PCGenesis: Migration to a Relational Database

GASBO
Augusta, GA
November 3, 2021

Incremental Phased Approach

ADVANTAGES

- Minimize disruption to operations
- Provide transparency
- Quickly adjust to issues arising after a release
- Instill confidence in the project

PCGenesis Upgrade Phases

- DATA Convert old technology flat files to relational database
- Implement data change logging
- Convert Cobol report processes to SQL stored procedures
- Implement new technology user interface for reports only
- Move Cobol processes(FAR/Payroll/CPI) to SQL
- Implement new technology user interface for processes

Phased Approach will:

- Minimize disruption to operations
- Provide transparency
- Quickly adjust to issues arising after a release
- Instill confidence in the PCGenesis upgrade project

PCGenesis DATA storage

CURRENT

 70%: Microfocus Vision Version 3 Indexed Sequential

note:

(Version 3 is no longer supported by Microfocus)

 30% - Microsoft SQL Server Express Relational Database

FUTURE

99% - Microsoft SQL Server
 Express Relational Database

User friendly Screens



Data Conversion Progress

Financial Accounting & Reporting

\FARDATA\FACILITY Completed \FARDATA\BANK * Completed * \FARDATA\NAME * Completed * Completed \FARDATA\ACCOUNT \FARDATA\ACCOUNTG Completed \FARDATA\ACCOUNTR * Completed * * Completed * \FARDATA\SOURCE \FARDATA\VENDOR * Completed * \FARDATA\RECEIPT Completed \FARDATA\RECEIVE * Completed * * Completed * \FARDATA\PO \FARDATA\POPRINT Completed \FARDATA\EXPENSE * Completed * \FARDATA\CHEKMSTR Completed \FARDATA\WXFER * Completed * \FARDATA\ASSET \FARDATA\AUDIT * Completed * \FARDATA\BANKMICR \FARDATA\CLAIMCTL \FARDATA\CONTROL Completed \FARDATA\INVEST \FARDATA\JECONTRL \FARDATA\JEMASTER Completed \FARDATA\MANUALS \FARDATA\MONITOR \FARDATA\PAYSTATE \FARDATA\SNUIFUND

Personnel

\PERDATA\LGROSDAT
\PERDATA\LVADV
\PERDATA\LVCLASS
\PERDATA\LVHIST
\PERDATA\LVSYS
\PERDATA\LVSYS
\PERDATA\PERS
\PERDATA\PROCTL
\PERDATA\ACA1095
\PERDATA\ACA1RSR
\PERDATA\ACAIRSR

Payroll

\PAYDATA\ANNUITY \PAYDATA\BENEDED \PAYDATA\CHEKMSTR \PAYDATA\DATEFL \PAYDATA\DDP \PAYDATA\DEDCTL \PAYDATA\DEDS \PAYDATA\DESC \PAYDATA\DESCA \PAYDATA\DISTRIB \PAYDATA\EMPCHG \PAYDATA\GACOUNTY \PAYDATA\GARVEN \PAYDATA\GROSSDAT \PAYDATA\HISTORY \PAYDATA\MPAYROLL *in progress* \PAYDATA\MSG \PAYDATA\PAYROLL *in progress* \PAYDATA\PAYS \PAYDATA\PAYSTAT \PAYDATA\PDEDUCT \PAYDATA\PREVVOID *in progress* \PAYDATA\PRSTATE \PAYDATA\TAXES

CPI

\CPIDATA\CPIFILE \CPIDATA\CPIPCNTL \CPIDATA\CPIXREF \CPIDATA\DESCTBL \CPIDATA\SALSCHED



Progress by Data Volume

Size	Name	Percent	Status	
504,444,416	AUDIT	54.78%	Completed	
184,410,112	EXPENSE	20.02%	Completed	
85,862,912	HISTORY	9.32%		3 -
54,534,144	DISTRIB	5.92%		
25,662,464	CHEKMSTR	2.79%	Completed	
13,287,936	LVHIST	1.44%		
12,761,088	ACCOUNT	1.39%	Completed	
7,400,448	RECEIPT	0.80%	Completed	
5,036,544	PAYBACK	0.55%		
5,036,544	PAYROLL	0.55%	Completed	
3,949,056	JEMASTER	0.43%	Completed	
3,510,784	RECEIVE	0.38%	Completed	
3,380,736	VENDOR	0.37%	Completed	
2,007,552	PERS	0.22%		
1,584,128	ACCOUNTG	0.17%	Completed	
1,412,608	ACCOUNTR	0.15%	Completed	

About 80% Completed!!



