

Integrating the Healthcare Enterprise

5.検査自動化システム LDAプロフィール

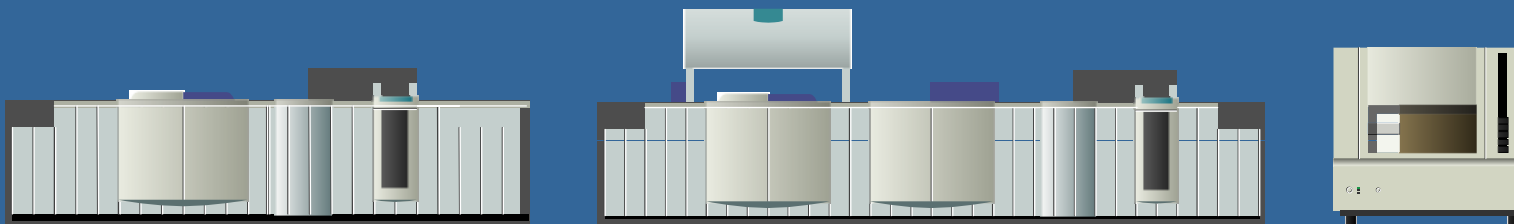
日本IHE協会臨床検査技術委員会
株式会社日立ハイテクノロジーズ 石井 尚実



LDAとは

Laboratory Device Automation Profile

臨床検査プロセスに関係する
