ENGINEER NEXT

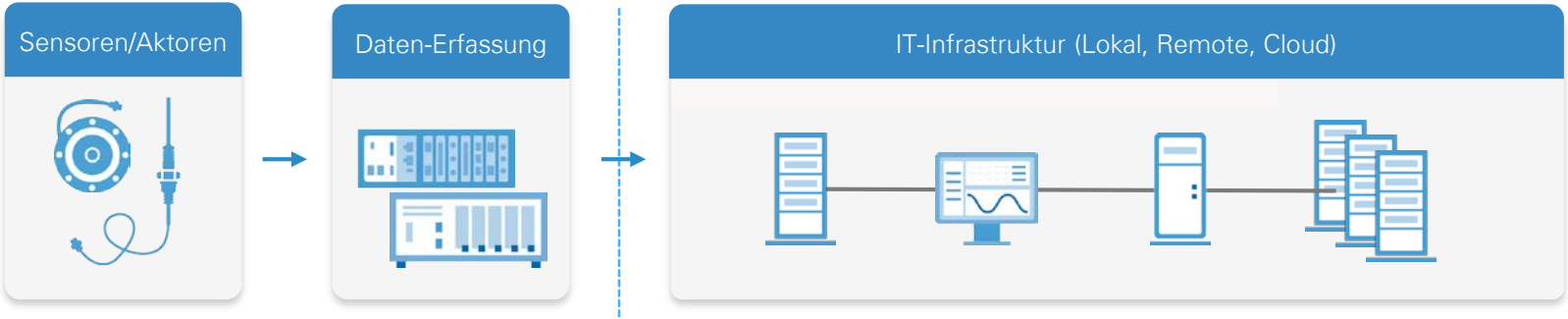
VIP2017

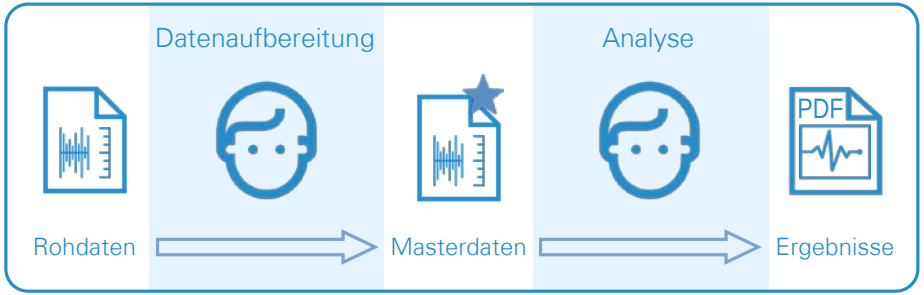
Wenn neue Daten automatisch Reports generieren

National Instruments

Andreas Haub, Director of Technical Data Management

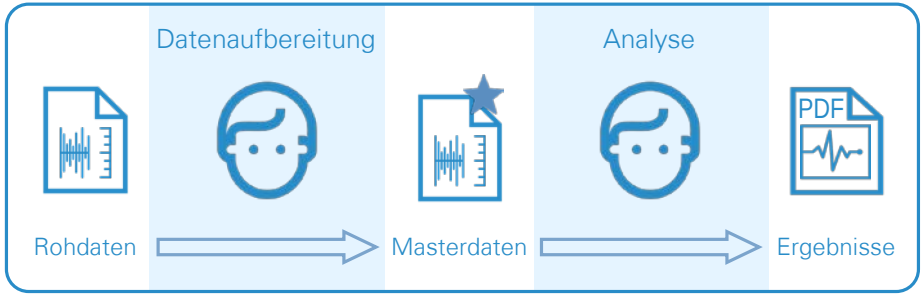
Big Analog Data™ : Der Lebenszyklus der Daten





