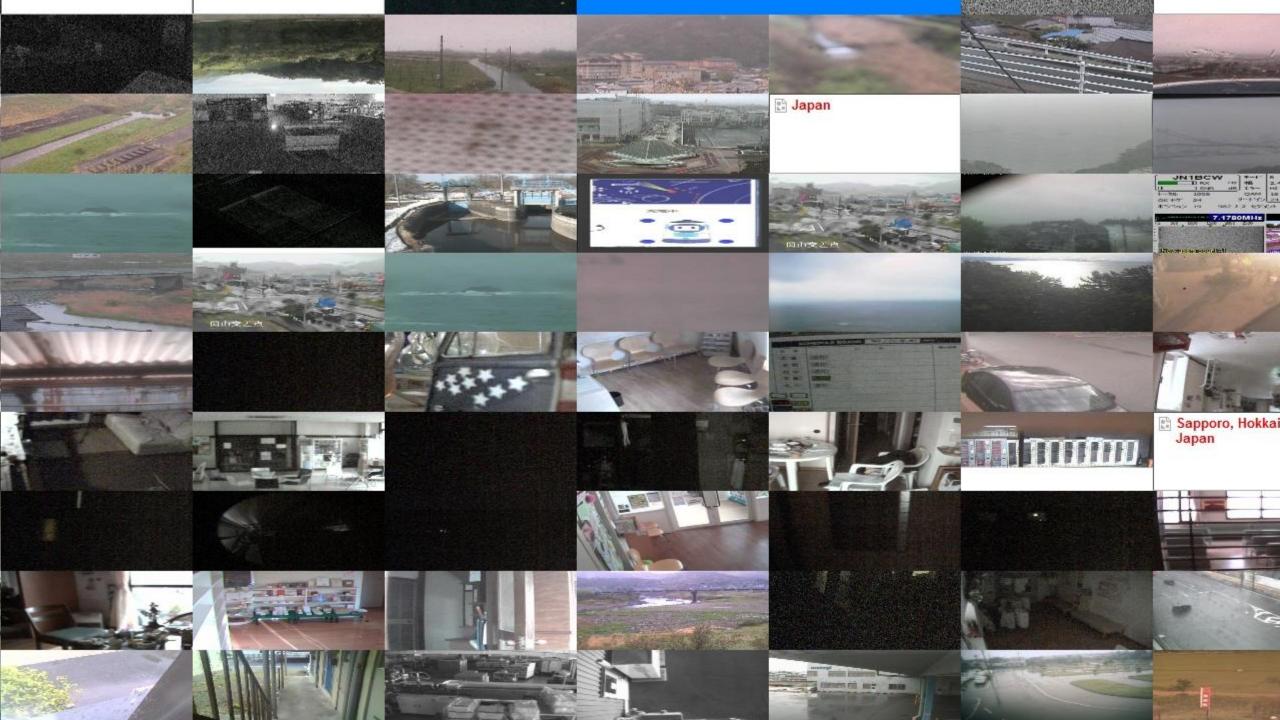






3. CONSUMER DEVICES

MOST POPULAR SEARCH ON SHODAN?







NOT ALL OF THEM PUBLIC BUT

NEWS TECHNOLOGY

Home US & Canada Latin America UK Africa Asia Europe Mid-East Business Health Sci/Environment Tech Entertainment Video

7 February 2012 Last updated at 11:55 ET





Future







Top stories



Syrians flee coastal 'massacres'

Seven Nato troops die in Afghanistan Southern California wildfire spreads Anti-Jewish rally in Hungary capital Dozens killed at Nigeria funeral

Features & Analysis

Trendnet security cam flaw exposes video feeds on net

By Leo Kelion

Technology reporter

Feeds from thousands of Trendnet home security cameras have been breached, allowing any web user to access live footage without needing a password.

Internet addresses which link to the video streams have been posted to a variety of popular messageboard sites.

Users have expressed concern after finding they could view children's bedrooms, among other locations.



One user uploaded a montage of what he said were Trendnet feeds to alert the media to the problem

Related Stories

O2 apology for mobile disclosure

Anti-malware code's spambot flaw

HTML 5 target for cybercriminals

Watch out, Nashville

Tweets of the week

Jason Collins, Jamestown and a

America may have a new music recording capital



Human bait

rasta banana

How villagers catch the flies that cause blindness



Breaking in

Anti-establishment parties challenge EU politics

US-based Trendnet says it is in the process of releasing updates to correct a coding error introduced in 2010.

It said it had emailed customers who had registered affected devices to alert them to the problem.

However, a spokesman told the BBC that "roughly 5%" of purchasers had registered their cameras and it had not yet issued a formal media release HTTP://X.X.X.X/

→ NOT ALLOWED

HTTP://X.X.X/ANONY/MJPG.CGI -> ALLOWED

thetimes-tribune.com

Search site Web search

Enter a search term...

Search

Published: May 1, 2013

HOME NEWS SPORTS LIFESTYLES BUSINESS OPINION CONTACT JOBS CLASSIFIEDS SHOPSCRANTON

NEWS QUIZZES | AGING | GAS DRILLING | ELECTION | NEPA 911 | EDUCATION | OBITUARIES | HEALTH-SCIENCE | LOCAL HISTORY | COURTS STATE

Woman charged with assaulting her 96-year-old mom after captured on web cam

BY JOSEPH KOHUT (STAFF WRITER)

ARTICLE TOOLS

Carolyn James set up a live webcam to keep an eye on her 96-year-old mother.

Someone else was watching, and now the 55-year-old federal probation worker faces assault charges after a stranger recorded her slapping, grabbing and screaming at her mother, who suffers from Alzheimer's and cannot speak.