Automation Managerと臨床検査装置
(検査前／後処理装置、分析装置)
間のワークフローを記述しています。



LDAとは

臨床検査システムと自動分析装置

臨床検査システム



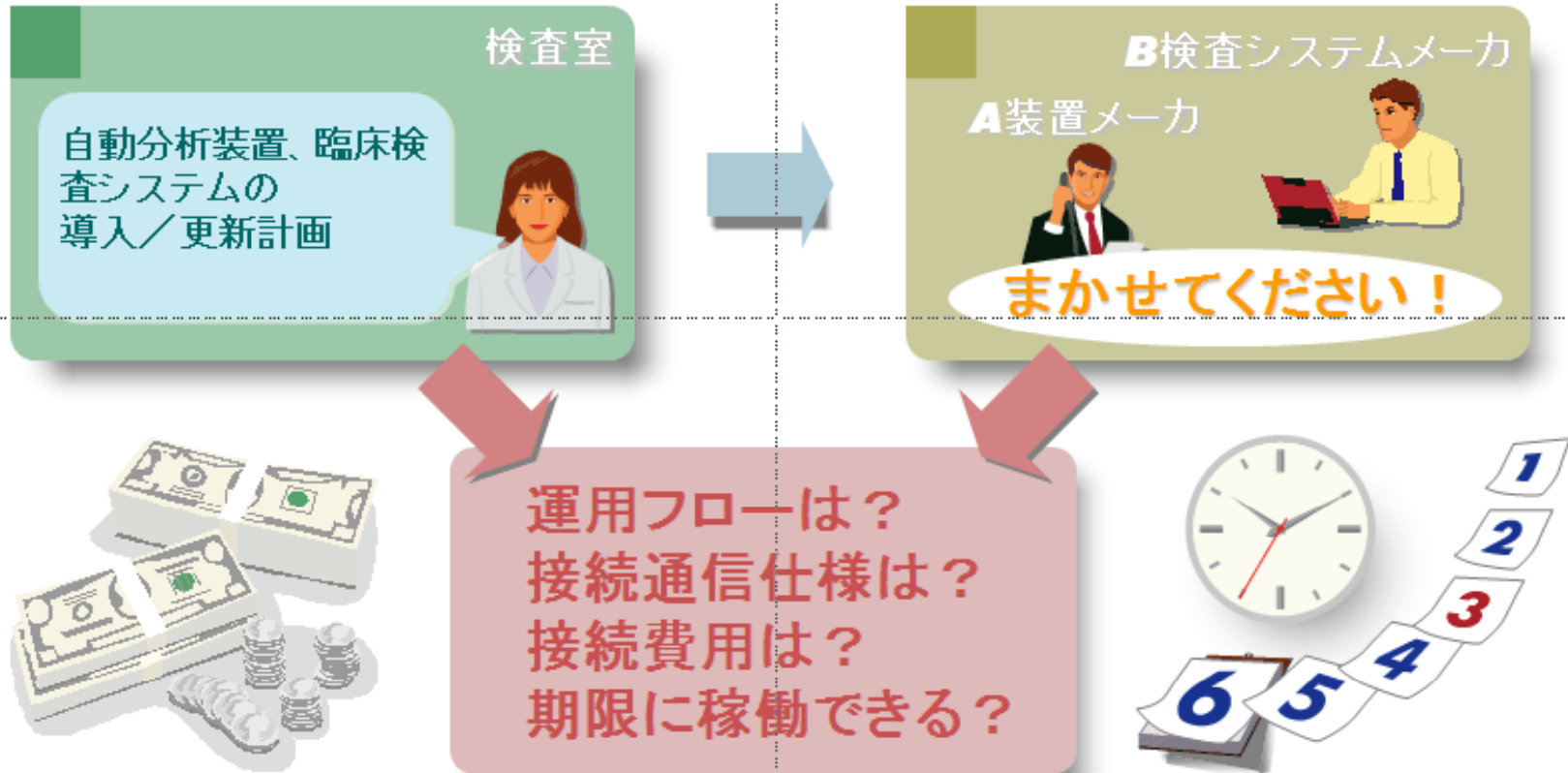
多種多様なインターフェースが存在している

自動分析装置



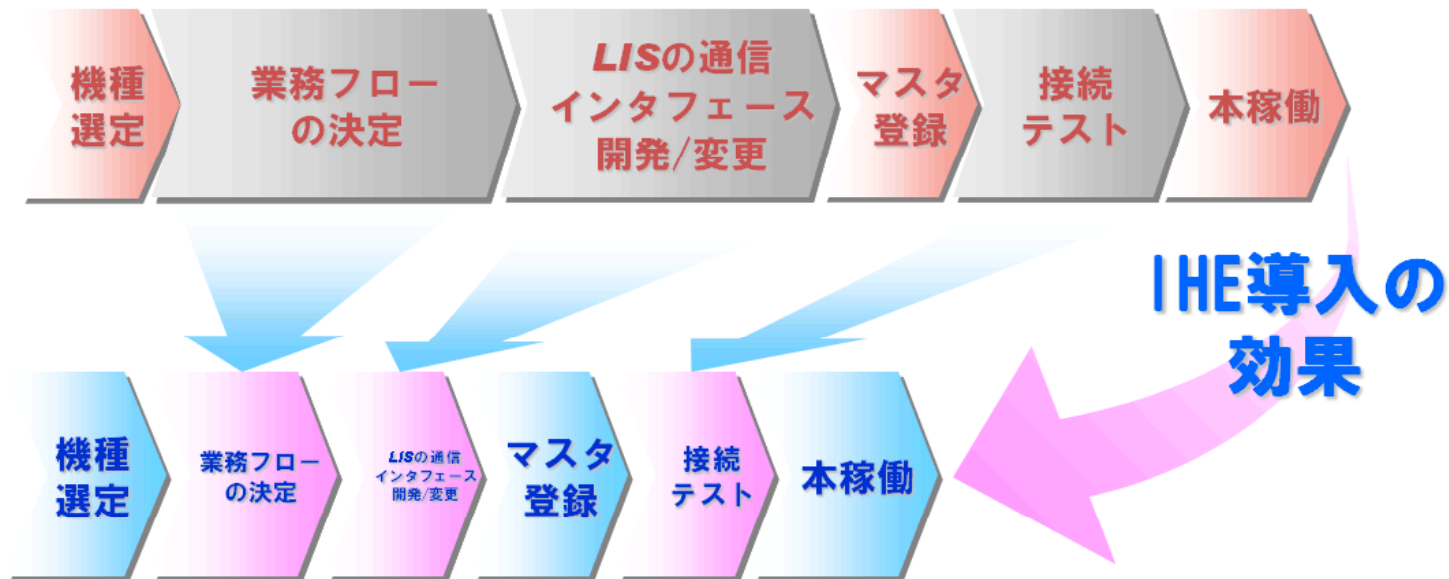
