



Covestro NV

Centraal laboratorium

NuGenesis SDMS

Version 8.0.0.21 SR-2

*W Bogaerts, A Verbueken
KVCV 26 november 2015
Grobbendonk*

covestro.com

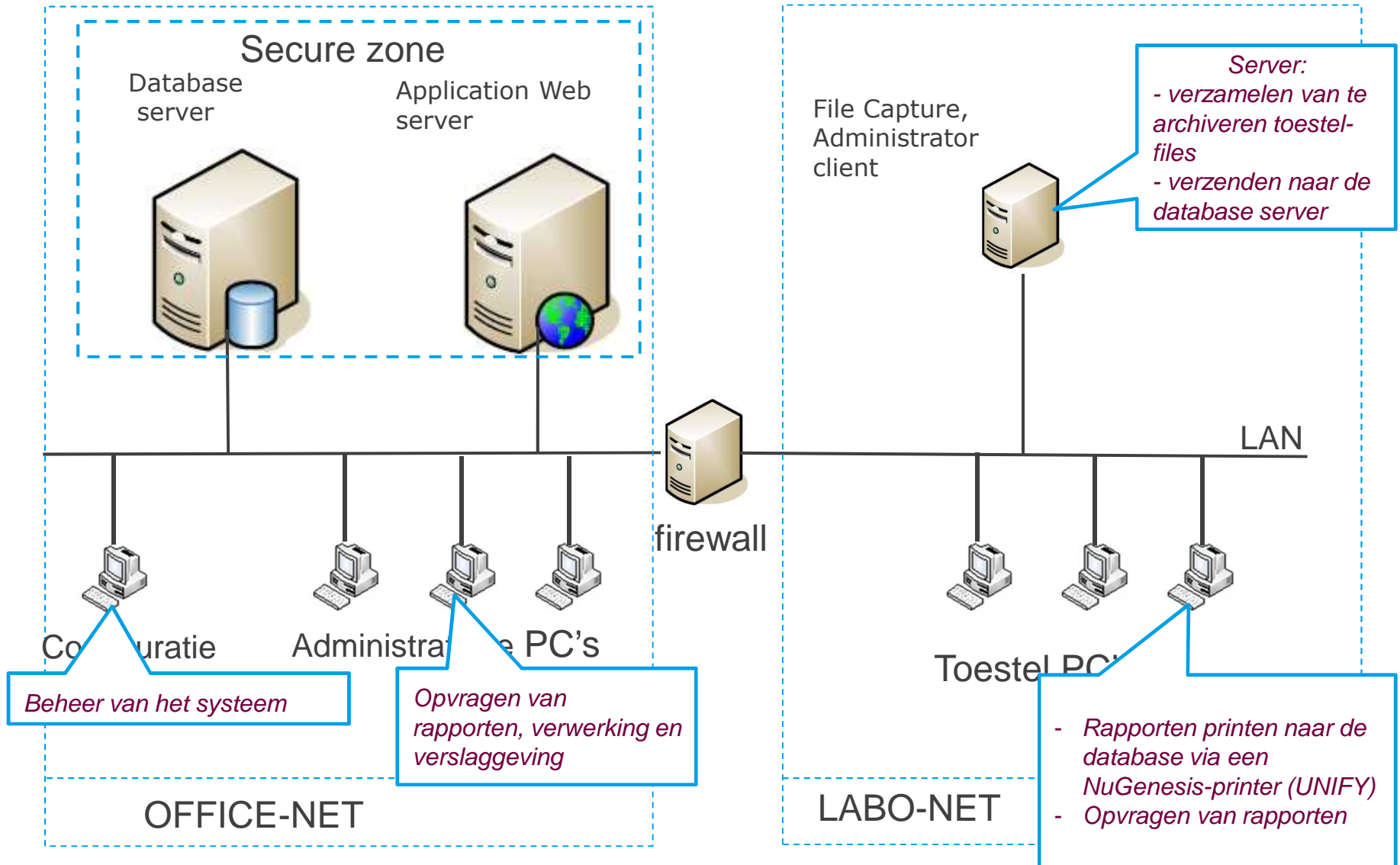
NuGenesis SDMS

- opbouw
- rapportering
- archivering
- visualisatie





Opbouw: hardware components





Rapportering

Printen vanuit een toestel gebeurt via een geïnstalleerde NG printer (**UNIFY**).

Deze UNIFY-printer is in staat om inhoud van een rapport op te halen en dit in zoekvelden in te vullen (om later eenvoudig rapporten terug te vinden). Ook wordt “vaste” informatie van het rapport meegegeven (filenaam – filepath – datum – PC identificatie -....).