Ms. James, 231 Lincoln St., Dickson City, was arraigned Tuesday before Magisterial District Judge Terrance V. Gallagher for simple assault, neglect of care for a dependent person and terroristic threats.

Chicago resident Mark Gruss was researching webcams when he stumbled upon the open feed from Ms. James' living room and saw her beat and scream at her mother, Mary Jane James, Assistant District Attorney Suzanne Tierney said.

Horrified, Mr. Gruss recorded part of the abuse, traced the Internet Protocol address to the Scranton area, and contacted local authorities. When the police did not act, he contacted The Times-Tribune. The newspaper contacted the state Department of Aging's elder abuse unit and forwarded



Scranton Daily Deals powered by ReferLocal

LATEST CONTESTS



Dave Matthews Band Trivia

How much do you know about Dave Matthews Band? Take our trivia to find out and you could win tickets to see Dave Matthews Band on May 29 at Toyota

Pavilion!



Win a Family 4 pack to the RailRiders

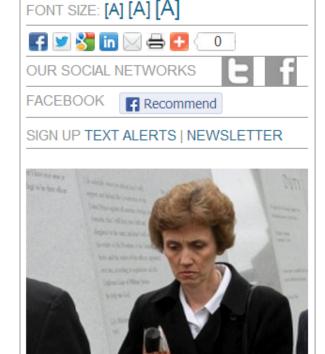
All-Access members exclusive! Register to win a Family 4 pack of tickets to see the RailRiders. Four winners will be chosen

during May.



Register to win tickets to see Dreamgirls

Register to win tickets to see Dreamgirls at the Scranton Cultural Center!



wcvm-vthofficec / 128.233.60.226

HP Color LaserJet 3600

Home

Networking

Device Info Select Language

Device Info

Other Links Help Support

HP Home



Device: HP Color LaserJet 3600

Page Count: 25613

Status: ORDER CYAN CARTRIDGE

Host Name: wcvm-vthofficec
System Up Time: 07h:32m:27s

System Contact: System Location:

HP JetDirect: J7973E Firmware Version: V.30.31

IP Address

Hardware Address: 0014384458EC Admin Password: <Not Set>

Refres



















Backups

Documents

Movies

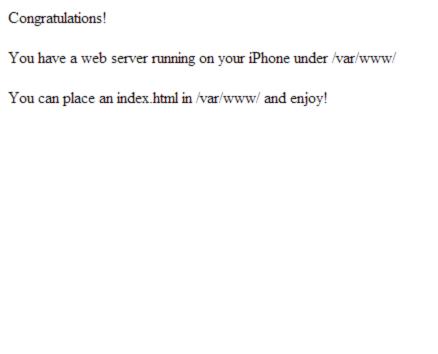
Music

Pictures

TimeMachine



Quick Search



Index of /

Name	Last Modified	Size	Type	
Parent Directory/		-	Directory	
bot/	2011-Dec-21 23:02:21	-	Directory	
orangebox/	2011-Dec-11 05:59:37	-	Directory	
pukiwiki/	2011-Dec-11 05:42:38	-	Directory	
pukiwiki-1.4.7_notb_utf8/	2011-Dec-11 05:42:38	-	Directory	
<u>root</u> /	2011-Dec-22 00:20:54	-	Directory	
041112_orangebox.zip	2011-Dec-11 05:53:19	9.4K	application/zip	
orangebox_utf8.zip	2011-Dec-11 06:14:51	8.6K	application/zip	
phpinfo.php	2010-May-02 13:39:18	0.2K	application/octet-stream	
pukiwiki-1.4.7 notb utf8.zip2011-Dec-11 05:39:33 400.5Kapplication/zip				
sample.html	2010-May-03 09:12:10	0.1K	text/html	
iPhone lighttpd				

Store: 001944

Last Pickup

07:46

Last Update:

UNKNOWN

V3.2



Armor Safe Technologies (800)835-6011 Armor Safe Technologies



Changing the way the world counts cash.

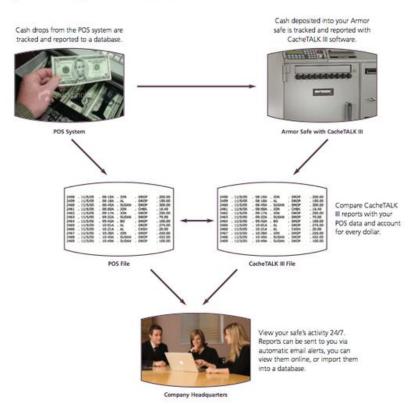
OFTWARE CACHESYSTEM DATA REMOTE ACCESS

Cache SYSTEM

CacheTALK III

Every Armor safe is a complete cash handling solution that promises supreme confidence and peace of mind. With CacheTALK™ III, you don't have to take our word for it-you can view all of the activity in your safe via the internet any time.

Our CacheTALK III software provides complete transparency and accountability between your POS and your safe. Here's how:



CacheSYSTEM

7000 Series

2400 Series

1200 Series

3400 Series

CacheTALK III

CacheCONTROL

CacheNET

5000 Series

Coin Acceptor Unit

Device Dashboard



4. INDUSTRIAL INTERNET

SCADA

SUPERVISORY

CONTROL

AND

DATA

ACQUISITION

AKA STUFF THAT CONTROLS

WATER
POWER
STREET LIGHTS
FACTORIES
BUILDINGS

IN THE BEGINNING, THERE WERE 10,000

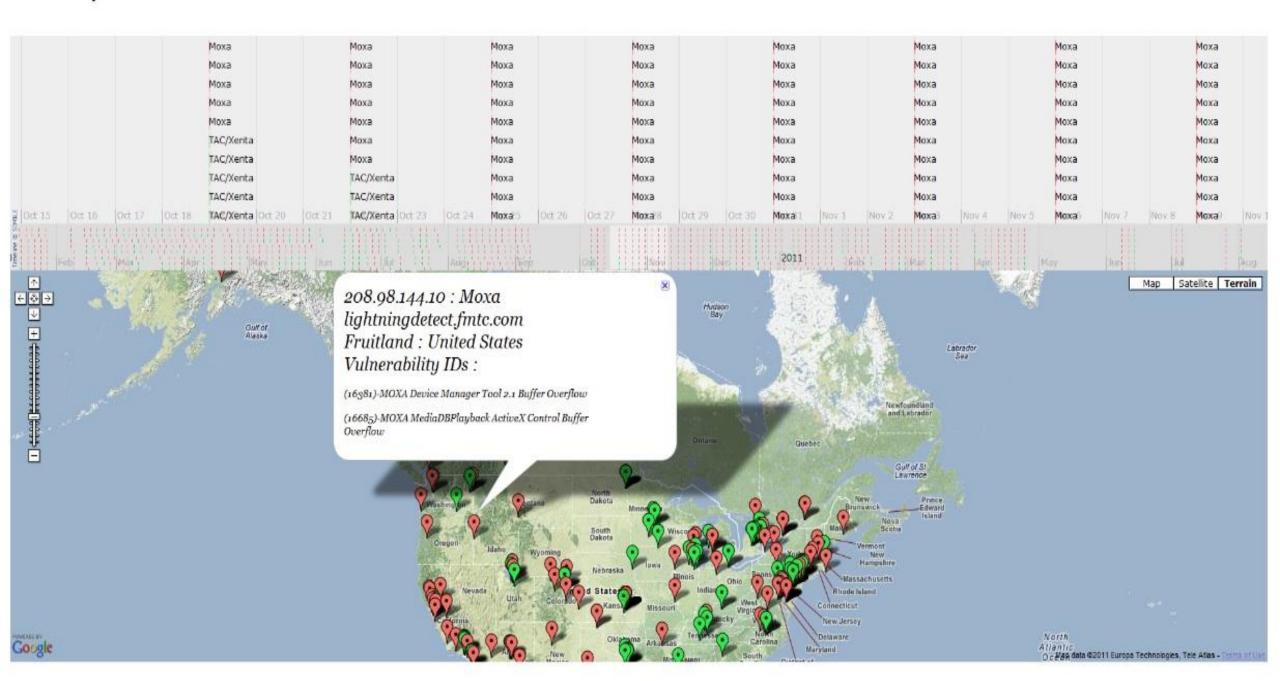
Quantitatively Assessing and Visualising Industrial System Attack Surfaces