LDAとは

品質, コスト, 期間



LDAとは

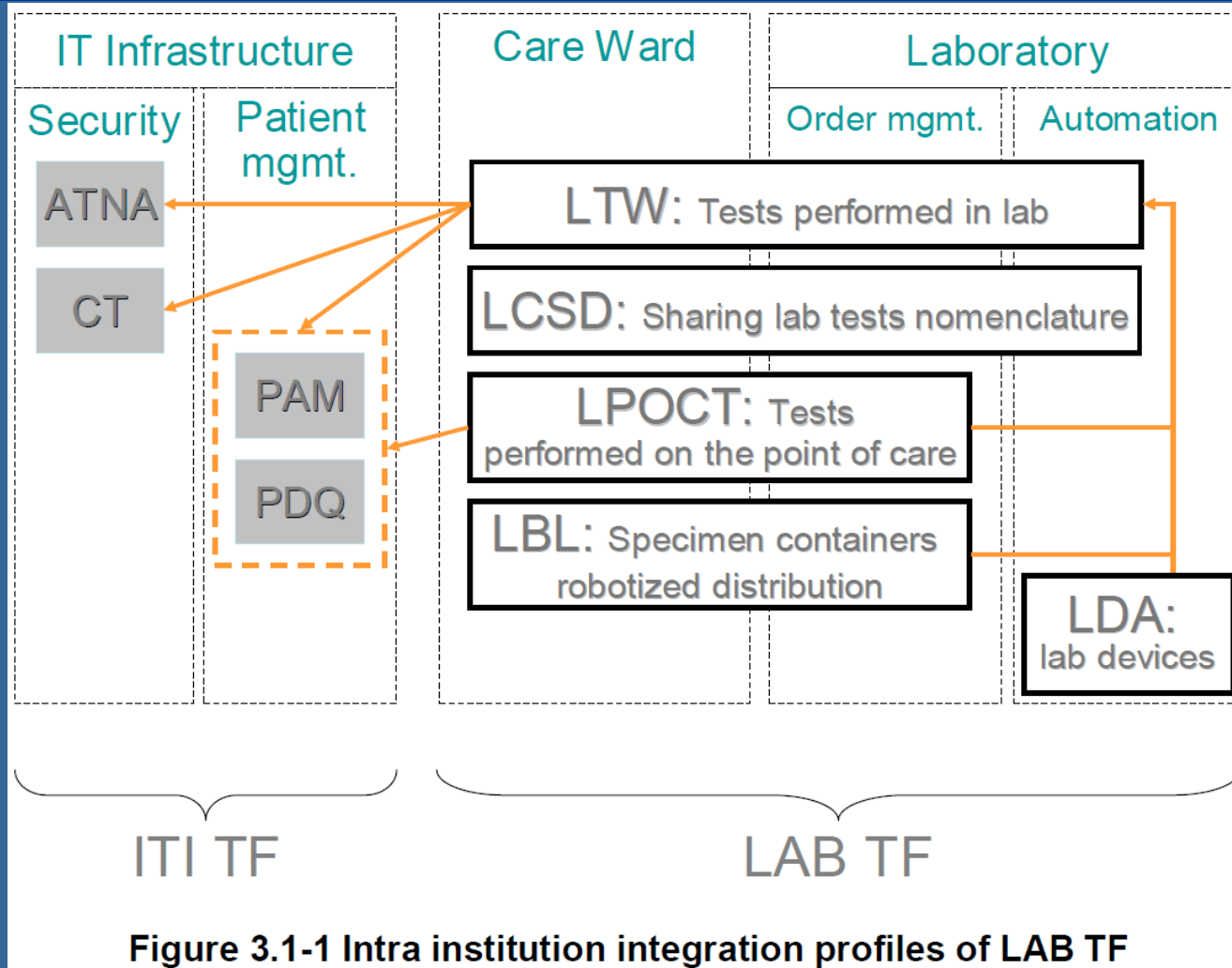
IHE対応による導入プロセスの改善



IHE施策

- 業務フローを分析し、情報の発生タイミングと送受信内容を明確化
- 医療情報標準のHL7をワークフローにマッピング
- コネクタソンでの事前検証