Conversion Timeline

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oject	Project Task	Status	19.01	19.02	19.03	19.04	20.01	20.02	20.03	20.04	21.01	21.02	21.03	21.04	22.01	22.02	22.03	22.04	23.01	23.02	23.03	23.04	24.01	24.02	24.03	03 2
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Project	Project Task	Status	19.01	19.02	19.03	19.04	20.01	20.02	20.03	20.04	21.01	21.02	21.03	21.04	22.01	22.02	22.03	22.0
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Payroll Change Log Feature in Rel 21.01

All additions, changes and deletions to the payroll file will be recorded to a change log that can be reported on.

For example, say you had the following scenario:

- 1. A new employee 5007 is added to the payroll file by user HFF on 2021-10-22 at 12:48:42.403.
- User GGG updates 4 fields: Contract_Gross, Contract_BiWeekly_Amount,
 State_Annual_Amount and Local_Annual_Amount on employee record 5007 on 2021-10-22 at 13:09:08.563.
- User MMM updates: Emp_Status and Primary_Work_Location_Site on 2021-10-25 13:10:28.827.

Employee Number 5007

SUMMARY REPORT

Last_updated_by	last_updated_date	Log_Type	empno	Emp_name
HFF	2021-10-22 12:48:42.360	Record added	5007	KEVIN JONESWORTH
GGG	2021-10-22 13:09:08.543	Record Updated	5007	KEVIN JONESWORTH
MMM	2021-10-25 13:10:28.377	Record Updated	5007	KEVIN JONESWORTH
GGG	2021-10-26 14:05:25.010	Record Updated	5007	KEVIN JONESWORTH

DETAIL REPORT

DETAIL REPORT	- ID	FN-	A-12 T	de la constant de la	Name and Report	oldl
Action_Date_time	userID	EmpNo	Action_Type	Item	New_value	Old_value
2021-10-22 12:48:42.403	HFF	5007	Record added		5007	
2021-10-22 12:48:42.403	HFF	5007	Record added	EmpNO		
2021-10-22 12:48:42.403	HFF	5007	Record added	Emp_Name	KEVIN JONESWORTH	
2021-10-22 12:48:42.403	HFF	5007	Record added	Emp_Status	T	
2021-10-22 12;48:42.403	HFF	5007	Record added	Social_Security_Number	777999444	
2021-10-22 12:48:42.403	HFF	5007	Record added	Name_Last	JONESWORTH	
2021-10-22 12;48:42.403	HFF	5007	Record added	Name_First	KEVIN	
2021-10-22 12:48:42.403	HFF	5007	Record added	Pay_Location_Site	196	
2021-10-22 12;48:42.403	HFF	5007	Record added	Primary_Work_Location_Site	8010	
2021-10-22 12:48:42.403	HFF	5007	Record added	Address_Line1	654 Kensington ST	
2021-10-22 12;48:42.403	HFF	5007	Record added	Address_City_State	SMITH, GA	
2021-10-22 12:48:42.403	HFF	5007	Record added	Address_City	BLUE CITY	
2021-10-22 12;48:42.403	HFF	5007	Record added	Address_State	GA	
2021-10-22 12:48:42.403	HFF	5007	Record added	Contract_Gross	0.00	
2021-10-22 12;48:42.403	HFF	5007	Record added	Contract_BiWeekly_Amount	0.00	
2021-10-22 12:48:42.403	HFF	5007	Record added	State_Annual_Amount	0.00	
2021-10-22 12;48:42.403	HFF	5007	Record added	Local_Annual_Amount	0.00	
2021-10-22 12:48:42.403	HFF	5007	Record added	Other_Annual_Amount	0.00	
2021-10-22 13:09:08.563	GGG	5007	Record Updated			
2021-10-22 13:09:08.563	GGG	5007	Record Updated	Contract_Gross	70000.00	0.00
2021-10-22 13:09:08.563	GGG	5007	Record Updated	Contract_BiWeekly_Amount	7000.00	0.00
2021-10-22 13:09:08.563	GGG	5007	Record Updated	State_Annual_Amount	70000.00	0.00
2021-10-22 13:09:08.563	GGG	5007	Record Updated	Local_Annual_Amount	7000.00	0.00
2021-10-25 13:10:28.827	MMM	5007	Record Updated	*********		
2021-10-25 13:10:28.827	MMM	5007	Record Updated	Emp_Status	А	T
2021-10-25 13:10:28.827	MMM	5007	Record Updated	Primary_Work_Location_Site	196	8010
2021-10-26 14:05:25.410	GGG	5007	Record Updated		======	
2021-10-26 14:05:25.410	GGG	5007	Record Updated	Name_Middle	JAMES	
2021-10-26 14:05:25.410	GGG	5007	Record Updated	Pay_Location_Site	195	196
2021-10-26 14:05:25.410	GGG	5007	Record Updated	Primary_Work_Location_Site	195	196
2021-10-26 14:05:25.410	GGG	5007	Record Updated	Address_City	LAMPING	BLUE CITY
2021-10-26 14:05:25.410	GGG	5007	Record Updated	GHI_Eligible_Flag	Υ	N
2021-10-26 14:05:25.410	GGG	5007	Record Updated	GHI_1st_Day_Work_Date	05/24/2021	
2021-10-26 14:05:25.410	GGG	5007	Record Updated	GHI_Coverage_Effective_Date	09/30/2021	