Éireann P. Leverett

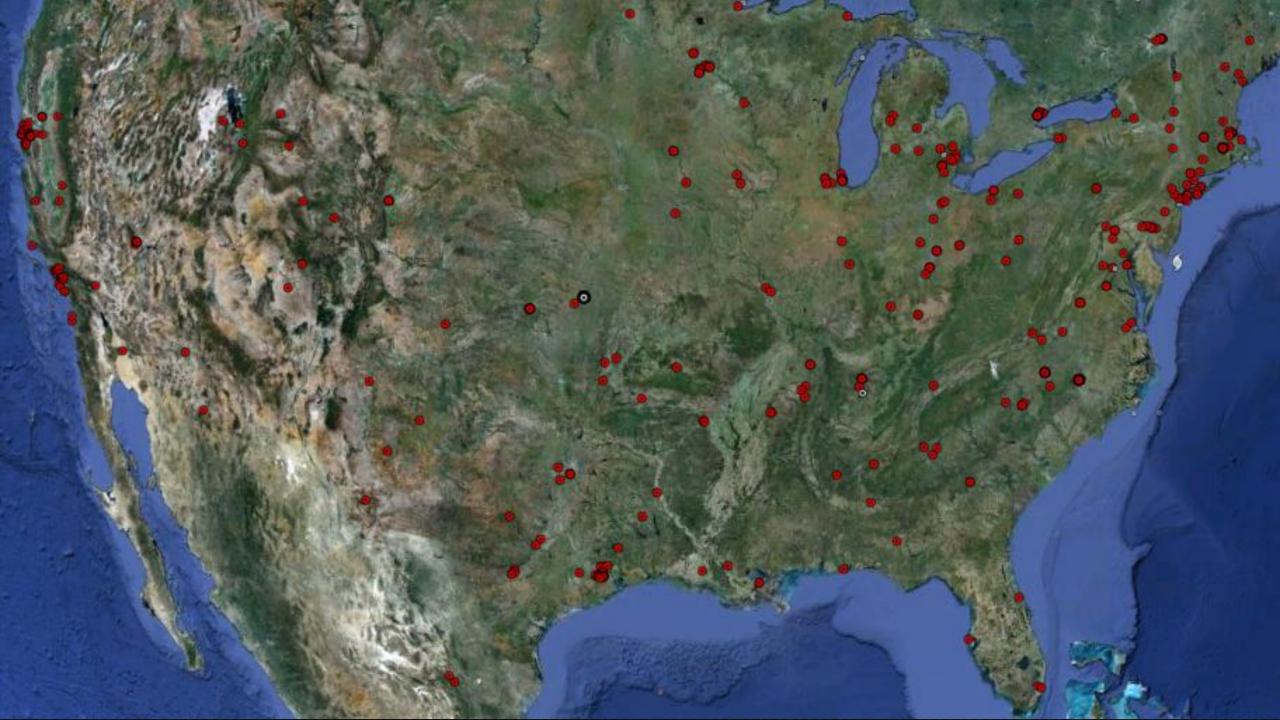


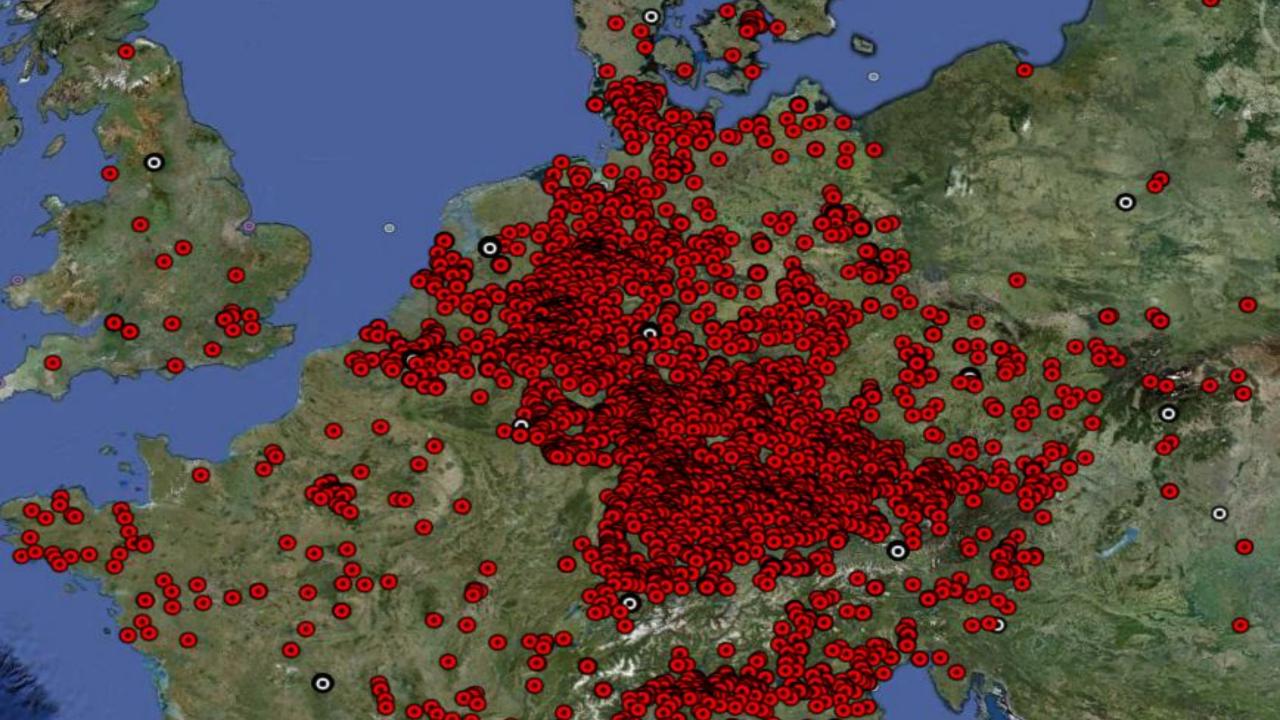


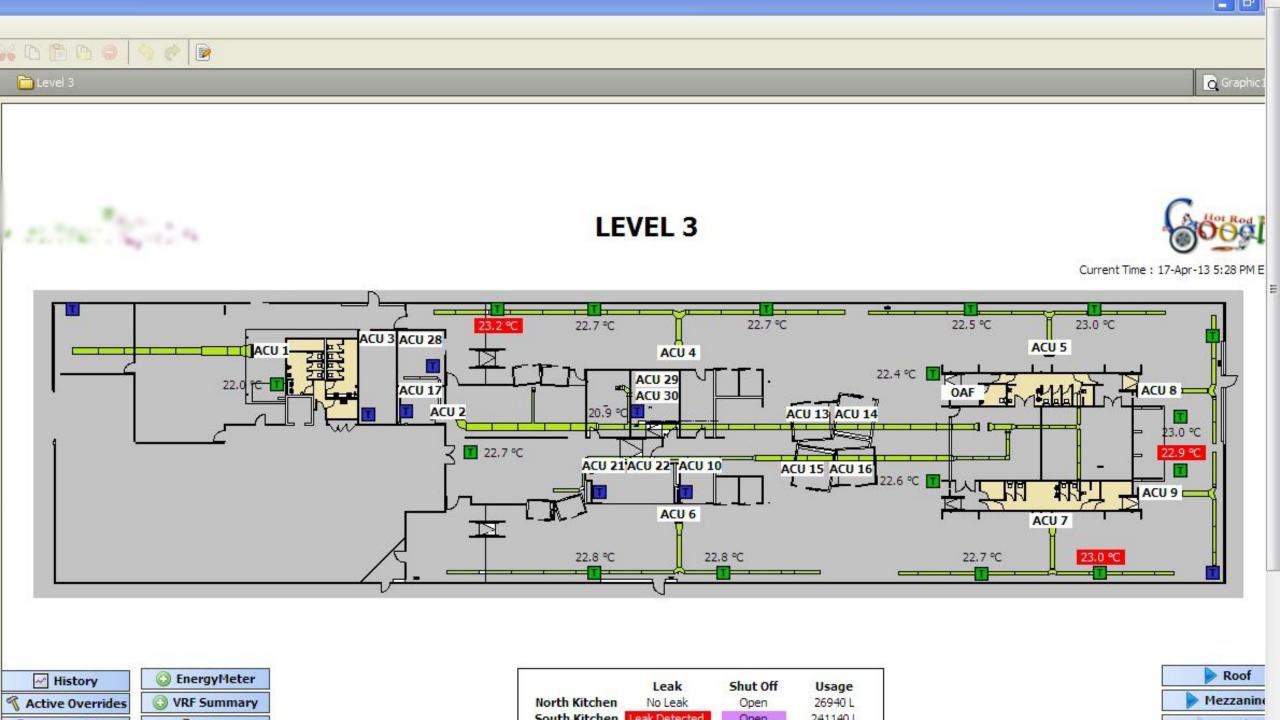
Global Exposure Surface Timeline



PROJECT SHINE RAISED IT TO 500,000





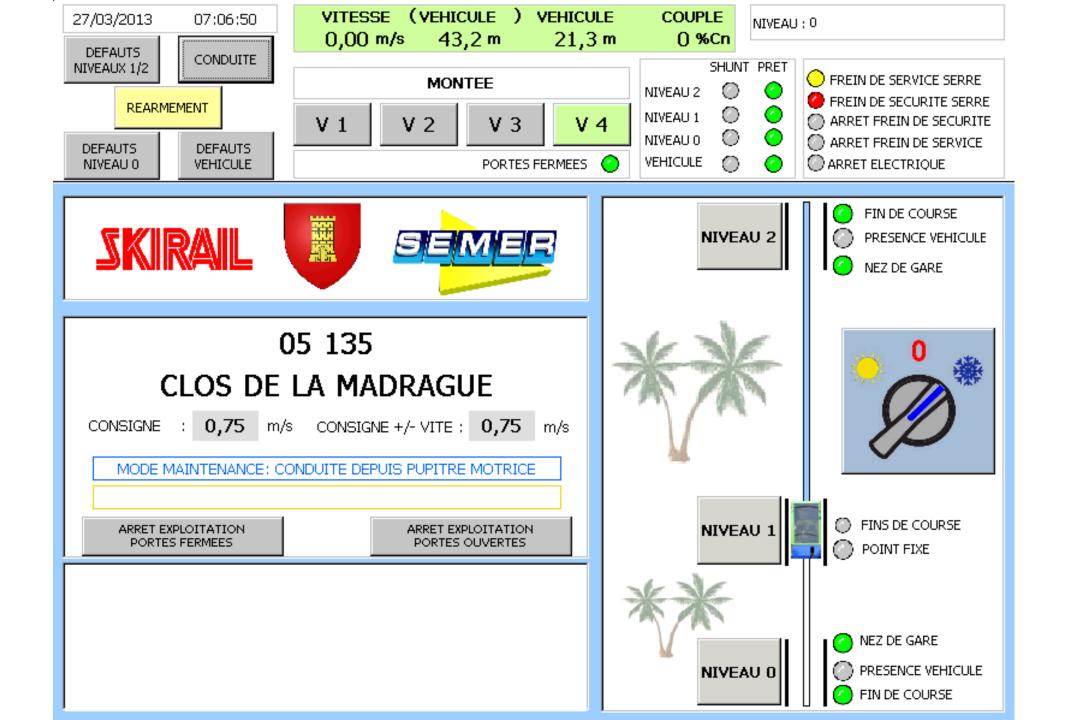




192B

70.40 °F

71.63 °F





3/26/2013 8:35:42 PM

SIMATIC HMI Miniweb on HMI_Panel

Name Passwort <u>Login</u> **Miniweb Start Page**

last update 00:07.53 05.05.2

▶ Start page

▶ Remote Control

▶ Control Functions

System Diagnostics

▶ File Browser

Welcome on HMI_Panel