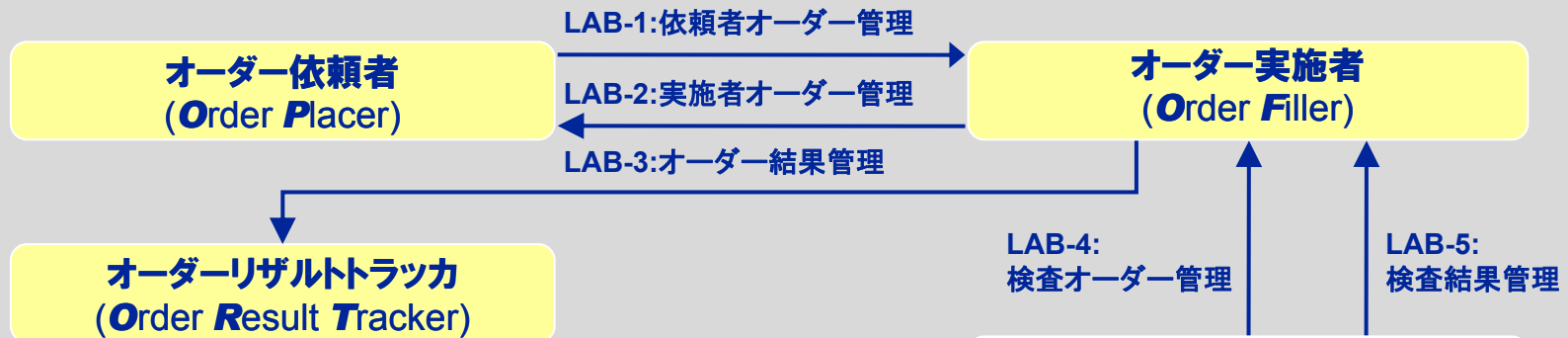
LDAの位置付け



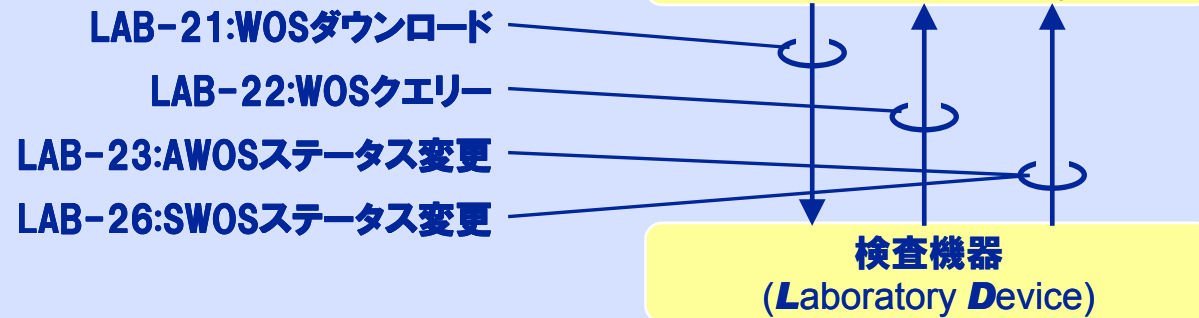
IHE Laboratory (LAB) Technical Framework Volume 1 (LAB TF-1)
Integration Profiles Revision 3.0 – Final Text May 19, 2011 から転載