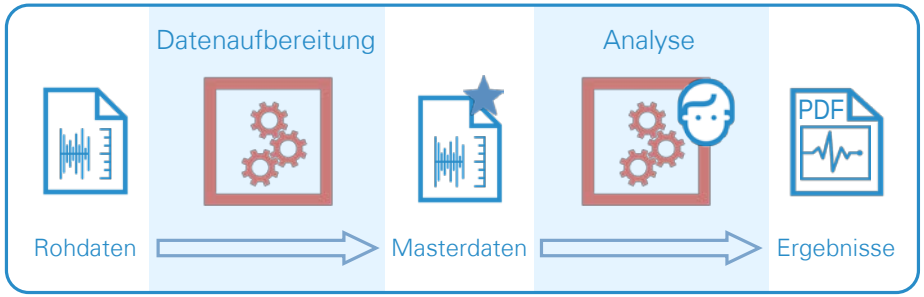
NATIONAL INSTRUMENTS™

Von den Rohdaten bis zum Report

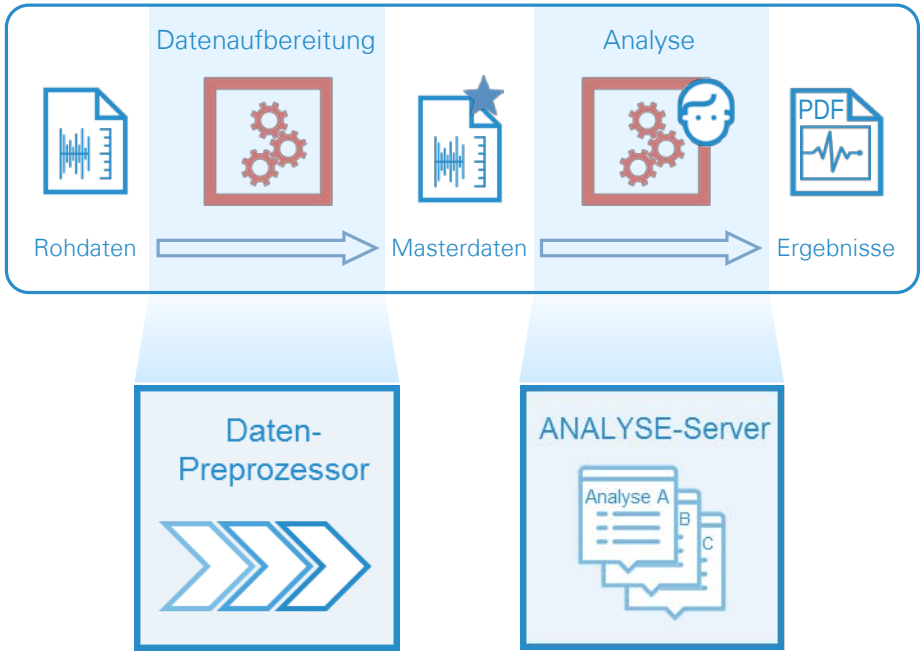


NATIONAL INSTRUMENTS

Automatisch von den Rohdaten bis zum Report



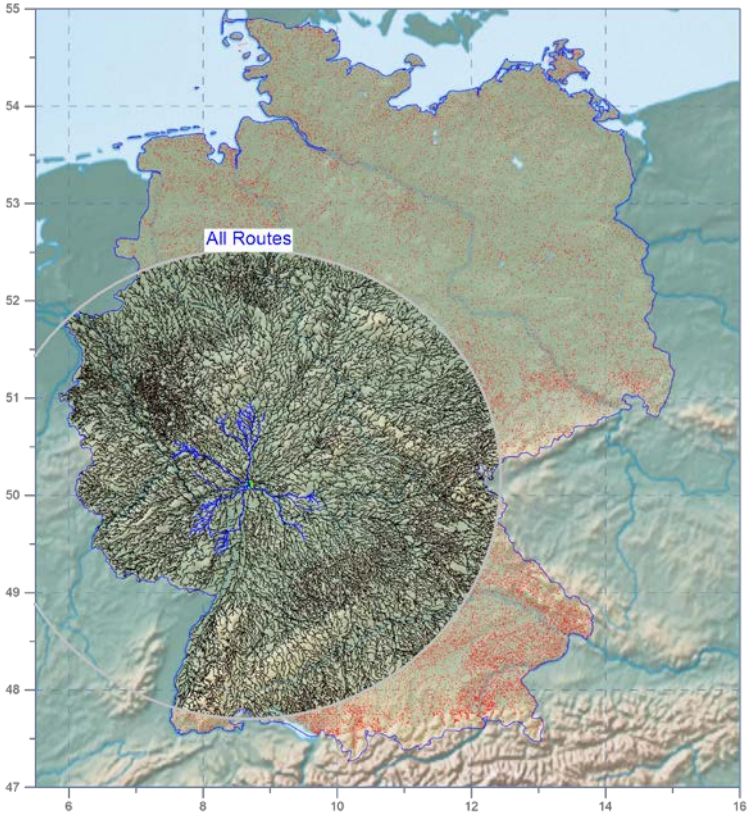
Automatisch von den Rohdaten bis zum Report

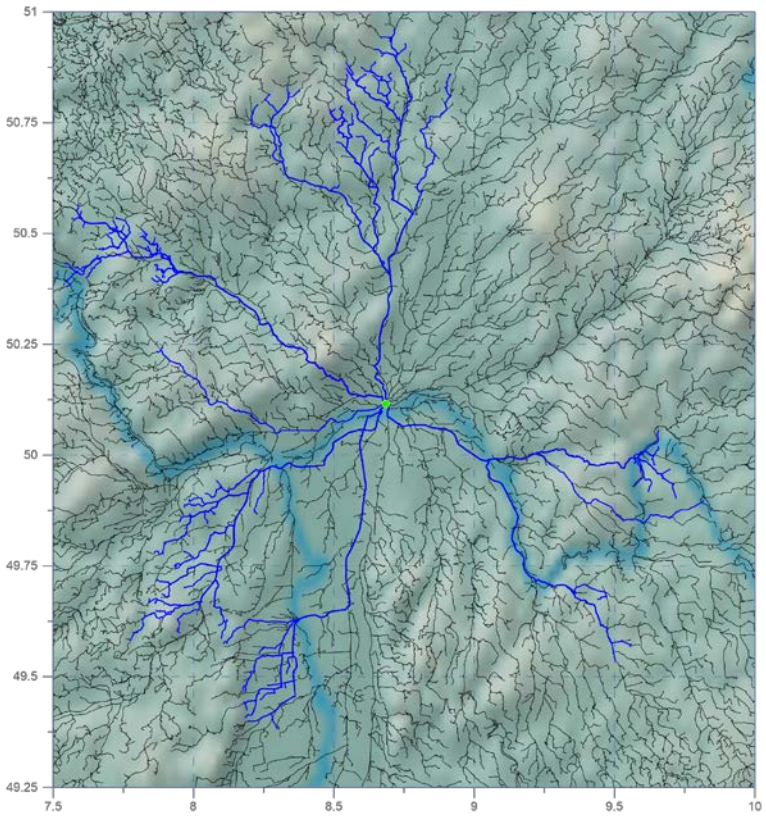


NATIONAL INSTRUMENTS

Anwendung von Preprozessor und Analyseserver am Beispiel der Auswertung von Emissionsdaten

Testvorbereitung





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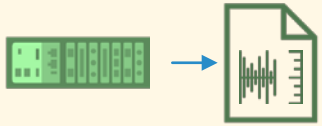
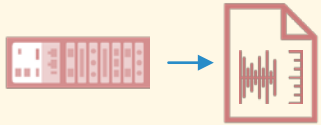
Auswertung der Testfahrten

Messdaten-Erfassung



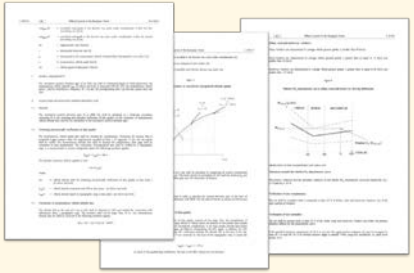
RDE-1
CSV-Datei



RDE-2
CSV-Datei

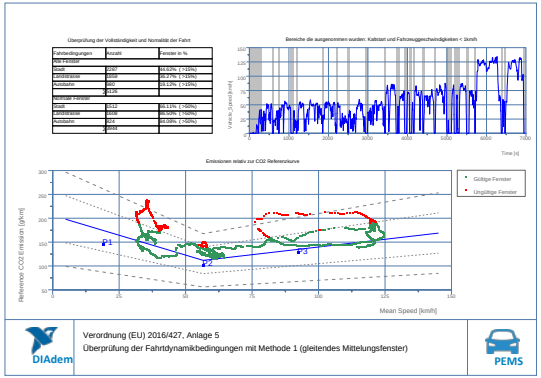
Preprozessor

Messdaten-Analyse



Calculations / Analysis

$$KW = \left(1 - \left(\frac{AlphaHydrogen \cdot CO2}{200}\right) - \left(\frac{1.608 \cdot Ha}{1000 + (1.608 \cdot Ha)}\right)\right)$$