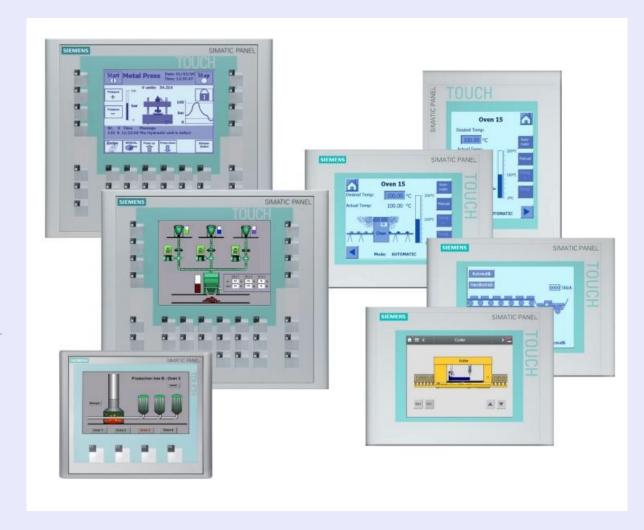
Device Status of HMI_Panel

The runtime is running

General Device Information	
Device Type	TP 177B color PN/DP
Image version	V01.01.02.01_01.09
Bootloader version	1.02
Bootloader release date	16.4.2010
Device Name	HMI_Panel

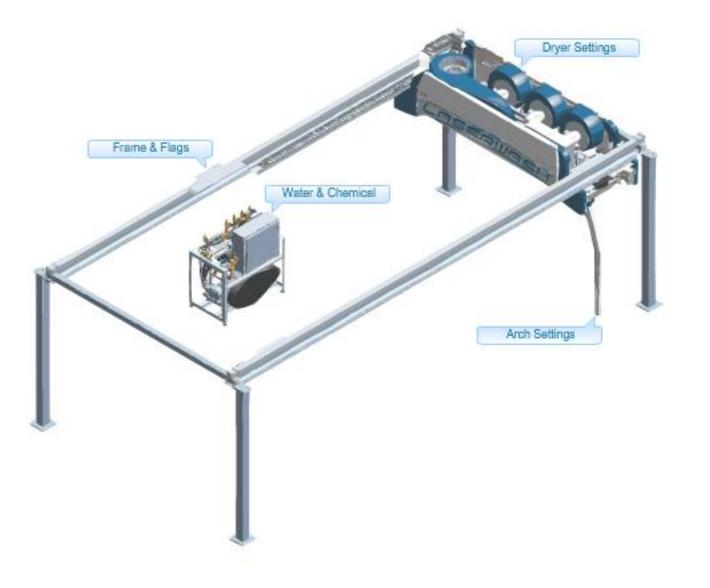
Hint:

When the devicename contains an underscore (_) some browsers have a bug that makes it impossible to log in.
One possible solution may be to use the IP address of the device instead of the name, or to use another browser.