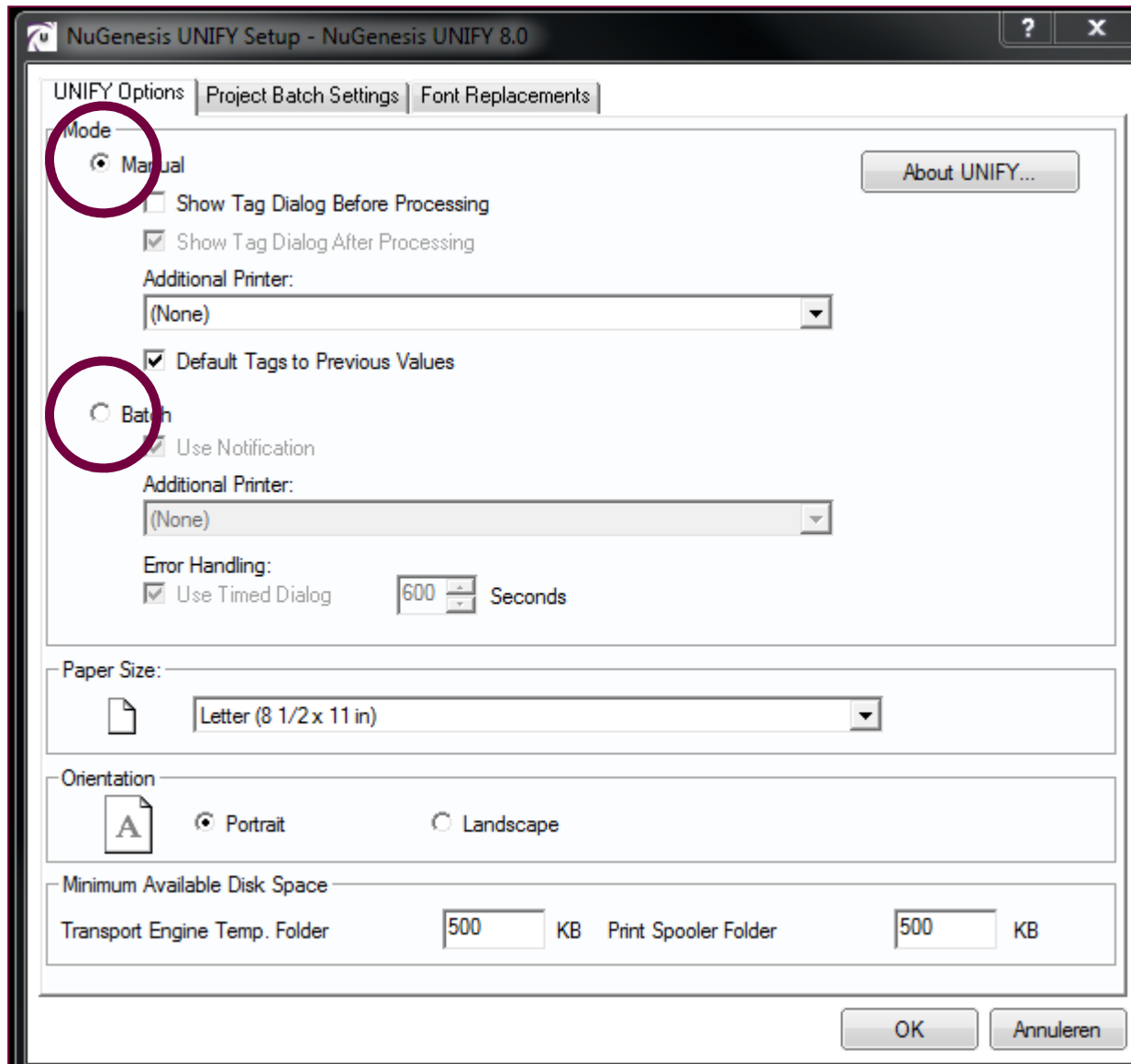
Per rapport-layout wordt een **template** ontworpen om info uit het rapport te halen en in de zoekvelden in te vullen (**batch mode** = automatisch).

Is het niet mogelijk om info uit een rapport te halen (niet lokaliseerbaar, geen eenduidige info beschikbaar, ..), dan kan dit manueel ingevuld worden (**manual mode**).

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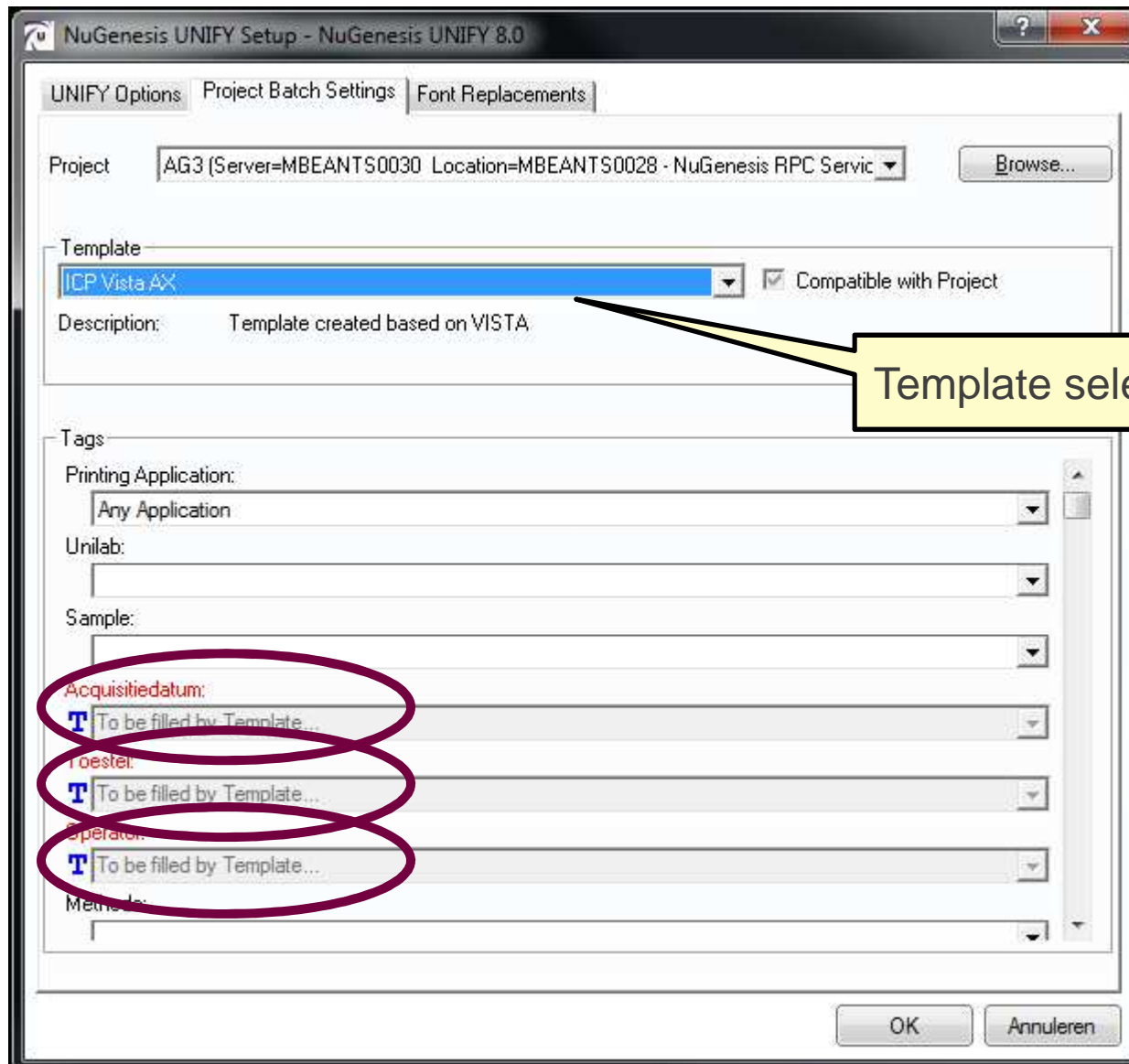
Voorbeeld van UNIFY-printer setup op een toestel PC