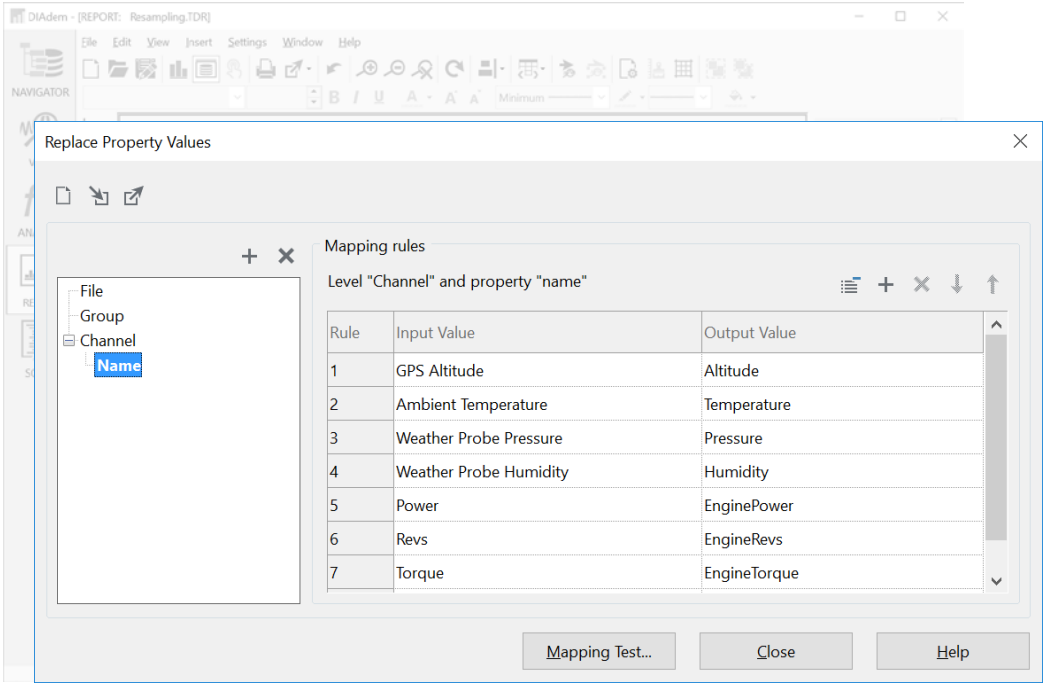
NATIONAL INSTRUMENTS

Datenaufbereitung – aktuelle Optionen

Property Bezeichner | Property Inhalte | Einheiten | Signal Kennwerte | Validierung | Speichern