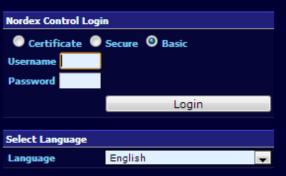
Abort/Recovery Options
Door Settings
Dryer Settings
Freeze Protection
Installed Options
Machine Dimensions
Machine Offsets
Timers
Water and Chemical

Dan Tentler



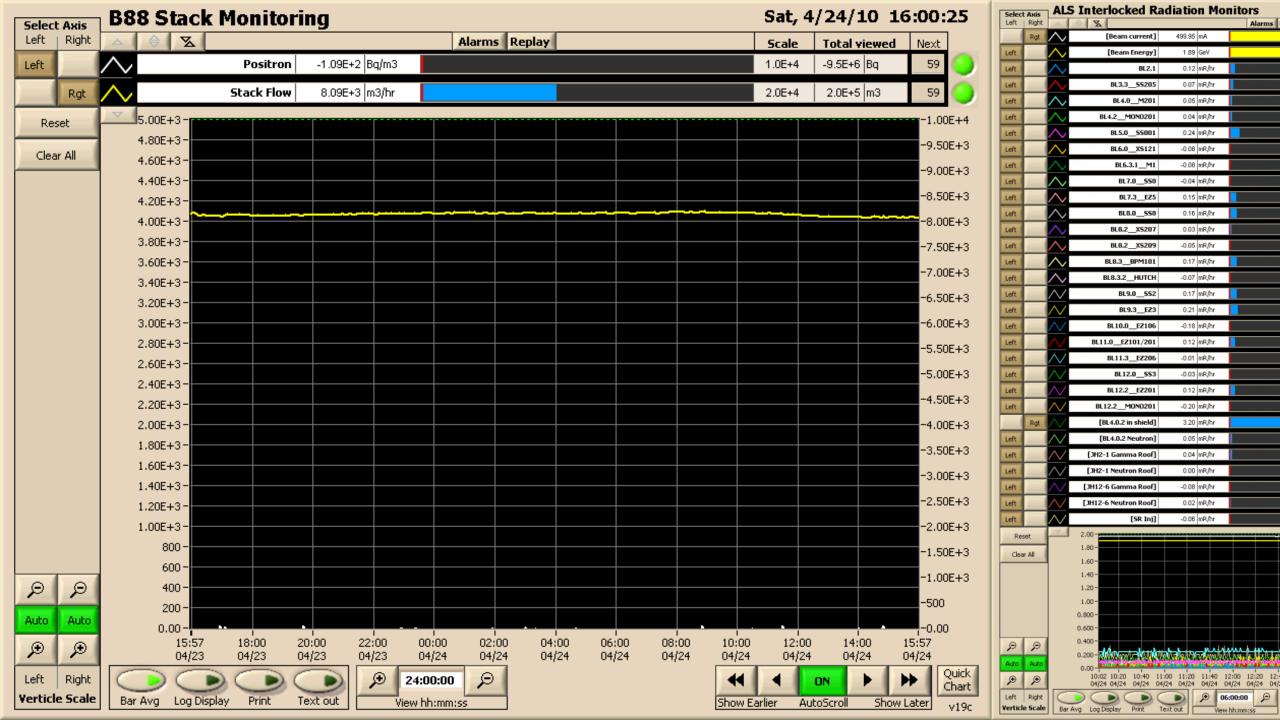


NC2 Wind Farm Portal



Wind Farm Total Summary	
Wind Farm Handover	15.12.2003
Number of Turbines	9 (9)
Total Production	146122.44 MWh
Data Availability	72.37 %
Availability	95.28 %
Capacity Factor	34.67 %
Mean Wind Speed	5.7 m/s