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Voorbeeld van NG-printer setup op een toestel PC (vervolg)



Template selectie

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Voorbeeld van template builder voor ICP-rapport

NuGenesis Template Builder - ICP Vista AX [MBEANT50030 -- AG3]

Home Extract Options

Save Description Load Details [Navigation] Layout

Save As Set Type Print [Page: 1 of 5] Page width Zoom Rotate

Name	Description	Results
Toestel	Derived from Template Name (value optior	ICP Vista AX
Acquisitiedatum	Right of marker "All Data Report" (not requ	17/03/2011, 12:19:06
Operator	Left of marker "All Data Report" (not requir	-K1

V-20110317-K1 All Data Report 17/03/2011, 12:19:06

Label	Sol'n Conc.	Units	SD	%RSD	Int. (c/s)	Calc Conc.
Fe 239.563	0.000600	mg/L	0.000773	128.9	71.9051	0.000600 mg/L
Fe 234.350	-0.001503uv	mg/L	0.000372	24.7	111.588	-0.001503 mg/L
Cu 223.009	-0.003382uv	mg/L	0.002055	60.8	45.8723	-0.003382 mg/L
Cu 213.598	0.000944	mg/L	0.000991	105.0	44.0550	0.000944 mg/L
Cu 224.700	-0.003003uv	mg/L	0.001125	37.5	32.5622	-0.003003 mg/L
Cr 205.560	-0.001787uv	mg/L	0.000199	11.2	36.6493	-0.001787 mg/L

MQW (Samp) 17/03/2011, 12:10:45 Tube 37

Weight: 1 Volume: 1 Dilution: 1

Label	Sol'n Conc.	Units	SD	%RSD	Int. (c/s)	Calc Conc.
Pd 351.694	0.002048	mg/L	0.000892	43.6	91.1869	0.002048 mg/L



Rapportering

Eens een rapport geprint, kunnen we dit raadplegen via NG-VISION (web-based interface).

Project: AG3 View: Vista AX						
Select	Date	Time	Acquisitiedatum	Operator	Data filenaam	Toestel
<input type="checkbox"/> 1	2015-11-23	10:14:34	23/11/2015, 10:14:33	-K1	V-20151123-K1	ICP Vista AX
<input type="checkbox"/> 2	2015-11-19	13:42:07	19/11/2015, 13:42:04	-T1	V-20151119-T1	ICP Vista AX
<input type="checkbox"/> 3	2015-11-19	09:45:28	19/11/2015, 09:45:26	-K1	V-20151119-K1	ICP Vista AX
<input type="checkbox"/> 4	2015-11-18	11:03:32	18/11/2015, 11:03:30	-K3	V-20151118-K3	ICP Vista AX
<input type="checkbox"/> 5	2015-11-18	09:37:17	18/11/2015, 09:37:16	-K2	V-20151118-K2	ICP Vista AX
<input type="checkbox"/> 6	2015-11-18	08:29:43	18/11/2015, 08:29:42	-K1	V-20151118-K1	ICP Vista AX
<input type="checkbox"/> 7	2015-11-12	12:22:48	12/11/2015, 12:22:43	-T1	V-20151112-T1	ICP Vista AX
<input type="checkbox"/> 8	2015-11-10	14:41:07	10/11/2015, 14:41:05	-K3	V-20151110-K3	ICP Vista AX
<input type="checkbox"/> 9	2015-11-10	12:40:40	10/11/2015, 12:40:38	-K2	V-20151110-K2	ICP Vista AX
<input type="checkbox"/> 10	2015-11-10	11:02:58	10/11/2015, 11:02:57	-K1	V-20151110-K1	ICP Vista AX
<input type="checkbox"/> 11	2015-11-09	09:48:35	09/11/2015, 09:48:34	-K1	V-20151109-K1	ICP Vista AX
<input type="checkbox"/> 12	2015-11-05	11:24:59	05/11/2015, 11:24:58	-K1	V-20151105-K1	ICP Vista AX
<input type="checkbox"/> 13	2015-11-05	07:10:36	05/11/2015, 07:10:17	-K3	V-20151104-K3	ICP Vista AX
<input type="checkbox"/> 14	2015-11-04	15:14:32	04/11/2015, 15:14:31	-K3	V-20151104-K3	ICP Vista AX
<input type="checkbox"/> 15	2015-11-04	13:06:30	04/11/2015, 13:06:29	-K2	V-20151104-K2	ICP Vista AX
<input type="checkbox"/> 16	2015-11-04	09:53:21	04/11/2015, 09:53:19	-K1	V-20151104-K1	ICP Vista AX
<input type="checkbox"/> 17	2015-11-04	09:52:21	04/11/2015, 09:52:19	-K1	V-20151104-K1	ICP Vista AX
<input type="checkbox"/> 18	2015-11-04	09:16:21	04/11/2015, 09:16:20	-T1	V-20151030-T1	ICP Vista AX

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Date: 2015-11-19
 Acquisitiedatum: 19/11/2015, 13:42:04
 Data filenaam: V-20151119-T1
 Machine: BXA04296
 Report GUID: 3B700ECC-9BB4-44e1-8C26-A8A46C32537D

Time: 13:42:07
 Operator: -T1
 Toestel: ICP Vista AX
 ID: 66601
 Page: 1 of 4

V-20151119-T1. All Data Report 19/11/2015, 13:42:04

Blank (Blk) 19/11/2015, 11:59:50 Rack 2, Tube 1

Label	Sol'n Conc.	Units	SD(Int)	%RSD(Int)	Int. (c/s)
Ca 317.933	0.000000	mg/L	27.916	3.3	835.917