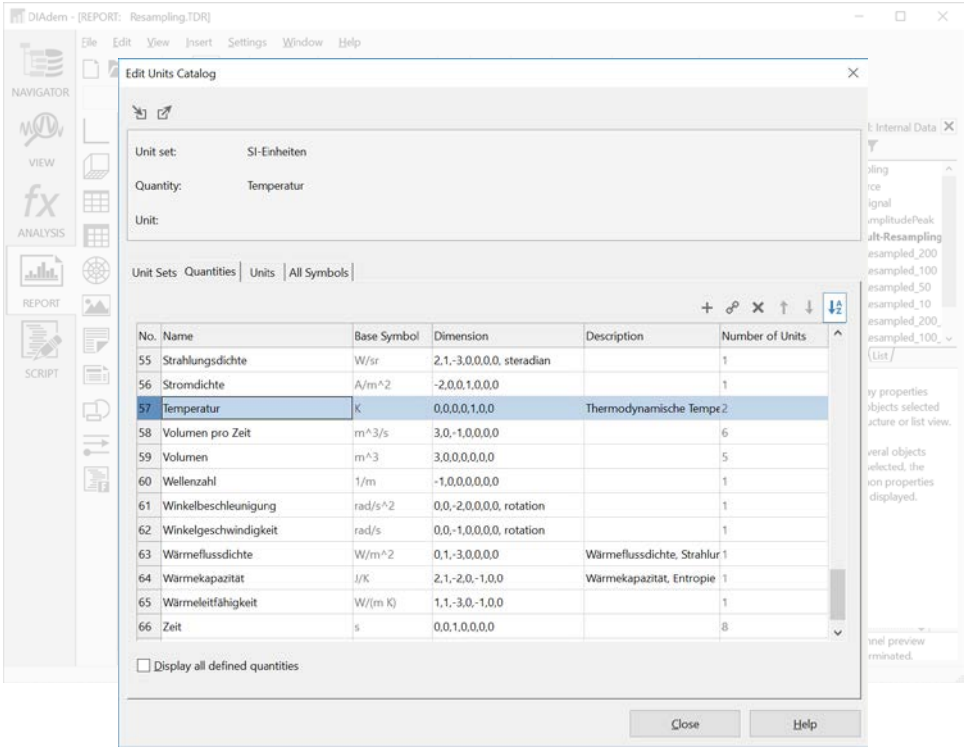
NATIONAL INSTRUMENTS

Datenaufbereitung : Definition in DIAdem



- Kanalnamen vereinheitlichen

Datenaufbereitung : Definition in DIAdem

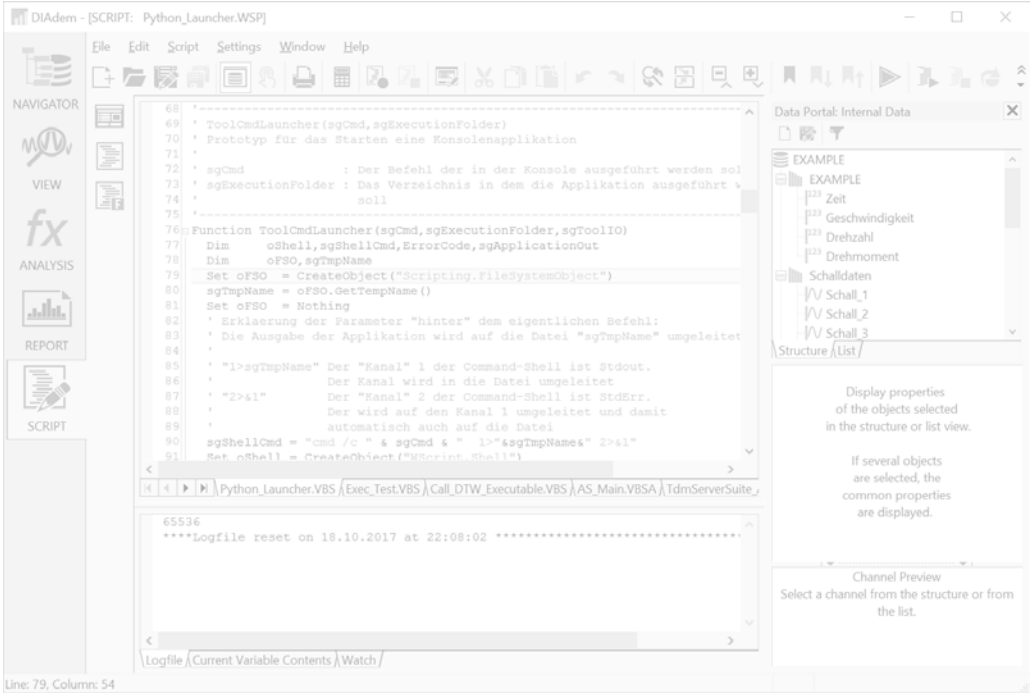


No.	Name	Base Symbol	Dimension	Description	Number of Units
55	Strahlungsdichte	W/sr	2,1,-3,0,0,0,0, steradian		1
56	Stromdichte	A/m^2	-2,0,0,1,0,0,0		1
57	Temperatur	K	0,0,0,0,1,0,0	Thermodynamische Tempe	2
58	Volumen pro Zeit	m^3/s	3,0,-1,0,0,0,0		6
59	Volumen	m^3	3,0,0,0,0,0,0		5
60	Wellenzahl	1/m	-1,0,0,0,0,0,0		1
61	Winkelbeschleunigung	rad/s^2	0,0,-2,0,0,0,0, rotation		1
62	Winkelgeschwindigkeit	rad/s	0,0,-1,0,0,0,0, rotation		1
63	Wärmeflussdichte	W/m^2	0,1,-3,0,0,0,0	Wärmeflussdichte, Strahlur	1
64	Wärmekapazität	J/K	2,1,-2,0,-1,0,0	Wärmekapazität, Entropie	1
65	Wärmeleitfähigkeit	W/(m K)	1,1,-3,0,-1,0,0		1
66	Zeit	s	0,0,1,0,0,0,0		8

- Kanalnamen vereinheitlichen
- Einheiten vereinheitlichen

NATIONAL INSTRUMENTS

Datenaufbereitung : Definition in DIAdem



- Kanalnamen vereinheitlichen
- Einheiten vereinheitlichen
- Script zur Prüfung der Signale auf Vollständigkeit

NATIONAL INSTRUMENTS

Datenaufbereitung : Definition in DIAdem

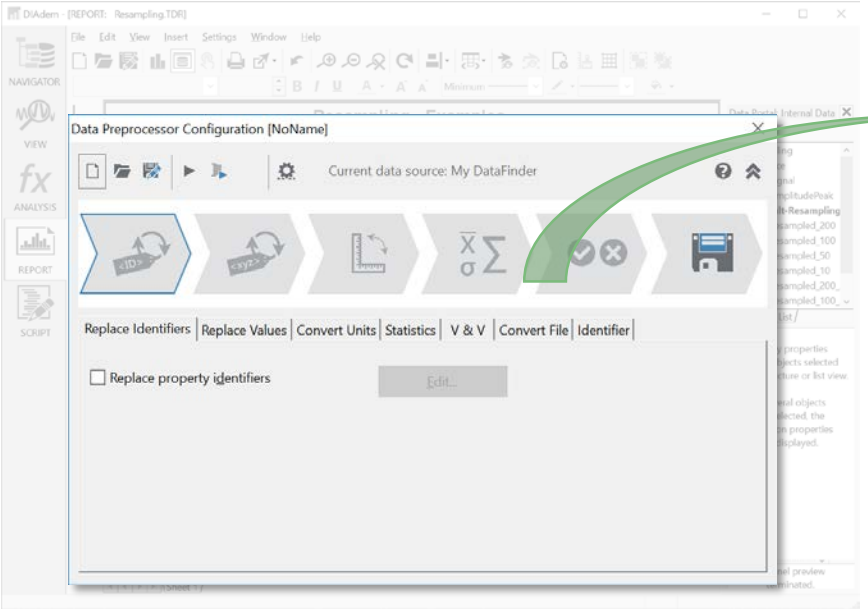
- Abbilden der Kanalnamen aus den Rohdaten auf Norm-Namen
  - Gerät A auf Norm-Namen
  - Gerät B auf Norm-Namen

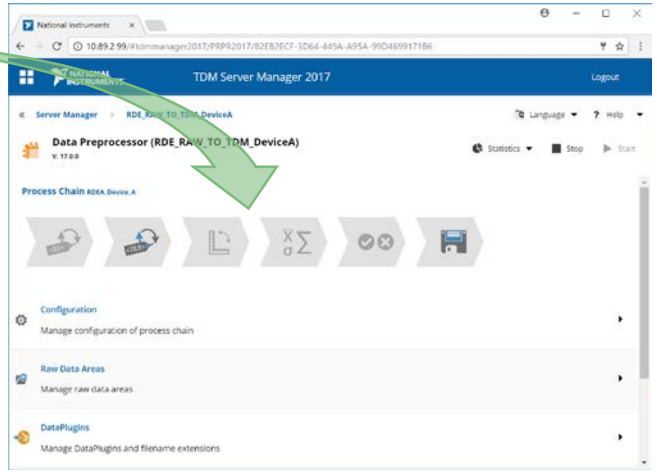
- Verwendung eines gemeinsamen Satzes von Einheiten