LDAの位置付け

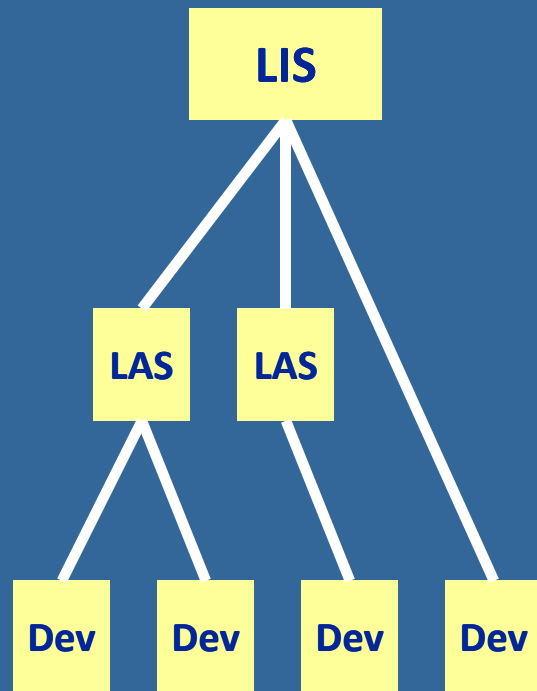
LTW



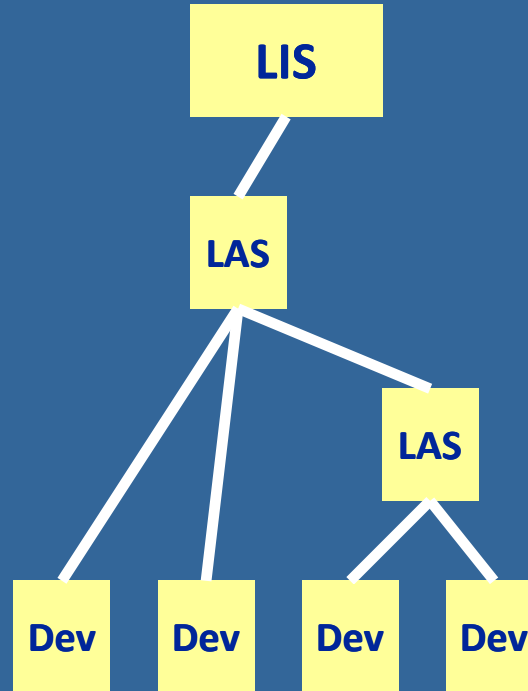
LDA



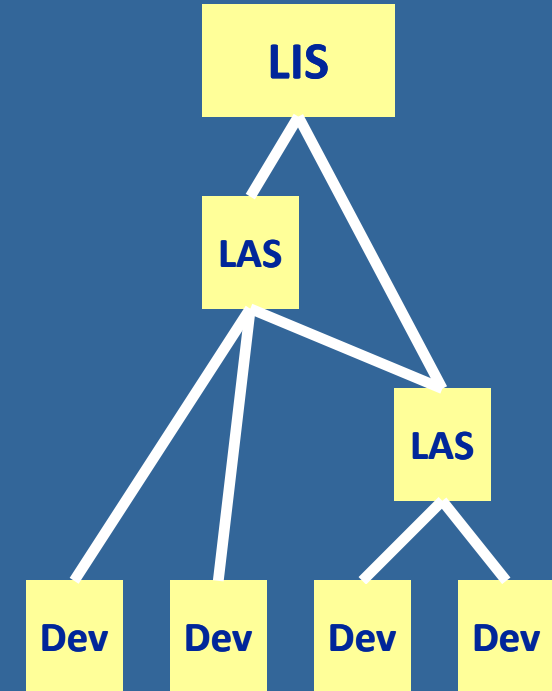
検査室での機器構成



One level of LAS

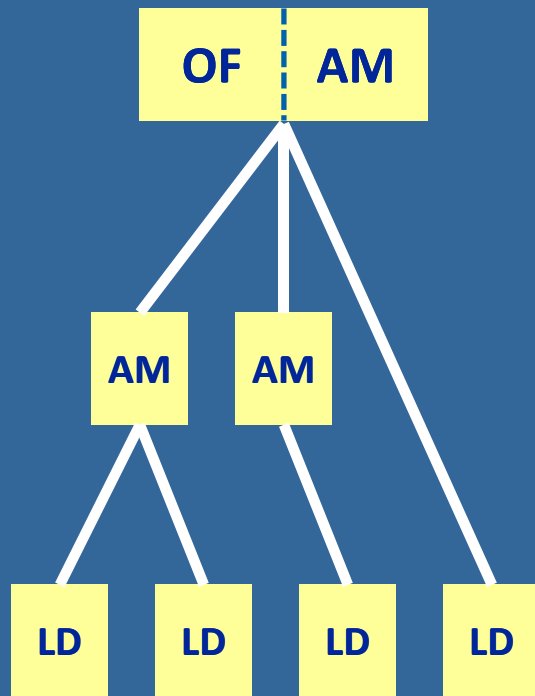