Standard 1 (Std) 19/11/2015, 12:01:40 Rack 2, Tube 2

Label	Sol'n Conc.	Units	SD(Int)	%RSD(Int)	Int. (c/s)
Ca 317.933	2.00000	mg/L	2214.348	2.1	103258

Standard 2 (Std) 19/11/2015, 12:03:29 Rack 2, Tube 3

Label	Sol'n Conc.	Units	SD(Int)	%RSD(Int)	Int. (c/s)
Ca 317.933	4.00000	mg/L	1779.196	0.9	206750

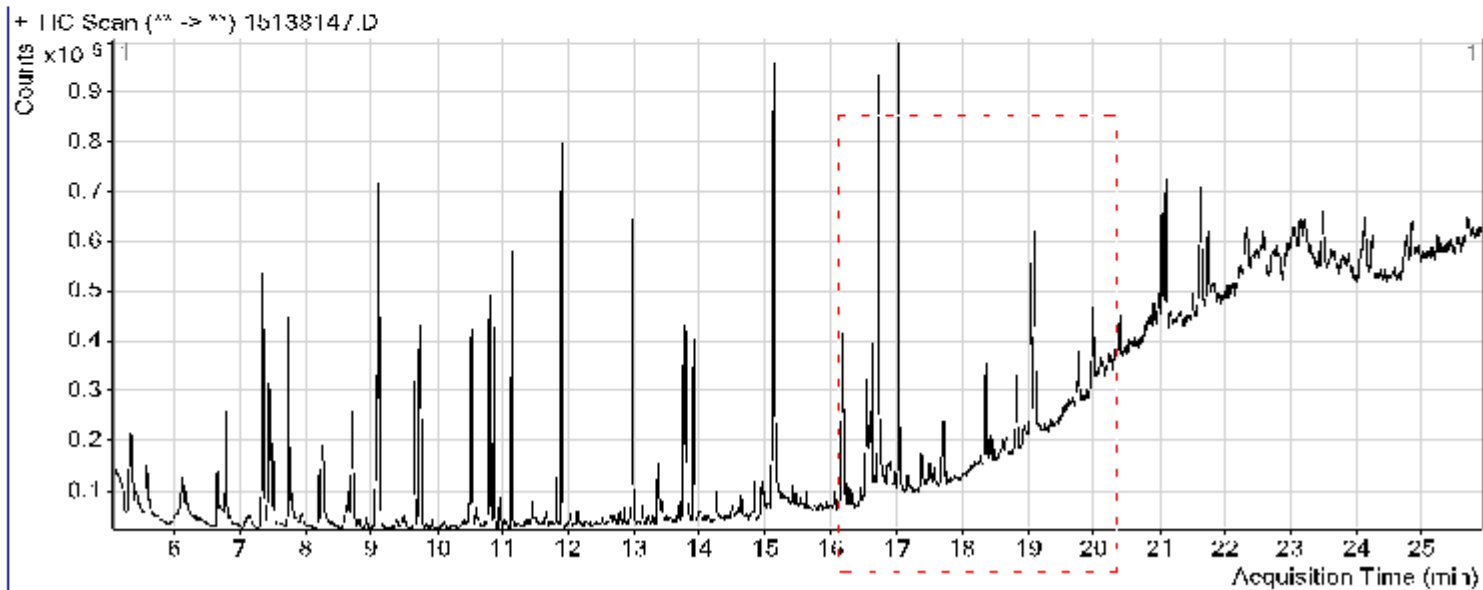


Quantitative Analysis Sample Report

Batch Data Path	C:\DATA\261015\QuantResults\GC177.batch.bin		
Analysis Time	10/29/2015 9:49 AM	Analyst Name	AG5
Report Time	10/29/2015 9:50 AM	Reporter Name	AG5
Last Calib Update	10/29/2015 9:49 AM	Batch State	Processed

Instrument	GC-MS5975	Sample Name	cal 10
Position	1	Data File	15138147.D
Dilution	1	Sample Type	Calibration
Acq Time	2015-10-26 13:40	Acq Method	GC-138.M
Inj Vol	0	Operator	myriam

Sample Chromatogram



Quantitation Results

Component	ISTD	RT	Area	ISTD Area	DF	Final Conc
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Rapportering

GCMS MassHunter : vervolg

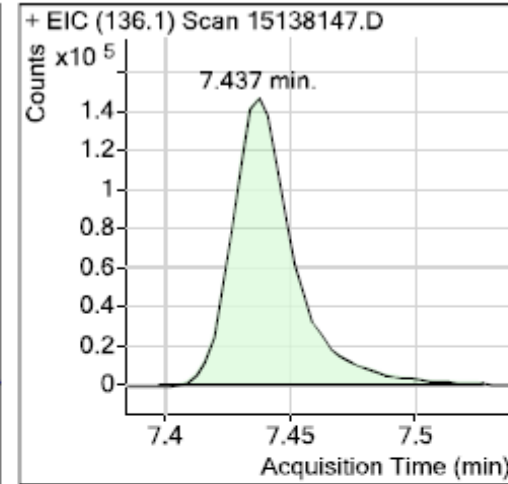
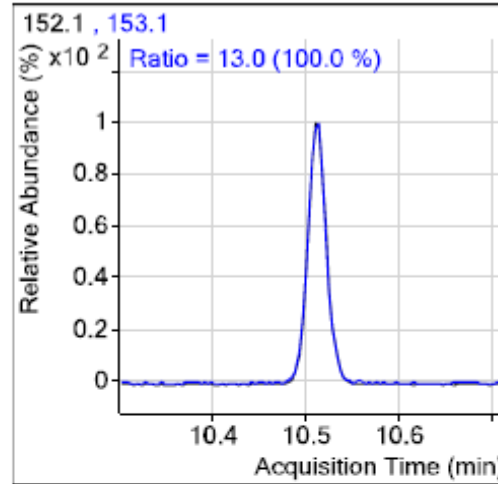
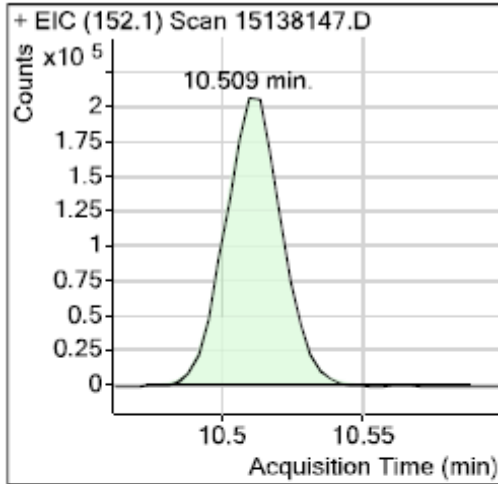
Quantitation Results