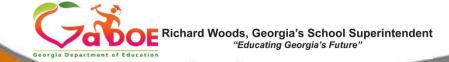
user GGG

SUMMARY

Last_updated_by	last_updated_date	Log_Type	empno	Emp_name
GGG	2021-10-22 13:09:08.130	Record Updated	5006	MARLA MILTON
GGG	2021-10-22 13:09:08.543	Record Updated	5007	KEVIN JONESWORTH
GGG	2021-10-26 14:05:25.010	Record Updated	5007	KEVIN JONESWORTH

DETAIL REPORT

Action_Date_time	userID	EmpNo	Action_Type	Item	New_value	Old_value
2021-10-22 13:09:08.537	GGG	5006	Record Updated	========		
2021-10-22 13:09:08.537	GGG	5006	Record Updated	Address_Line1	2 EAVES DRIVE	270 Burlee ST
2021-10-22 13:09:08.537	GGG	5006	Record Updated	Contract_Gross	60000.00	0.00
2021-10-22 13:09:08.537	GGG	5006	Record Updated	Contract_BiWeekly_Amount	6000.10	0.00
2021-10-22 13:09:08.537	GGG	5006	Record Updated	State_Annual_Amount	60000.00	0.00
2021-10-22 13:09:08.537	GGG	5006	Record Updated	Local_Annual_Amount	5900.50	0.00
2021-10-22 13:09:08.563	GGG	5007	Record Updated	.=======:		
2021-10-22 13:09:08.563	GGG	5007	Record Updated	Contract_Gross	70000.00	0.00
2021-10-22 13:09:08.563	GGG	5007	Record Updated	Contract_BiWeekly_Amount	7000.00	0.00
2021-10-22 13:09:08.563	GGG	5007	Record Updated	State_Annual_Amount	70000.00	0.00
2021-10-22 13:09:08.563	GGG	5007	Record Updated	Local_Annual_Amount	7000.00	0.00
2021-10-26 14:05:25.410	GGG	5007	Record Updated		======	
2021-10-26 14:05:25.410	GGG	5007	Record Updated	Name_Middle	JAMES	
2021-10-26 14:05:25.410	GGG	5007	Record Updated	Pay_Location_Site	195	196
2021-10-26 14:05:25.410	GGG	5007	Record Updated	Primary_Work_Location_Site	195	196
2021-10-26 14:05:25.410	GGG	5007	Record Updated	Address_City	LAMPING	BLUE CITY
2021-10-26 14:05:25.410	GGG	5007	Record Updated	GHI_Eligible_Flag	Υ	N
2021-10-26 14:05:25.410	GGG	5007	Record Updated	GHI_1st_Day_Work_Date	05/24/2021	
2021-10-26 14:05:25.410	GGG	5007	Record Updated	GHI_Coverage_Effective_Date	09/30/2021	