Cyclotron

Search this site

88-Inch Cyclotron

Directory

Schedule

Beam Request

▼ User Info

New User Checklist Safety Training

▼ BASE - Rad Effects

Heavy lons

Protons

Neutrons

Shipping

₩ Ion Sources

VENUS

AECR

ECR

Procedures

Safety

History

Links

Directions

Webmaster

88-Inch Site Visit

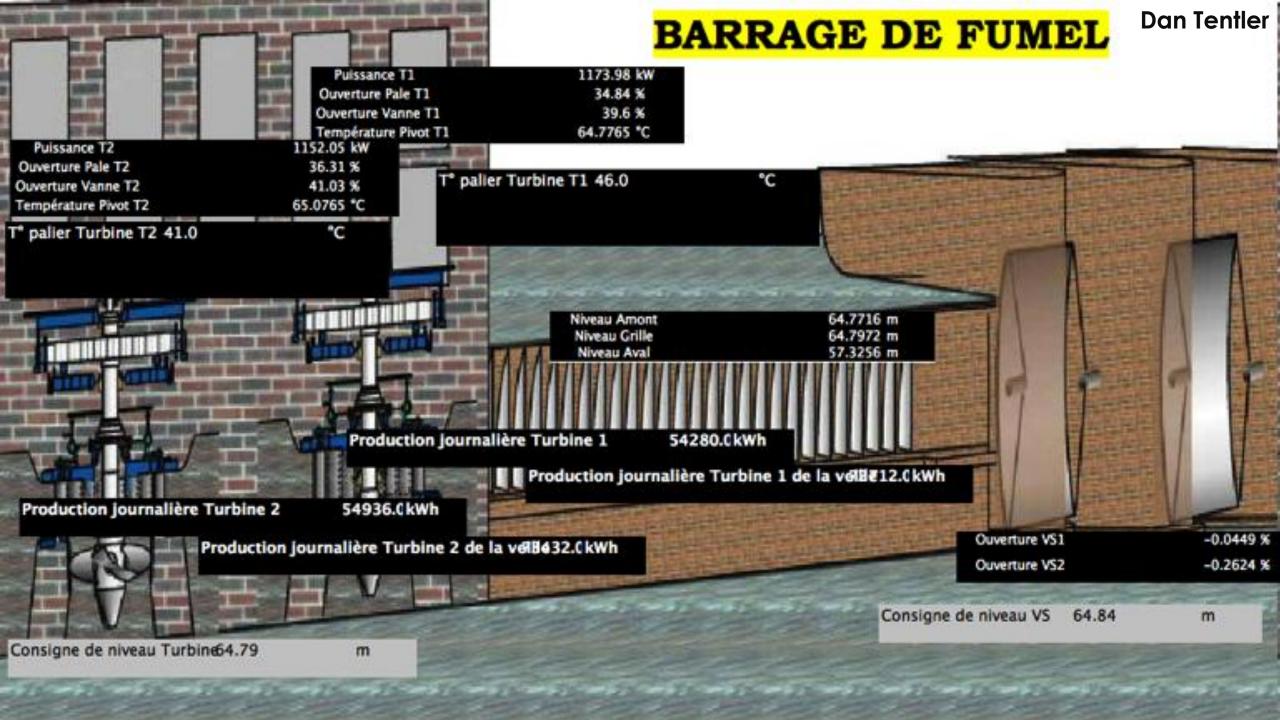
88-Inch Cyclotron



The 88-Inch is a K=140 sector-focused cyclotron with both light- and heavy-ion capabilities. Protons and other light-ions are available at high intensities (10-20 pμA) up to maximum energies of 55 MeV (protons), 65 MeV (deuterons), 170 MeV (3He) and 140 MeV (4He). Most heavy ions through uranium can be accelerated to maximum energies which vary with the mass and charge state.



The 88-Inch Cyclotron supports ongoing research programs in nuclear structure, astrophysics, heavy element studies, fundamental interactions, symmetries, and



POSTED ON 22/01/2008 8:59

ADD A COMMENT

Dam Fumel residents want assurances

A MEETING WAS HELD YESTERDAY IN FUMEL THE FLOODS LAST FRIDAY, IN THE PRESENCE OF ALL PARTIES AND RESIDENTS.

C ow to live next to a dam. Delicate question which rested on Friday when the waters of the dam Fumel began to rise. Quickly. Very quickly. Too fast for riparian ffoles. At that point one of them even got up to 50 inches of water in his house. Some seniors even had "the fear of their lives when some electrical appliances began to crack." How to live next to a dam if you do not know what can happen. Yesterday, a meeting was organized in Fumel in the presence of all the authorities to take stock of the situation. And very soon, it seems that the appearance of criminal acts Friday has passed. This confirmed that the building manager Philippe Gronchi for "energy Fumel": "We fully recognize our responsibility and of course we will draw the consequences. This dam is an old building which dates from 1943, bought the company in 2005 Sogetec. We have already achieved more than 14 million euro investment and probe this issue, because it is a problem of probe will be resolved as soon as possible. " In the audience, listening but we are still angry. "Before, it never happened. There, that's three that we suffer floods in 9 years. You understand that we are tired all the more that we are not and never prevents as soon as the water rises, it is we who call the fire department. In addition, there are many older people who live in fear. We would like this to stop, "said a local resident."

an alarm float

Philippe Gronchi speaks again: "We had a second warning that Sunday has confirmed that this was a concern of the probe. Of course, we will soon be remedied this problem by doubling the particular

IT HAS PASSWORD PROTECTION!

I'M SAFE, RIGHT?

NOT EXACTLY





"An undocumented backdoor account exists within all released versions of RuggedCom's Rugged Operating System (ROS®). The username for the account, which cannot be disabled, is "factory" and its password is dynamically generated based on the device's MAC address."

- Justin Clarke





Rugged Operating System v3.8.0 (Mar 05 2010 08:45) Copyright (c) RuggedCom, 2008 - All rights reserved

system Name:	
ocation:	
Contact:	Contact
Product:	RMC30-HI
Classification:	Controlled
MAC Address:	00-0A-DC-42-48-60
Serial Number:	MC30-0510-11109
Enter User Name:	
Enter Password:	
	LogIn



Shodan -> ICS-CERT -> Owners

WHY ARE THESE THINGS ONLINE?!







Home

E Languages

English French German Italian Spanish

FactoryCast™ BMX NOE 0110

Home Documentation URL

Monitoring Control Diagnostics Maintenance Setup



Copyright @ 1998-2008, Schneider Automation SAS. All Rights Reserved.

Search

4

Solutions

Products & Services

Support

Your Business

Company and Careers

Products

You are here: Home > Products & Services > Products > Web-enabled Solutions > Transparent Ready Automation > FactoryCast Web Server

- Industrial Ethernet Solutions
- Transparent Ready Automation

FactoryCast Gateway

FactoryCast Web Server >

FactoryCast HMI

Web Designer Software

- Transparent Ready Web-Enabled Power and Control
- Transparent Ready Power Distribution Products
- Transparent Ready Lighting Control

Industrial Repair Services

FactoryCast Web Server

An open automation framework based on Internet technologies.

Overview

Seamless communication between plant floor and business systems anywhere in the world!