Compound	I STD	RT	Resp	I STD Resp	RR	Final Conc	
RCVRY naftaleen d8	p-Terfenyl D14	7.437	255719	506819	0.5046	102.0592	%
naftaleen	naftaleen D8	7.477	278141	255719	1.0877	396.5874	ng/l
acenaftyleen	naftaleen D8	10.509	293378	255719	1.1473	398.9208	ng/l
RCVRY acenaftteen d10	p-Terfenyl D14	10.796	145600	506819	0.2873	102.4039	%
acenaftteen	acenaftteen D10	10.857	183720	145157	1.2657	399.0377	ng/l
fluoreen	acenaftteen D10	11.887	200767	145157	1.3831	400.4138	ng/l
RCVRY fenantreen d10	p-Terfenyl D14	13.743	210177	506819	0.4147	98.3583	%
fenantreen	fenantreen D10	13.789	225824	210177	1.0744	400.5950	ng/l
antraceen	fenantreen D10	13.890	238353	210177	1.1341	402.7421	ng/l
fluorantheen	fenantreen D10	16.165	205743	210177	0.9789	404.7661	ng/l
pyreen	fenantreen D10	16.603	209019	210177	0.9945	404.8113	ng/l
benz(a)antraceen	Chryseen D12	19.021	168147	116517	1.4431	402.8525	ng/l
RCVRY chryseen d12	p-Terfenyl D14	19.036	116512	506819	0.2299	98.8428	%
chryseen	Chryseen D12	19.086	153050	116517	1.3135	407.5983	ng/l
SURROG 6-Methylchryseen	p-Terfenyl D14	19.976	77753	506819	0.1534	217.4134	ng/l
benzo(b)fluorantheen	Perylene D12	21.024	135346	35378	3.8257	400.5683	ng/l
benzo(k)fluorantheen	Perylene D12	21.074	153304	35378	4.3334	402.8610	ng/l
benzo(a)pyreen	Perylene D12	21.616	129604	35378	3.6634	400.3399	ng/l
RCVRY perylen d12	p-Terfenyl D14	21.724	35420	506819	0.0699	98.1519	%
indeno(1,2,3,c,d)pyreen	Benzo(g,h,i)peryleen D12	24.124	107293	88384	1.2139	395.0115	ng/l
dibenzo(a,h)anthraceen	Benzo(g,h,i)peryleen D12	24.221	113474	88384	1.2839	387.5577	ng/l
RCVRY benzo(g,h,i)peryleen d12	p-Terfenyl D14	24.745	88384	506819	0.1744	96.1426	%
benzo(g,h,i)peryleen	Benzo(g,h,i)peryleen D12	24.821	112600	88384	1.2740	391.9527	ng/l

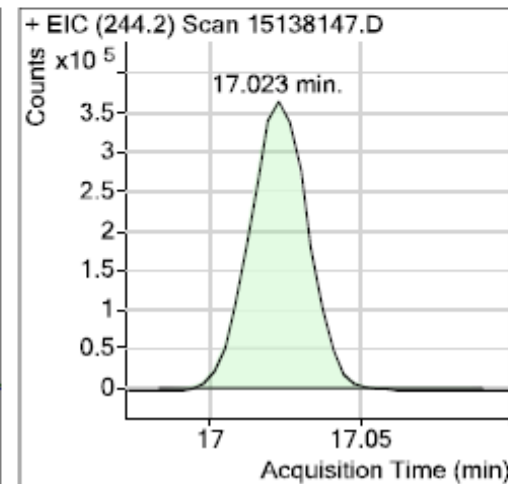
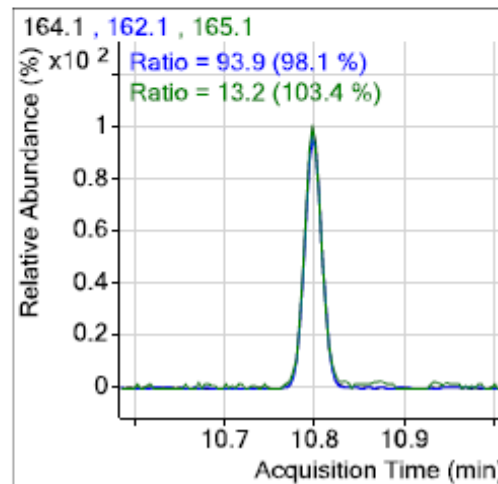
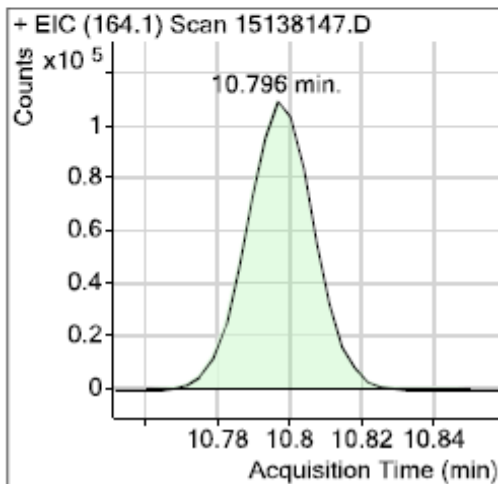
Quantitative Analysis Sample Report

Compound Graphics

acenaftyleen



RCVRY acenaftleen d10





Archivering

Het labo bewaart de ruwe data nu **5 jaar**. Deze archivering wordt door NUGENESIS beheerd (prints en files).