- Prüfung der Signale auf Vollständigkeit
  - Funktioniert wegen Einheitlichkeit der Namen für beide Geräte

NATIONAL INSTRUMENTS

Datenaufbereitung : Upload zum Server

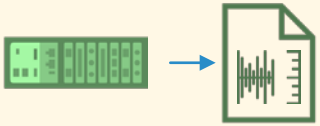




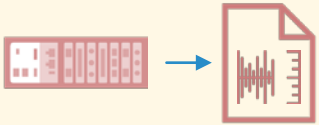
NATIONAL INSTRUMENTS

Auswertung der Testfahrten

Messdaten-Erfassung



RDE-1
CSV-Datei



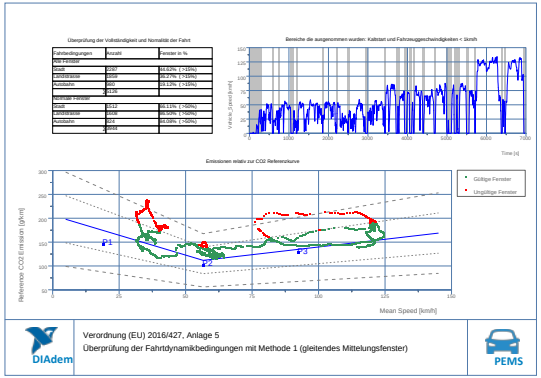
RDE-2
CSV-Datei

Messdaten-Analyse

Calculations / Analysis

$$KW = \left(1 - \left(\frac{AlphaHydrogen\ CO2}{200}\right) - \left(\frac{1.608 \cdot Ha}{1000 + (1.608 \cdot Ha)}\right)\right)$$

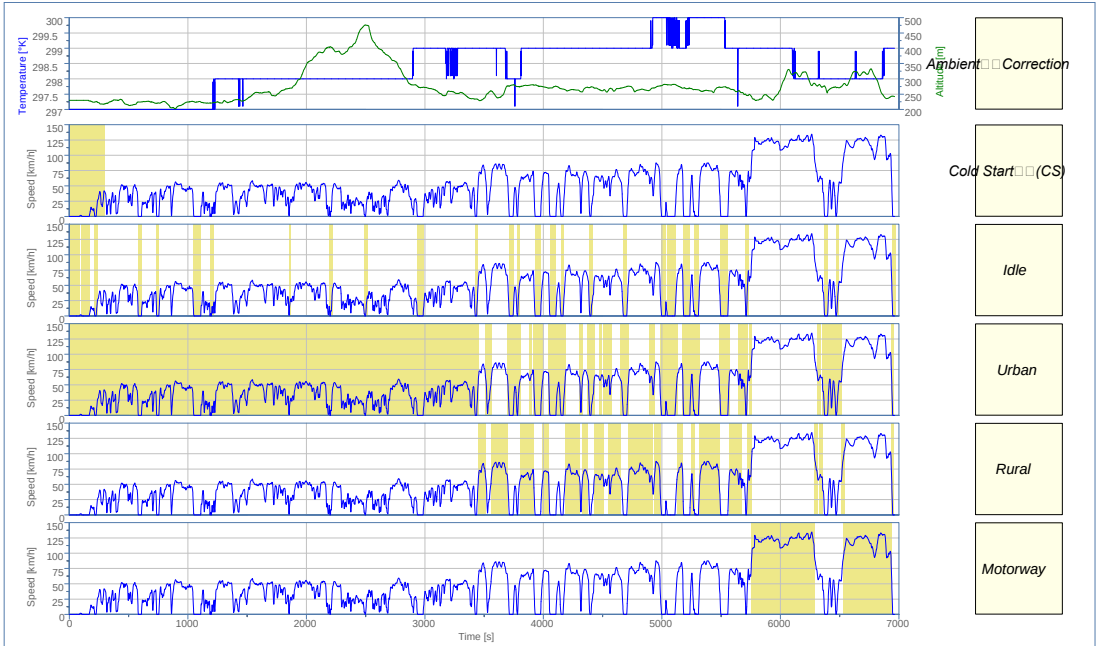
Analyse-Server



NATIONAL INSTRUMENTS

Auswertung der Emissionsmessung

- Abschnittsbildung für die Geschwindigkeitsbereiche „urban“, „rural“, „motorway“, „coldstart“
- Klassifizierung der Strecke
- „Cumulative positive elevation gain“
- Bestimmung der Emissions-werte