Changes made after

SUMMARY REPORT

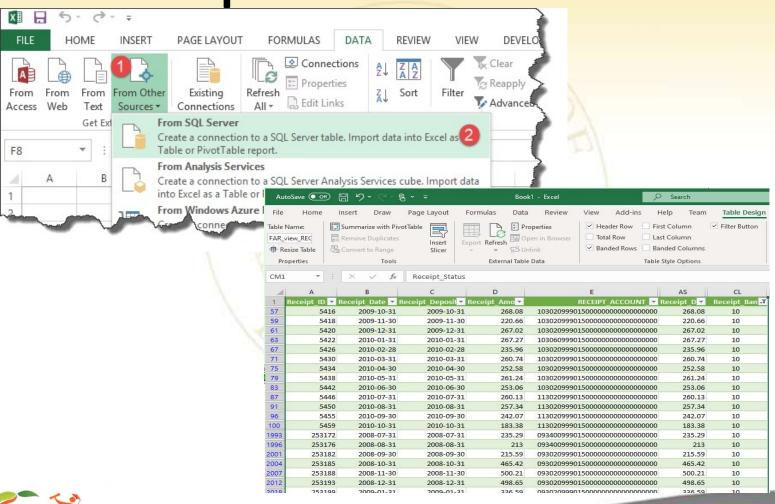
2021-10-22 12:59:44.613

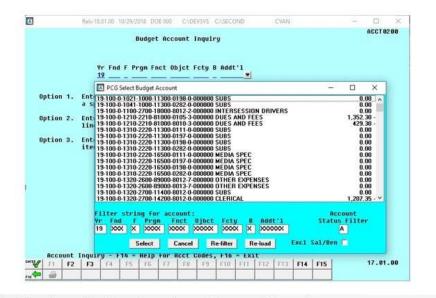
Last_updated_by	last_updated_date	Log_Type	empno	Emp_name
RTR	2021-10-22 12:59:44.613	Record Updated	5008	DENNIS DUFFIE
GGG	2021-10-22 13:09:08.130	Record Updated	5006	MARLA MILTON
GGG	2021-10-22 13:09:08.543	Record Updated	5007	KEVIN JONESWORTH
Ш	2021-10-22 13:09:08.567	Record Updated	5008	DENNIS DUFFIE
MMM	2021-10-22 13:44:03.423	Record Updated	5008	DENNIS DUFFIE
MMM	2021-10-25 13:10:28.377	Record Updated	5007	KEVIN JONESWORTH
GGG	2021-10-26 14:05:25.010	Record Updated	5007	KEVIN JONESWORTH

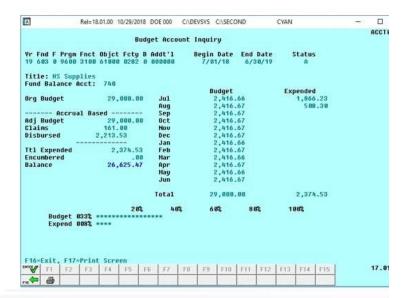
DETAIL REPORT

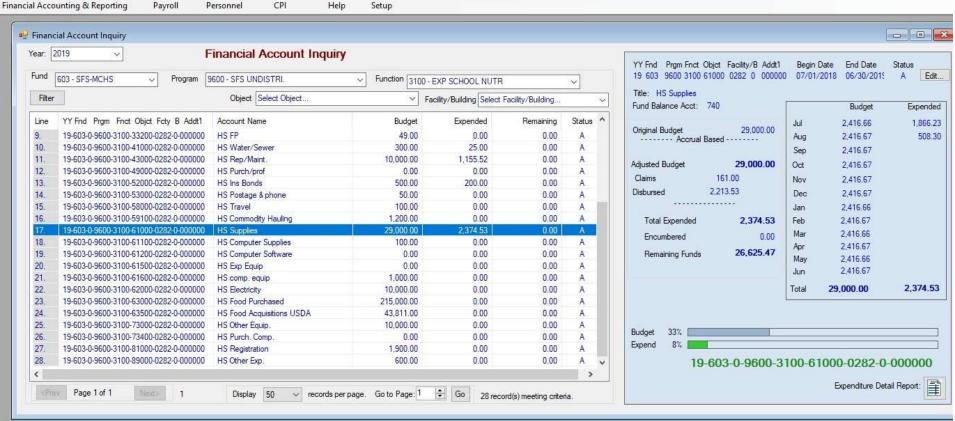
Action_Date_time	userID	EmpNo	Action_Type	Item	New_value	Old_value
2021-10-22 12:59:45.083	RTR	5008	Record Updated	========		
2021-10-22 12:59:45.083	RTR	5008	Record Updated	Telephone_Number	4047773333	4042223333
2021-10-22 13:09:08.537	GGG	5006	Record Updated	========		
2021-10-22 13:09:08.537	GGG	5006	Record Updated	Address_Line1	2 EAVES DRIVE	270 Burlee ST
2021-10-22 13:09:08.537	GGG	5006	Record Updated	Contract_Gross	60000.00	0.00
2021-10-22 13:09:08.537	GGG	5006	Record Updated	Contract_BiWeekly_Amount	6000.10	0.00
2021-10-22 13:09:08.537	GGG	5006	Record Updated	State_Annual_Amount	60000.00	0.00
2021-10-22 13:09:08.537	GGG	5006	Record Updated	Local_Annual_Amount	5900.50	0.00
2021-10-22 13:09:08.563	GGG	5007	Record Updated	========	_======	_=======
2021-10-22 13:09:08.563	GGG	5007	Record Updated	Contract_Gross	70000.00	0.00
2021-10-22 13:09:08.563	GGG	5007	Record Updated	Contract_BiWeekly_Amount	7000.00	0.00
2021-10-22 13:09:08.563	GGG	5007	Record Updated	State_Annual_Amount	70000.00	0.00
2021-10-22 13:09:08.563	GGG	5007	Record Updated	Local_Annual_Amount	7000.00	0.00
2021-10-22 13:09:08.590	ш	5008	Record Updated	=======		
2021-10-22 13:09:08.590	ш	5008	Record Updated	Contract_Gross	54000.00	0.00
2021-10-22 13:09:08.590	ш	5008	Record Updated	Contract_BiWeekly_Amount	51000.00	0.00
2021-10-22 13:09:08.590	ш	5008	Record Updated	State_Annual_Amount	5000.00	0.00
2021-10-22 13:44:03.850	MMM	5008	Record Updated			========
2021-10-22 13:44:03.850	MMM	5008	Record Updated	State_Annual_Amount	5200.00	5000.00
2021-10-25 13:10:28.827	MMM	5007	Record Updated		######################################	
2021-10-25 13:10:28.827	MMM	5007	Record Updated	Emp_Status	Α	T
2021-10-25 13:10:28.827	MMM	5007	Record Updated	Primary_Work_Location_Site	196	8010
2021-10-26 14:05:25.410	GGG	5007	Record Updated			
2021-10-26 14:05:25.410	GGG	5007	Record Updated	Name_Middle	JAMES	
2021-10-26 14:05:25.410	GGG	5007	Record Updated	Pay_Location_Site	195	196
2021-10-26 14:05:25.410	GGG	5007	Record Updated	Primary_Work_Location_Site	195	196
2021-10-26 14:05:25.410	GGG	5007	Record Updated	Address_City	LAMPING	BLUE CITY
2021-10-26 14:05:25.410	GGG	5007	Record Updated	GHI_Eligible_Flag	Υ	N
2021-10-26 14:05:25.410	GGG	5007	Record Updated	GHI_1st_Day_Work_Date	05/24/2021	
2021-10-26 14:05:25.410	GGG	5007	Record Updated	GHI Coverage Effective Date	09/30/2021	