Via een configurator (“template builder”) kunnen we de data-, method-, sequence- en batch files (MassHunter) van toestellen archiveren volgens een vastgelegde frekwentie (= **Archive Protocol**). Ook de automatische clean-up van de files (= **Delete Protocol**) op de toestel PC’s wordt hier vastgelegd.

Zoals bij een “print template” is het ook hier mogelijk om data van de file op te vragen en dit in zoekvelden op te slaan. **Meta data** bv. “filename, filepath, creation date,.. ” zijn als “vaste” gegevens beschikbaar. Alternatief kan info uit de inhoud van de file opgehaald worden (“vendor” afhankelijk).

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Filerachivering door NG : volledige fileai

groep	LNUMMER	toestel	techniek
AG1	L2850	SKALAR	FIA
Totaal AG1			
AG2	L2598	DIONEX 500	IC
AG2	L2599	Metrohm 1	IC
AG2	L2601	Metrohm 2	IC
Totaal AG2			
AG3	L2271	Zeeman Varian GTA120	GFAAS
AG3	L801	ICP VISTA AX	ICP
AG3	L802	ICP VISTA Pro	ICP
Totaal AG3			
AG5	L1075	Thermo Separation Products	HPLC4
AG5	L1076	LCQ Duo / Thermo Separation Products	HPLC_MS
AG5	L1101	GC4 + FID + ECD	GC
AG5	L1102	GC2 + FPD + TCD	GC
AG5	L1111	GC6 + FID + TCD	GC
AG5	L1121	GC1 + 2x FID	GC
AG5	L1122	GC3 + 2x FID + Headspace	GC
AG5	L1123	GC0 + 2 x FID	GC
AG5	L1170	Polaris Q Interscience -Trace	GC_MS
AG5	L1213	PERKIN ELMER Spectrum 100 SN82083	FTIR
AG5	L1271	Spectra-Physics	HPLC1
AG5	L1273	Thermo Separation Products	HPLC3
AG5	L1300	MSD5973-GC6890	GC_MS
AG5	L1302	MSD5975 inert	GC_MS
AG5	L1411	Thermo Separation Products	HPLC7
AG5	L1412	Thermo Separation Products	HPLC9
AG5	L1413	Thermo Separation Products	HPLC8 (RID)
AG5	L1414	Thermo Separation Products	HPLC10
AG5	L1421	THERMO ELECTRON	HPLCAccela (UPLC)
Totaal AG5			

Toestellen waarvan de relevante files gearchiveerd worden

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Voorbeeld van NG-file capture template builder (per toestel een template)

The screenshot shows the NuGenesis File Capture Template Builder interface. The main window title is "NuGenesis File Capture Template Builder - Files Clab/ngprojmgr". The menu bar includes File, Edit, View, Tools, and Help. The interface is divided into several sections:

- Header:** Template Name: FC CLAB0, Version: 4, Modified on: 06 aug 2015 08:25:02
- Table:** A table with columns: Req., Proxy, Vendor, Product, Rev., Scan Path, File Pat, and Comment. It lists various scan paths and file patterns.
- Configuration Panels:** Basic, Advanced, and Other tabs. The Basic tab is active, showing sections for Command/Activation State, Adapter Parameters, Capture Parameters, Execution parameters, and Archive/Delete Protocols.
- Tag Marker Mapping:** A table on the right side mapping tag labels to tag markers.

Annotations:

- A yellow callout box labeled "File pattern" points to the "File Pattern" field in the Capture Parameters section, which contains "*.*".
- A yellow callout box labeled "Path van de te archiveren files" points to the "Path" field in the Capture Parameters section, which contains "\\Bxa05674\bxa05674_c\data".
- A red oval highlights the "Original File Path" tag label in the Tag Marker Mapping table, which is mapped to the tag marker "FILE PATH".

Req.	Proxy	Vendor	Product	Rev.	Scan Path	File Pat	Comment
1	No	NuGenesis Technologies C	Generic	0	\\Bxa05674\bxa05674_c\data	*.*	
2	No	NuGenesis Technologies C	Generic	0	\\Bxa05674\bxa05674_c\methods	*.*	
3	No	NuGenesis Technologies C	Generic	0	\\Bxa05674\bxa05674_c\Methods Masshunter	*.*	
4	No	NuGenesis Technologies C	Generic	0	\\Bxa05674\bxa05674_c\SEQUENCE	*.*	
5	No	NuGenesis Technologies C	Generic	0	\\Bxa05742\bxa05742_c\data	*.*	
6	No	NuGenesis Technologies C	Generic	0	\\Bxa05742\bxa05742_c\methods	*.*	
		NuGenesis Technologies C	Generic	0	\\Bxa05742\bxa05742_c\Methods Masshunter	*.*	
		NuGenesis Technologies C	Generic	0	\\Bxa05742\bxa05742_c\SEQUENCE	*.*	
		NuGenesis Technologies C	Generic	0	\\Bxa05703\bxa05703_c\data	*.*	
		NuGenesis Technologies C	Generic	0	\\Bxa05703\bxa05703_c\methods	*.*	

Tag Label	Tag Marker
1	Unilab
2	Data Type < Constant Value='DATA' >
3	Toestel < Constant Value='MSD5975C' >
4	Operator
5	Sample
6	Methode
7	Bedrijf
8	Datum
9	Original File Path FILE PATH
10	Computer Name < Constant Value='BXA05674' >
11	Application Software
12	
13	
14	
15	
16	
17	

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Project: Files Clab View: VistaAX