FactoryCast™ Web Server is a set of industrial Ethernet functions for Premium™ and Quantum™ Ethernet modules, the Momentum™ ENT communication adapter, and enhanced ConneXium™ hubs, switches and transceivers. By exposing information at the source, FactoryCast eliminates proprietary barriers and allows business systems to access production data not just from anywhere on the plant floor, but from anywhere in the world. Its main capabilities include Modbus® TCP/IP for client-server messaging, I/O scanner for handling I/O devices, embedded web services for diagnostics and configuration, and a full set of Internet protocols.

Ideal for production management and other business applications, FactoryCast V3.1 software and firmware incorporate web services that provide a new and efficient way to communicate directly between control level and upper levels.

Publisher-Subscriber protocol

This open standard provides "many to many" deterministic communications, synchronization of distributed applications, global availability of reliable information, automatic discovery and reconfiguration, and optimized traffic load - all without the need for network programming.

Faulty device replacement



4 4

... ALLOWS BUSINESS SYSTEMS TO ACCESS PRODUCTION DATA NOT JUST FROM ANYWHERE ON THE PLANT FLOOR, BUT FROM ANYWHERE IN THE WORLD.

- SCHNEIDER WEBSITE

TERRIBLE DEFAULT CREDENTIALS

WEAK SESSION IDS

SIEMENS SIMATIC

USERNAME: ADMINISTRATOR

PASSWORD: 100

4 4

IF A USER CHANGES THEIR PASSWORD TO A NEW PASSWORD THAT INCLUDES A SPECIAL CHARACTER, THE PASSWORD MAY AUTOMATICALLY BE RESET TO "100"



AUTHENTICATION ALONE != SECURITY

NEXT FRONTIER: MEDICAL DEVICES

AFFORDABLE CARE ACT



GRANNY PODS



Home

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MEDCottage Features

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Distributors

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Dashboard Login 🔻





MEDCottage is a Long-Term Care *Portable* Housing Option for Seniors



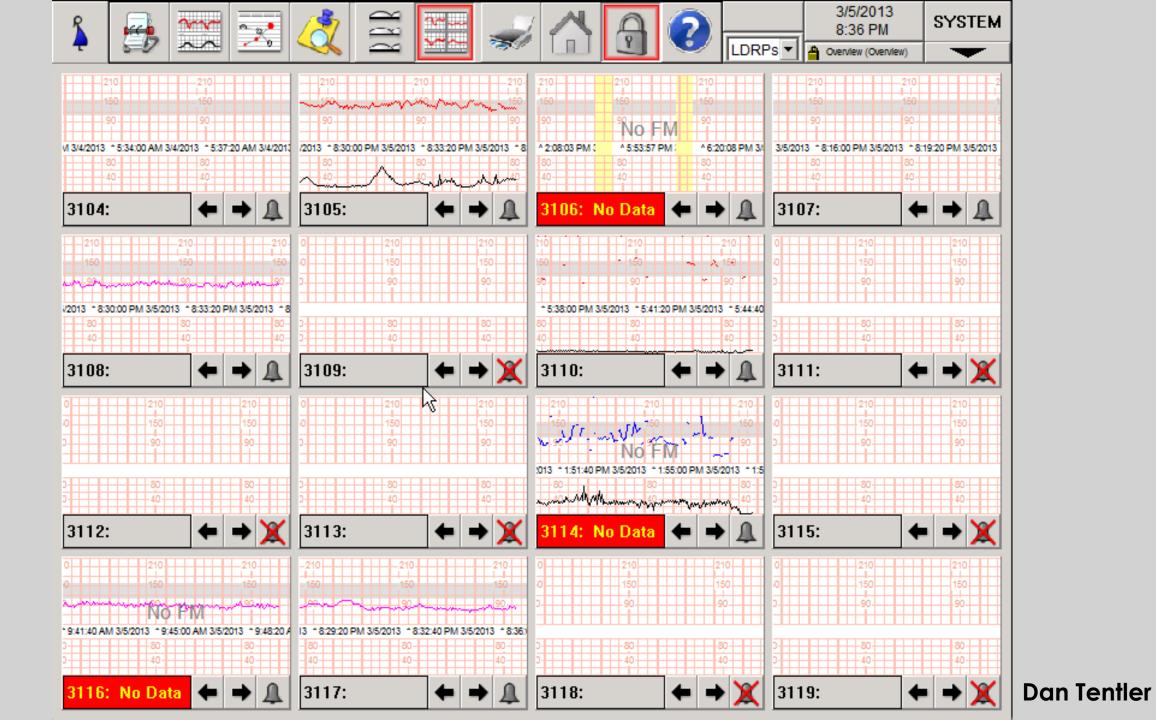
Long Term Care Housing Alternatives

The MEDCottage is a modular building which provides round-the-clock monitoring in a freestanding unit dependent on a caregiver's house. The MEDCottage efficiently combines sleeping, bathing, cooking, and living area in one of three models. A senior or disabled family member can gain some privacy and independence in a setting where state-of-the-

GET MORE INFORMATION ABOUT MEDCOTTAGE

Fill out the form below to request more information about MEDCottage.











Overview Configuration Safety Test Strip

Introducing a breakthrough in blood glucose monitoring.

Hospital professionals have come to rely on the ACCU-CHEK Inform system for accurate point-of-care blood glucose testing.

So we asked what you wanted in a next-generation system. You said a durable meter with real wireless connectivity, more patient ID safeguards, and a test strip with no maltose limitation.

We listened.

The ACCU-CHEK Inform II: the system **you** designed.



HIDAA NIOFATIONS

WRAPPING IT UP

INTERNET IS FILLED WITH THINGS

MANY OF THEM NOT SECURE

GETTING BETTER

STILL IN GROWING PAINS

WATCH WHAT YOU PUT ONLINE!

THANK YOU