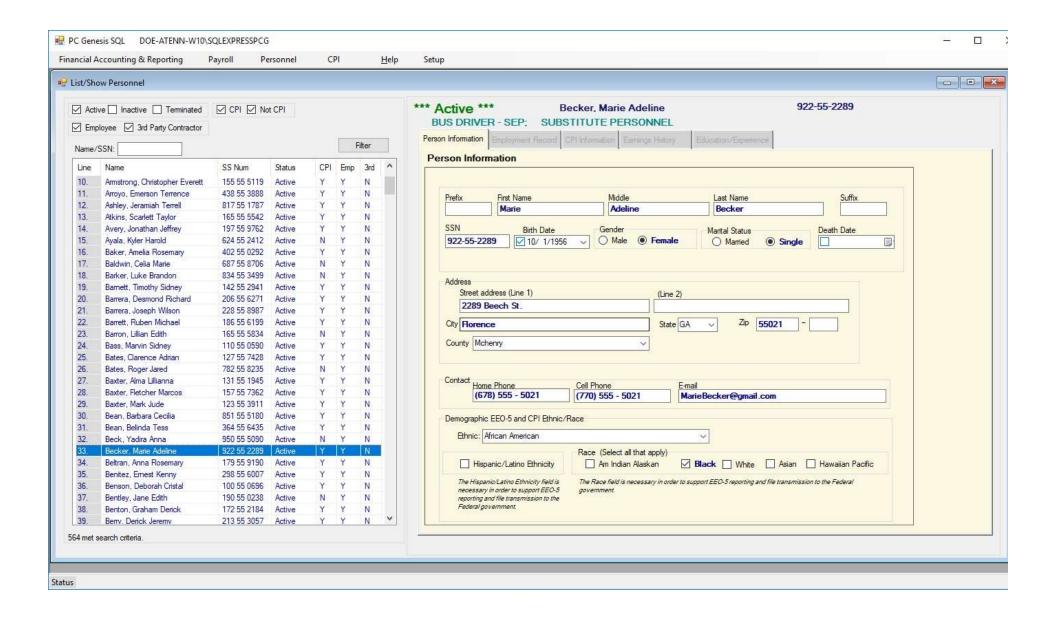
Benefit of Data Conversion – Ability to import PCG data to excel