Select All None

	Date/Time of Capture	Sample	Data Type	Data Name	Original File Path	Toestel
<input type="checkbox"/> 1	2015-11-18 15:38:59	V-20151110-K2	DATA	V-20151110-K2	V:\VIA0420014-Data\DATA	VISTA AX
<input type="checkbox"/> 2	2015-11-18 15:38:59					VISTA AX
<input type="checkbox"/> 3	2015-11-18 15:38:59					VISTA AX
<input type="checkbox"/> 4	2015-11-18 15:39:00					VISTA AX
<input type="checkbox"/> 5	2015-11-18 15:38:59					VISTA AX
<input type="checkbox"/> 6	2015-11-09 15:39:11					VISTA AX
<input type="checkbox"/> 7	2015-11-09 15:39:12					VISTA AX
<input type="checkbox"/> 8	2015-11-09 15:39:13					VISTA AX
<input type="checkbox"/> 9	2015-11-09 15:39:12					VISTA AX
<input type="checkbox"/> 10	2015-11-09 15:39:13					VISTA AX
<input type="checkbox"/> 11	2015-11-09 15:39:12					VISTA AX
<input type="checkbox"/> 12	2015-11-03 15:38:59					VISTA AX
<input type="checkbox"/> 13	2015-11-03 15:38:59					VISTA AX
<input type="checkbox"/> 14	2015-11-03 15:39:00					VISTA AX
<input type="checkbox"/> 15	2015-11-03 15:39:00					VISTA AX
<input type="checkbox"/> 16	2015-11-03 15:39:00					VISTA AX
<input type="checkbox"/> 17	2015-11-03 15:39:00					VISTA AX
<input type="checkbox"/> 18	2015-11-03 15:38:59					VISTA AX
<input type="checkbox"/> 19	2015-10-26 15:39:07					VISTA AX
<input type="checkbox"/> 20	2015-10-26 15:39:07					VISTA AX

NuGenesis Restore

Restore Locations List: <Any Location> Select Restore Location

Selected Location: C:\Temp Recreate Folder Structure

Show Errors
 Show Errors/Warnings
 Show All Messages

Restore Progress: 100 % Complete.

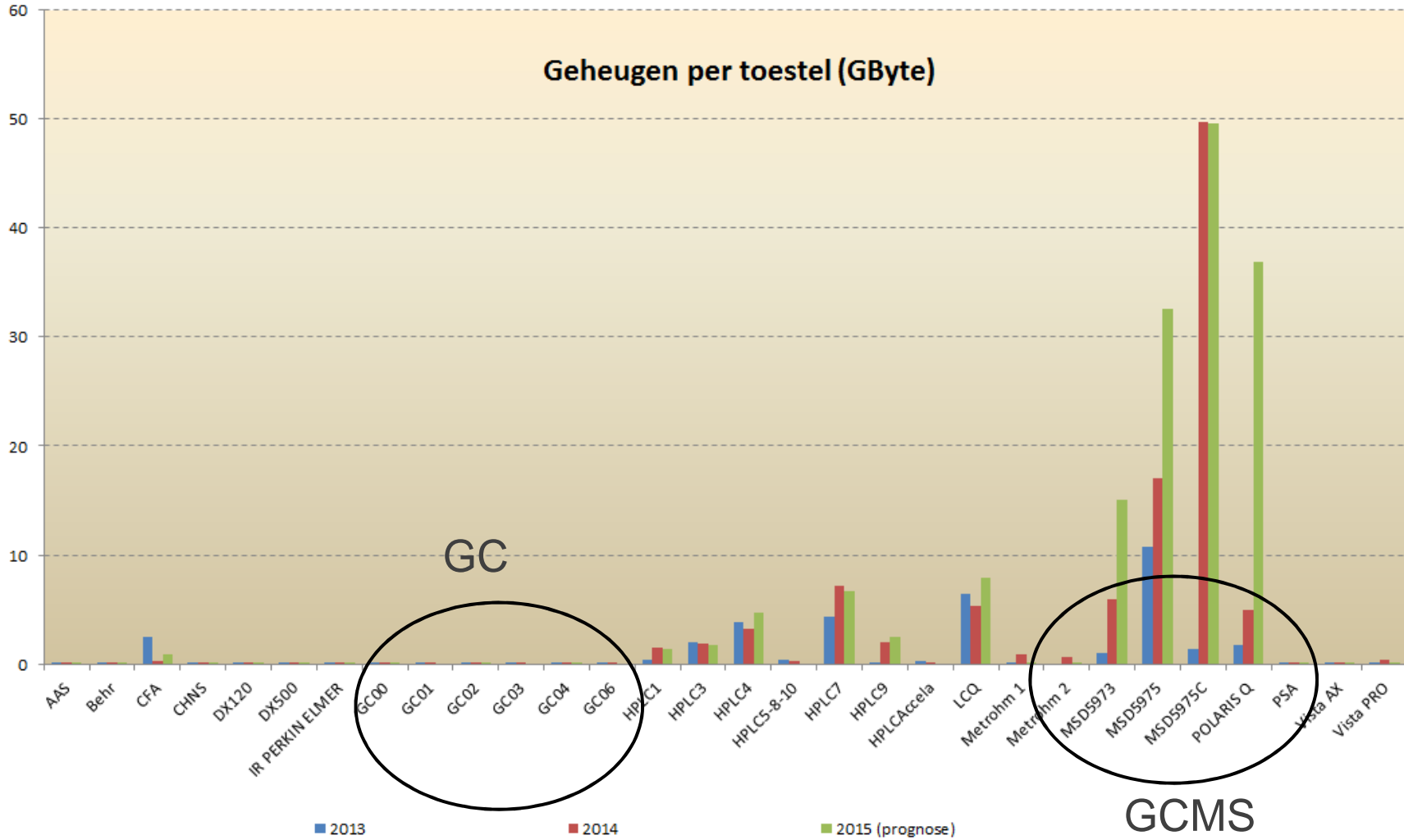
GROUP	FILENAME	FILE RESTORATION STATUS
4071555	V-20151110-K2.vws	File restored successfully.
	RESTORE SUMMARY:	Total number of files to be restored : 1
	RESTORE SUMMARY:	Number of files restored: 1
	RESTORE SUMMARY:	Size: 186.50 KB (190976 bytes) restored.
	RESTORE SUMMARY:	Restore process complete.

Exit Restore Help Cancel



Archivering

Opvolging gearchiveerd geheugen:





Visualisatie

Het weergeven van rapporten / file archivering verloopt via een web-based interface.