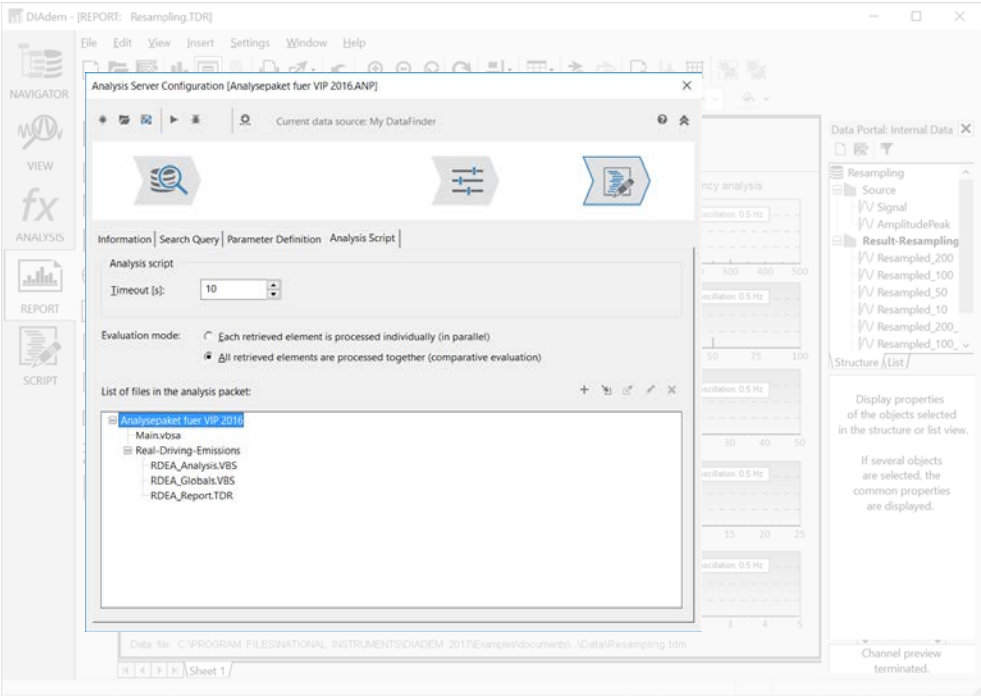
DIAdem

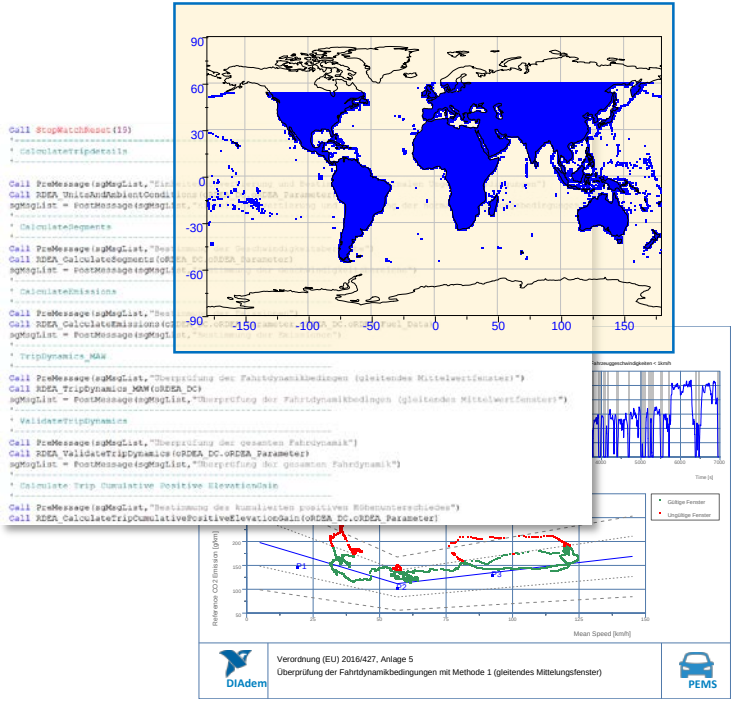
Abschnitte der Gesamtmessfahrt

PEMS

NATIONAL INSTRUMENTS

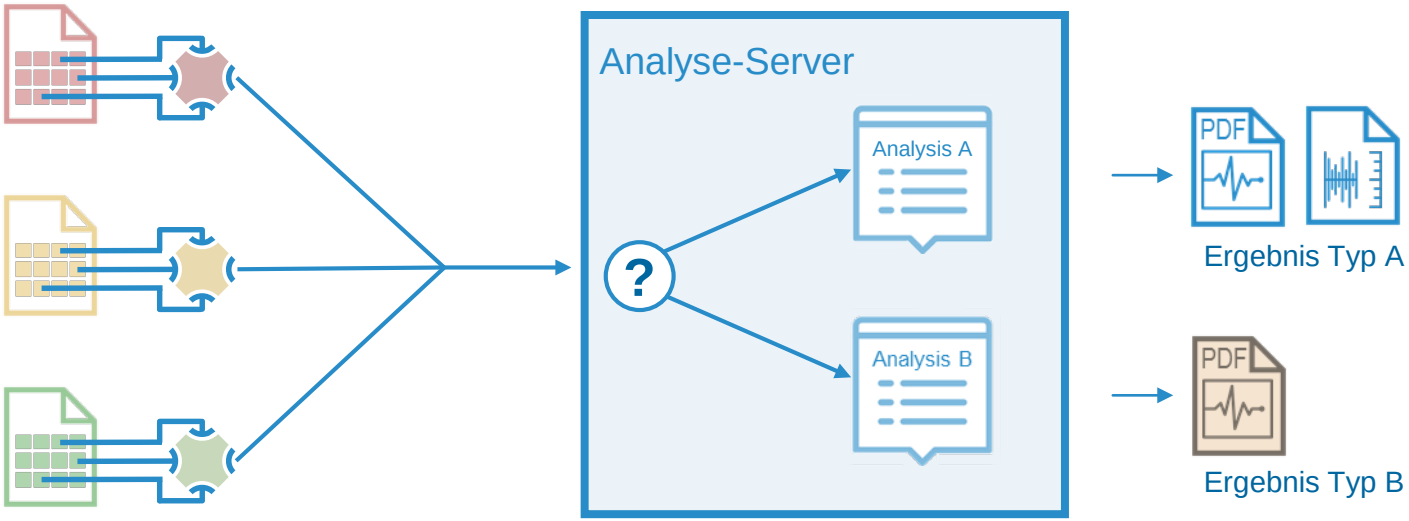
Analyse : Definition in DIAdem





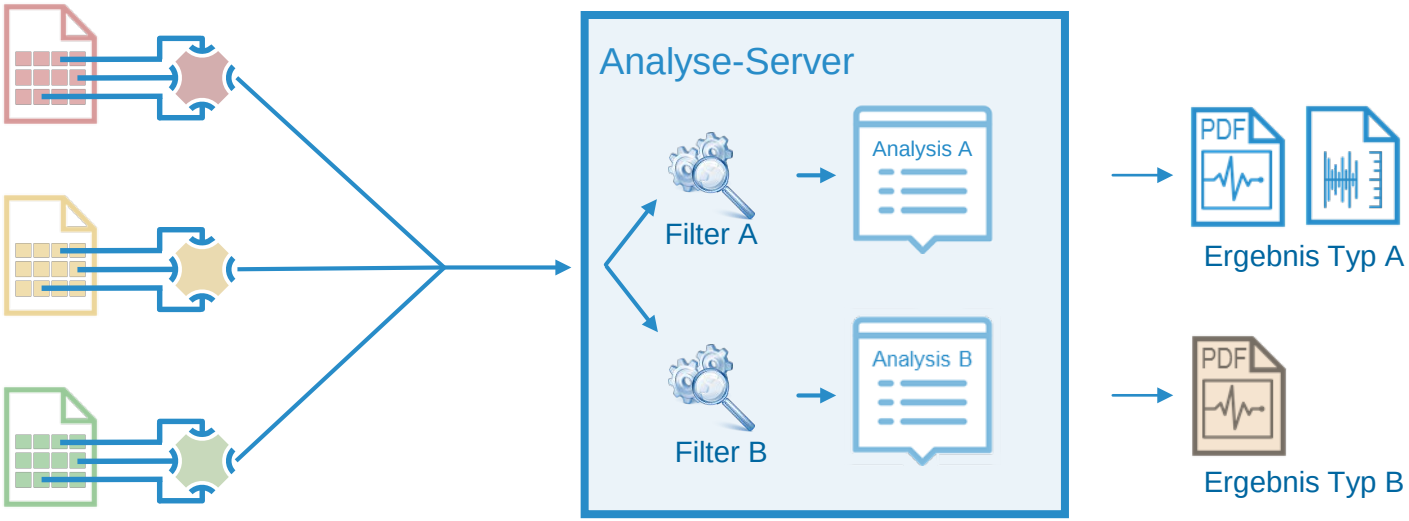
NATIONAL INSTRUMENTS

Der Analyse-Server : Welche Analyse?