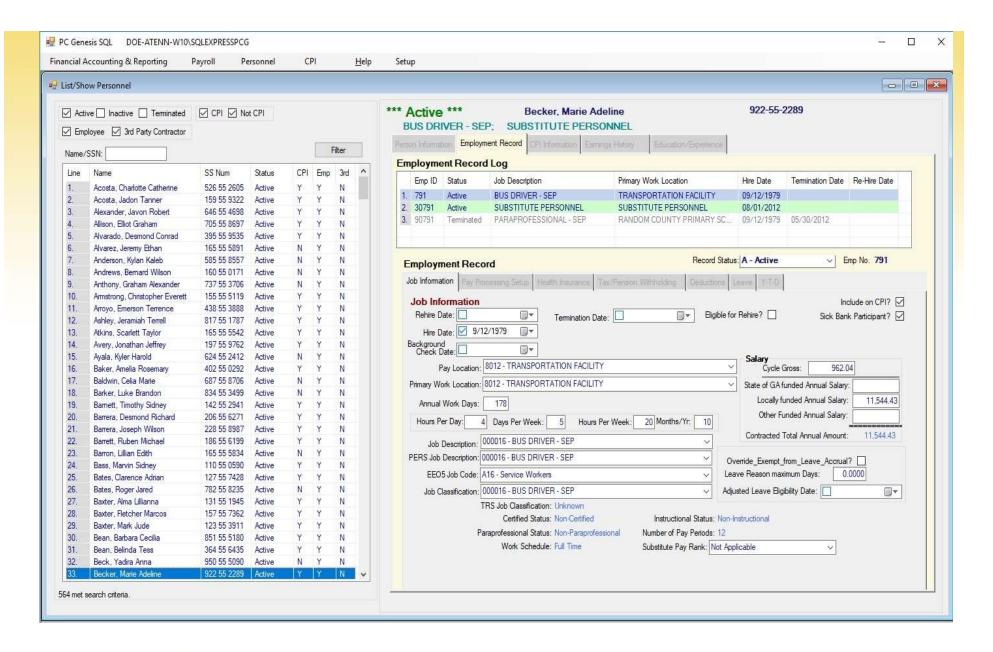


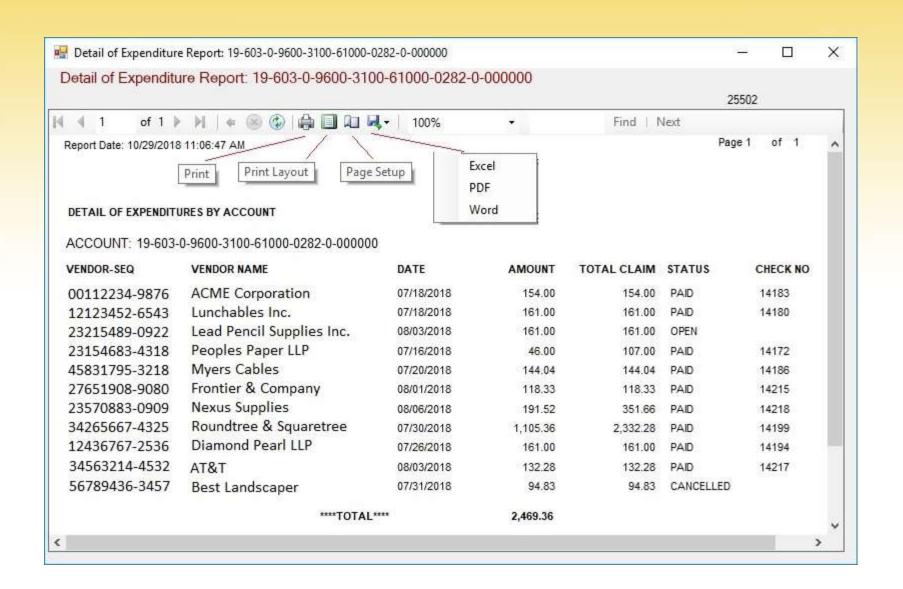












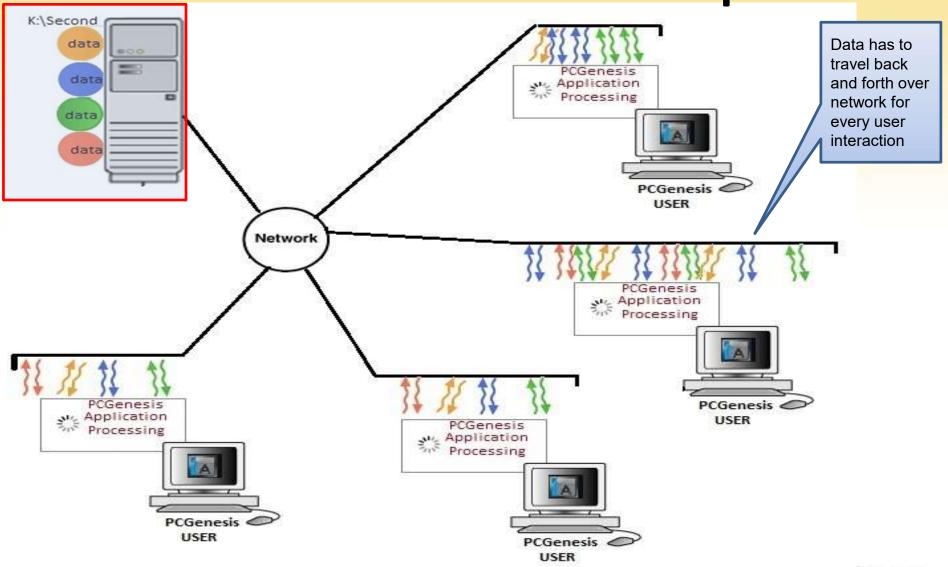


Site Recommendations

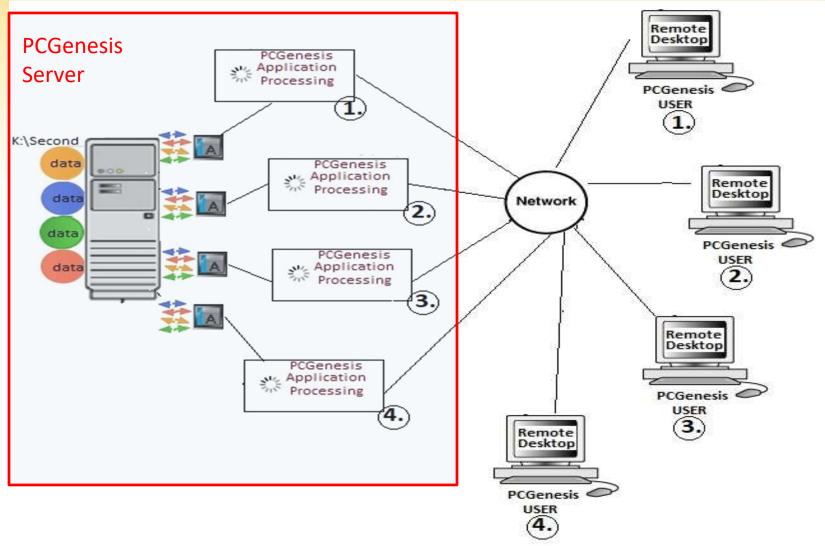
- Upgrade any server > 5 years old
- Implement Remote Desktop access !!!!
- Weekly full system backup of K:*.* (Retain 3 weeks)
- Daily backup of data (K:\SECOND and K:\PCGSQLDB) to CD/DVD/USB (Retain for 1 month)



PCGenesis run on User Computer



PCGenesis through Remote Desktop



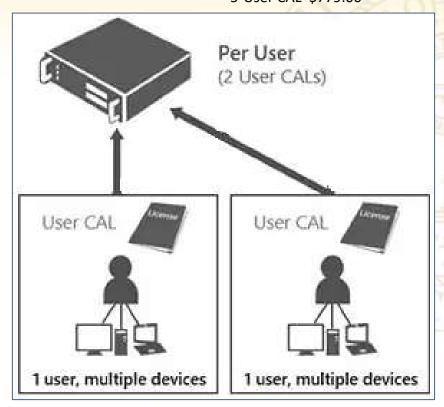
Remote Desktop Licensing

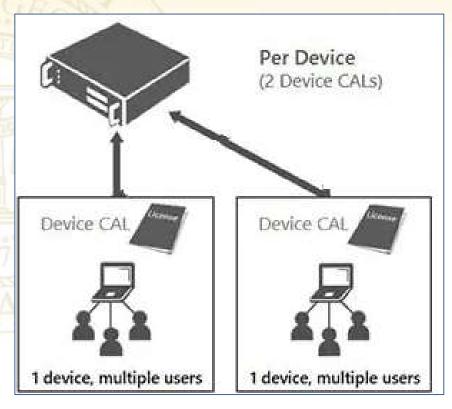
Client Access License (CAL)

based on user

1-User CAL \$199.00 5-User CAL \$779.00

based on device







Ransomware

What is ransomware?

Ransom malware, or ransomware, is a type of malware that prevents users from accessing their system or personal files and demands ransom payment in order to regain access.

How do you get ransomware?

The most common method today is through malicious spam, or malspam, which is unsolicited email that is used to deliver malware.

The email might include boobytrapped attachments, such as PDFs or Word documents. It might also contain links to malicious websites.