Verschillende mogelijkheden zijn voorzien om rapporten te vinden:

- Indeling in printprojecten met een “VIEW” per toestel met mogelijkheid tot “filteren”
- Zoeken naar rapporten in inhoud en/of in zoekvelden (tags)

- Recently viewed
- All Available
 - MBEANTS0030
 - AG1
 - AG1 ARCHIEF
 - AG2
 - AG2 ARCHIEF
 - AG3
 - ALLE printfiles
 - DefaultView
 - LAMBDA 900
 - PSA
 - Vista
 - Vista AX**
 - Vista PRO
 - AG3 ARCHIEF
 - AG5
 - Alle GC_s
 - Alle HPLC_s
 - Alle MSD_s
 - Archief
 - DefaultView
 - GC00
 - GC01
 - GC02
 - GC03
 - GC04
 - GC05
 - GC06
 - GC07
 - GC08
 - GPC PSS
 - GPC10
 - IR Perkin Elmer
 - LCQ

Project: AG3 View: Vista AX

Select All None

	Date	Time	Acquisitiedatum	Operator	Data filenaam
<input type="checkbox"/> 1	2015-11-23	14:38:52	23/11/2015, 14:38:51	K23	V-20151123-K23
<input type="checkbox"/> 2	2015-11-23	10:14:34			V-20151123-K1
<input type="checkbox"/> 3	2015-11-19	13:42:07			V-20151119-T1
<input type="checkbox"/> 4	2015-11-19	09:45:28	19/11/2015, 09:45:26	-K1	
<input type="checkbox"/> 5	2015-11-18	11:03:32	18/11/2015, 11:03:30	-K3	V-20151118-K3
<input type="checkbox"/> 6	2015-11-18	09:37:17	18/11/2015, 09:37:16	-K2	V-20151118-K2
<input type="checkbox"/> 7	2015-11-18	08:29:43	18/11/2015, 08:29:42	-K1	V-20151118-K1
<input type="checkbox"/> 8	2015-11-12	12:22:48	12/11/2015, 12:22:43	-T1	V-20151112-T1
<input type="checkbox"/> 9	2015-11-10	14:41:07	10/11/2015, 14:41:05	-K3	V-20151110-K3
<input type="checkbox"/> 10	2015-11-10	12:40:40	10/11/2015, 12:40:38	-K2	V-20151110-K2
<input type="checkbox"/> 11	2015-11-10	11:02:58	10/11/2015, 11:02:57	-K1	V-20151110-K1
<input type="checkbox"/> 12	2015-11-09	09:48:34	09/11/2015, 09:48:34	-K1	V-20151109-K1
<input type="checkbox"/> 13	2015-11-09	11:24:58	05/11/2015, 11:24:58	-K1	V-20151105-K1
<input type="checkbox"/> 14	2015-11-05	07:10:36	05/11/2015, 07:10:17	-K3	V-20151104-K3
<input type="checkbox"/> 15	2015-11-04	15:14:32	04/11/2015, 15:14:31	-K3	V-20151104-K3
<input type="checkbox"/> 16	2015-11-04	13:06:30	04/11/2015, 13:06:29	-K2	V-20151104-K2
<input type="checkbox"/> 17	2015-11-04	09:53:21	04/11/2015, 09:53:19	-K1	V-20151104-K1
<input type="checkbox"/> 18	2015-11-04	09:52:21	04/11/2015, 09:52:19	-K1	V-20151104-K1
<input type="checkbox"/> 19	2015-11-04	09:16:21	04/11/2015, 09:16:20	-T1	V-20151030-T1
<input type="checkbox"/> 20	2015-11-04	09:16:06			
<input type="checkbox"/> 21	2015-11-03	14:47:15	03/11/2015, 14:47:14	-K2	V-20151103-K2
<input type="checkbox"/> 22	2015-11-03	09:04:01	03/11/2015, 09:04:00	-K1	V-20151103-K1
<input type="checkbox"/> 23	2015-10-30	15:33:46	30/10/2015, 15:33:37	-T1	V-20151030-T1
<input type="checkbox"/> 24	2015-10-27	15:11:55			
<input type="checkbox"/> 25	2015-10-27	15:11:15			

More...



View per toestel

Filtervelden

Printprojecten



Visualisatie

The screenshot shows the NUGENESIS V8.0 software interface. At the top, there is a search bar with the text '385664' and a magnifying glass icon. Below the search bar, there is a 'Projects' section with a search filter set to 'All Content'. The main area displays a table of search results for Project: AG3, View: Vista AX. The table has columns for Date, Time, Acquisitiedatum, Operator, Data filenaam, and Toestel. A single result is shown for 2015-11-19 at 13:42:07, with acquisition date 19/11/2015, 13:42:04, operator -T1, data filename V-20151119-T1, and instrument ICP Vista AX. A 'SEARCH APPLIED 0' button is visible above the table. Below the table, it says 'End of Reports'.

	Date	Time	Acquisitiedatum	Operator	Data filenaam	Toestel
<input type="checkbox"/> 1	2015-11-19	13:42:07	19/11/2015, 13:42:04	-T1	V-20151119-T1	ICP Vista AX

Zoeken naar rapporten in inhoud en/of in zoekvelden (tags) met **ADVANCED SEARCH**



Visualisatie

Zoeken naar rapporten met "385664" in het rapport

V-20151119-T1. All Data Report 19/11/2015, 13:42:04

385664 (Samp)

19/11/2015, 12:15:44

Rack 1, Tube 5

Weight: 0.649

Volume: 50

Dilution: 1

Label	Sol'n Conc.	Units	SD	%RSD	Int. (c/s)	Calc Conc.
Ca 317.933	1.18326	mg/L	0.003253	0.3	61569.8	91.1599 mg/L

385664' (Samp)

19/11/2015, 12:29:55

Rack 1, Tube 6

Weight: 0.5969

Volume: 50

Dilution: 1

Label	Sol'n Conc.	Units	SD	%RSD	Int. (c/s)	Calc Conc.
Ca 317.933	0.590081	mg/L	0.002264	0.4	31034.2	49.4288 mg/L

385664+ (Samp)

19/11/2015, 12:31:45

Rack 1, Tube 7

Weight: 0.649

Volume: 50

Dilution: 1

Label	Sol'n Conc.	Units	SD	%RSD	Int. (c/s)	Calc Conc.
Ca 317.933	3.29467	mg/L	0.068973	2.1	170262	253.827 mg/L



Bedankt voor uw aandacht

Contact

willy.bogaerts@covestro.com

[covestro.com](https://www.covestro.com)