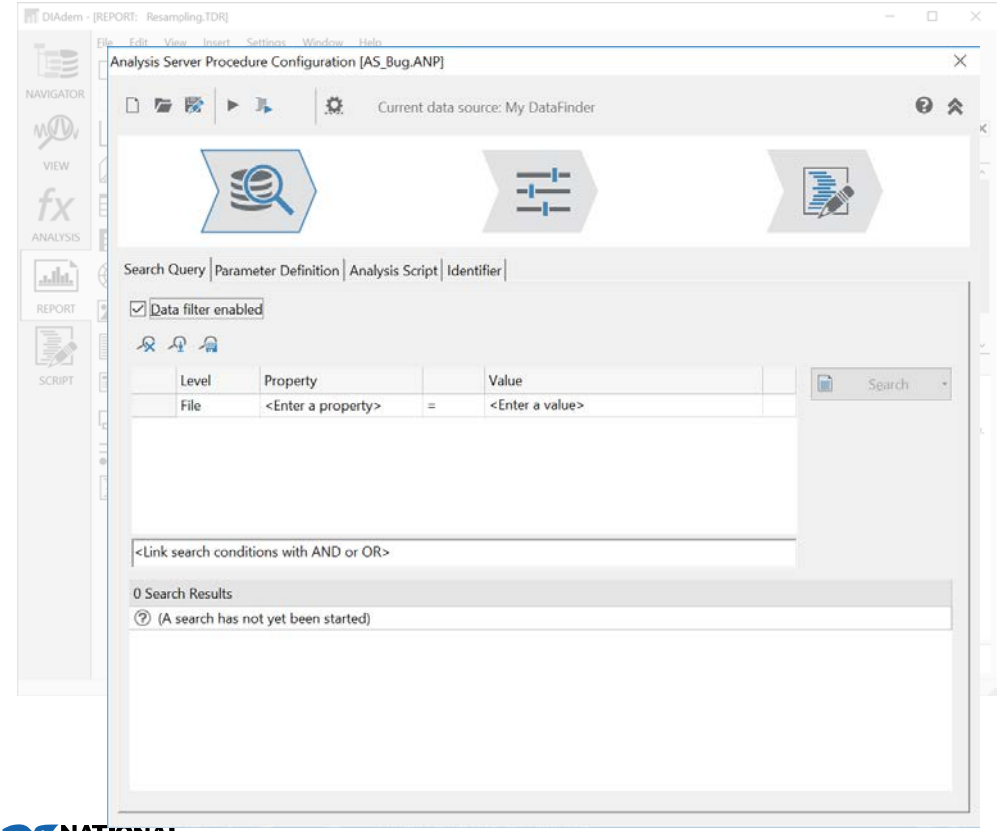
NATIONAL INSTRUMENTS

Der Analyse-Server : Auswahl der Analyse über Metadaten



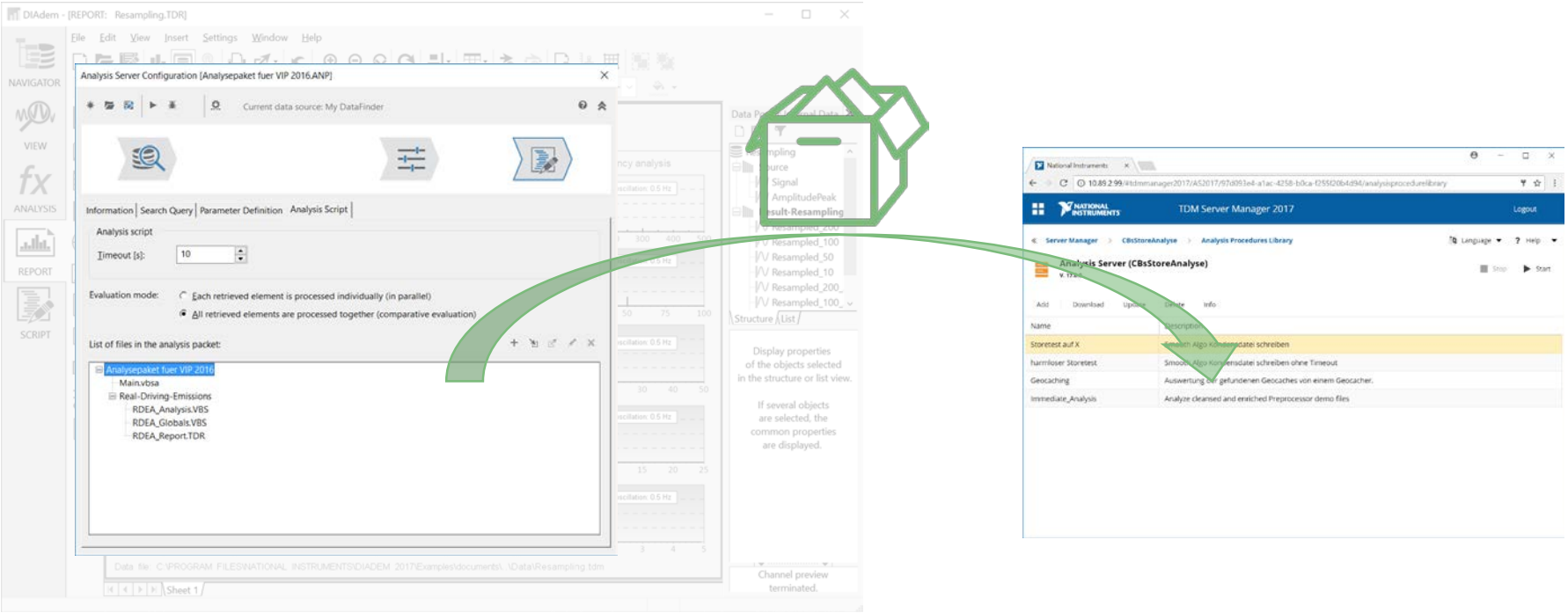
NATIONAL INSTRUMENTS

Analyse : Definition in DIAdem

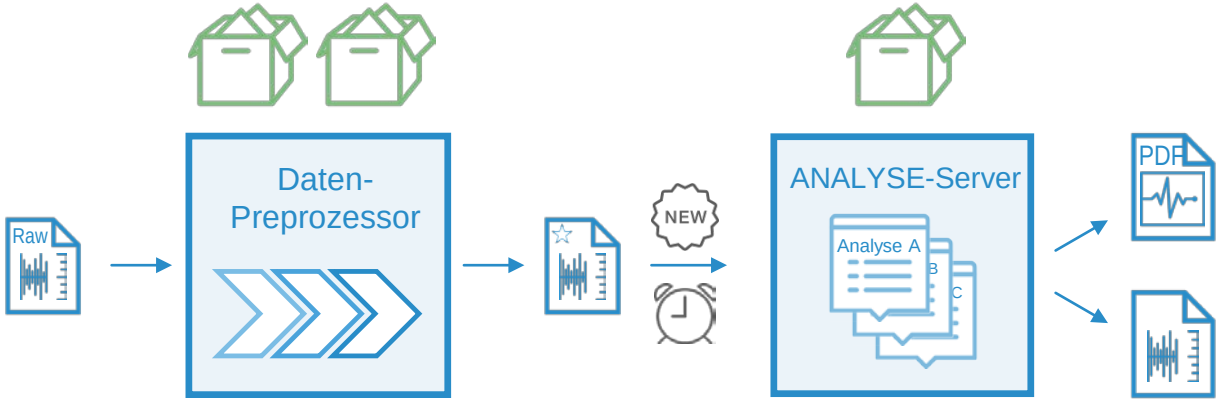


NATIONAL INSTRUMENTS