How do you get ransomware?

Transferred from connected devices

If Windows malware is on the smartphone, you plug it into your computer, and autorun is running, the Windows-based malware could start running and infect your machine.

Do not charge your devices using your USB port.



Encrypting Ransomware

This is the one we have been seeing in our districts. The perpetrators snatch up your files and encrypt them, demanding payment in order to decrypt and redeliver. The reason why this type of ransomware is so dangerous is because once cybercriminals get ahold of your files, no security software or system restore can return them to you.

Unless you contact the cybercriminals and pay the ransom, they're gone. Even if you pay them, there is no guarantee will give you those files back.

Who do ransomware authors target?

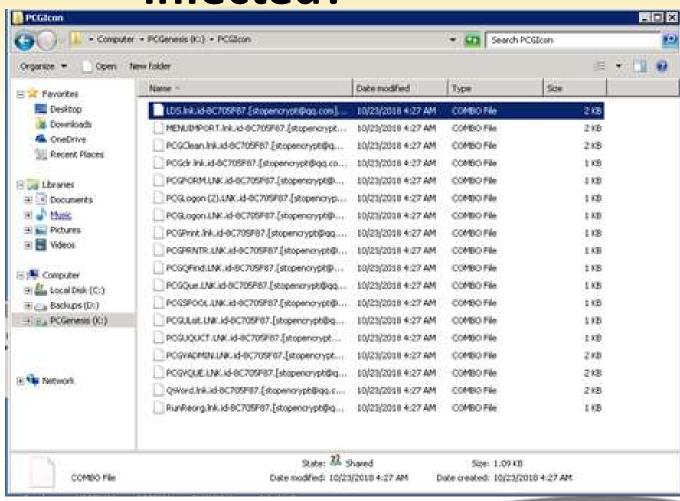
When ransomware was first unleashed, its initial victims were sent to the general public.

However, they began to realize its full potential when they rolled out ransomware to businesses and now public institutions, such as school districts. Multiple Georgia districts have already been hit.



How do you know if you have been infected?

Filenames will all be changed, nothing works and everything you click sends you to a website announcing to fix your files for a fee.



What to do if infected?

The number one rule if you find yourself infected with ransomware is to **never pay the ransom**. (This is now advice endorsed by the FBI.)

Nothing on a computer exposed to ransomware can be trusted. The computer must be completely reformatted.



How to recover from a ransomware attack

- Due to multiple attacks, we now can advise districts on streamlining the recovery effort.
- If you see your PCGicon folder files looking distorted, you have been infected. The entire PCGenesis server has been compromised and must be reformatted. Nothing on this server should be trusted.
- Please contact the DOE immediately for instructions on moving forward in the event of a ransomware attack.



How to protect from ransomware

- Create secure daily backups of your PCGenesis data to a new thumb drive and label with date and time.
- Invest in cybersecurity—a program with real-time protection that's
 designed to thwart advanced malware attacks such as ransomware. You
 should also look out for features that will both shield vulnerable programs
 from threats (an anti-exploit technology) as well as block ransomware
 from holding files hostage (an anti-ransomware component).

Be sure your systems and software are updated. The WannaCry ransomware outbreak took advantage of a vulnerability in Microsoft software. While the company had released a patch for the security loophole back in March 2017, many folks didn't install the update—which left them open to attack.

We recommend changing your settings to enable automatic updating.

Backing up PCGenesis data files

		BACKUP GUIDELINES
1	Step	Action
	1	Include a full backup of K :*.* in the site's standard server backup process Recommend full backup of K :*.* every night if possible Minimum of one full backup of K :*.* every week Retain at least 4 weeks of K :*.* (Required)
	2	Daily backup of K:\SECOND*.* and K:\PCGSQLdb*.* (Required) • Use of CD, DVD, or USB is recommended • Nightly backup following each work day • Nightly media may remain under control of PCG administrator • Proper security and offsite storage measures (Required) • Retain daily backups of K:\SECOND*.* and K:\PCGSQLdb*.* for 4 weeks (Required) • Retain one daily backup each month of K:\SECOND*.* and K:\PCGSQLdb*.* for 4 (Required)
	3	PCGenesis data is <u>split</u> between files contained in the directory K:\SECOND and the SQL Server database tables located in K:\PCGSQLdb . Therefore, it is very important to backup K:\PCGSQLdb*.* and K:\SECOND*.* during the nightly backup. One directory cannot be backed up without the other directory, and they must be maintained together.

Thumb drives now can hold up to a terrabyte of data.

You can get multi packs of thumb drives cheaply eg 10 pack of 16 gig each for \$30



Thank you for attending!