Analyse: Upload zum Server

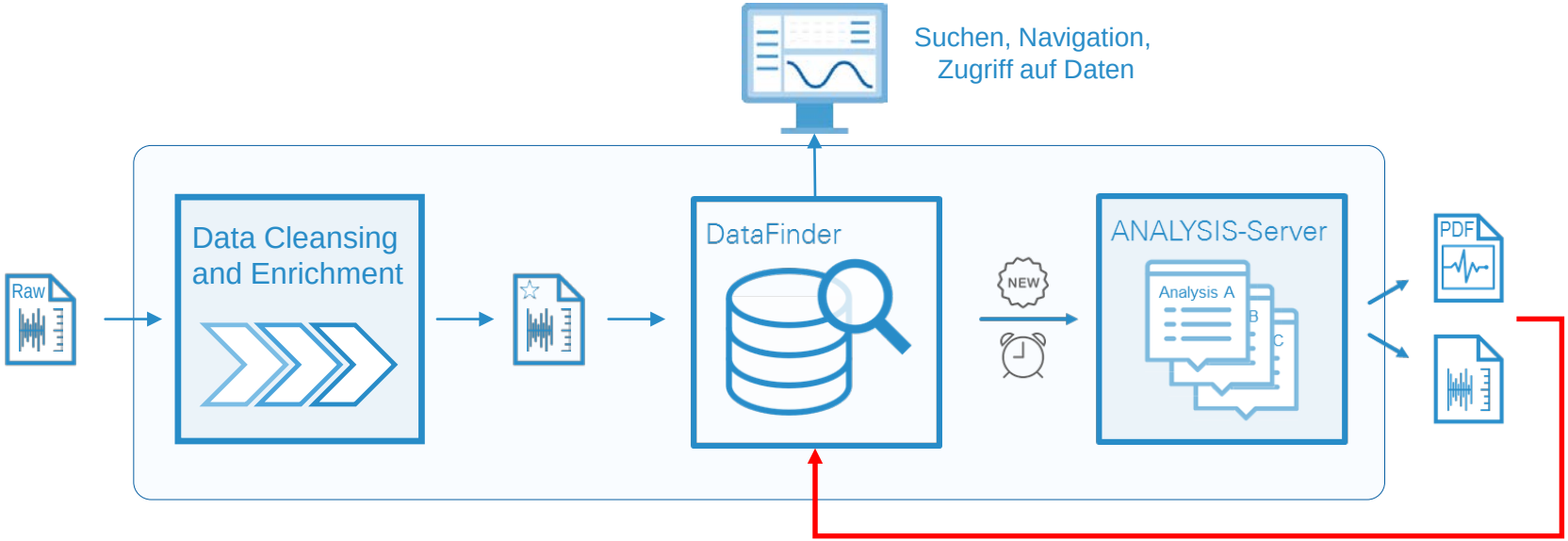


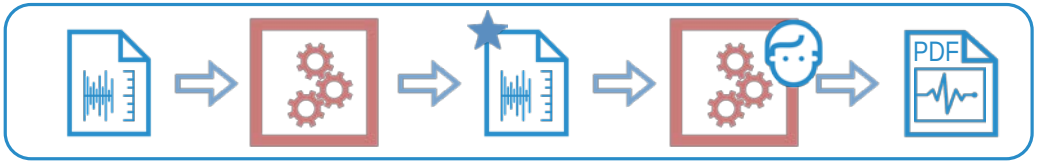
Die gesamte Prozesskette von der Messung zum Report



NATIONAL INSTRUMENTS

Data Preprozessor, DataFinder und Analyse-Server





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