Two level of LAS and single path

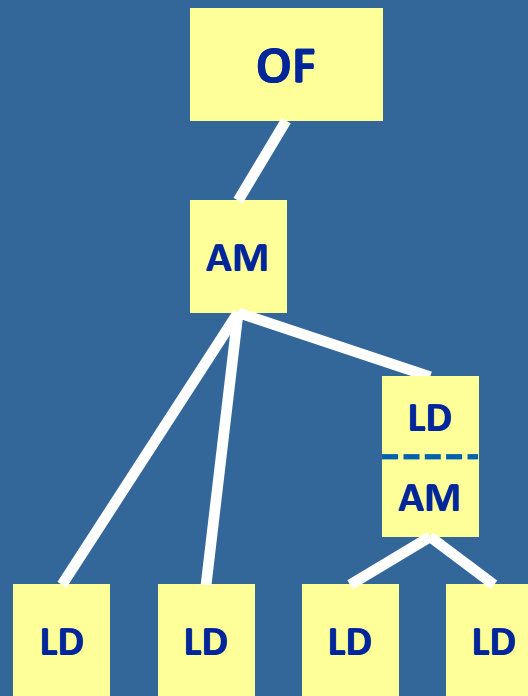


One level of LAS and multi-path

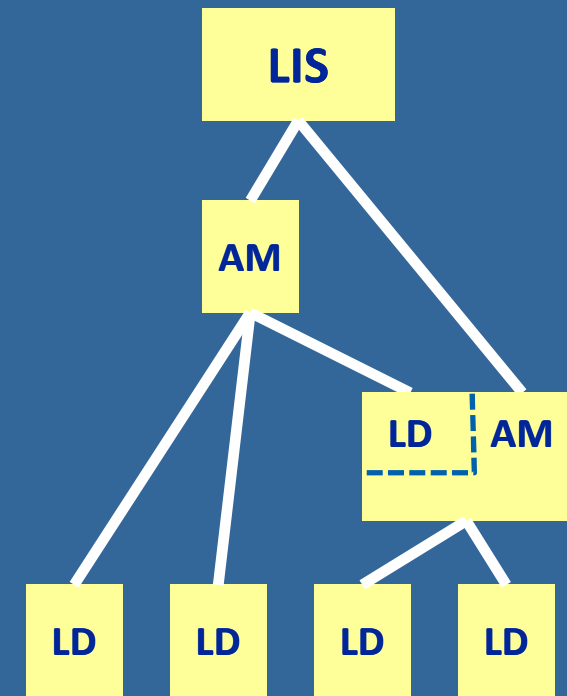
アクター表記



One level of LAS

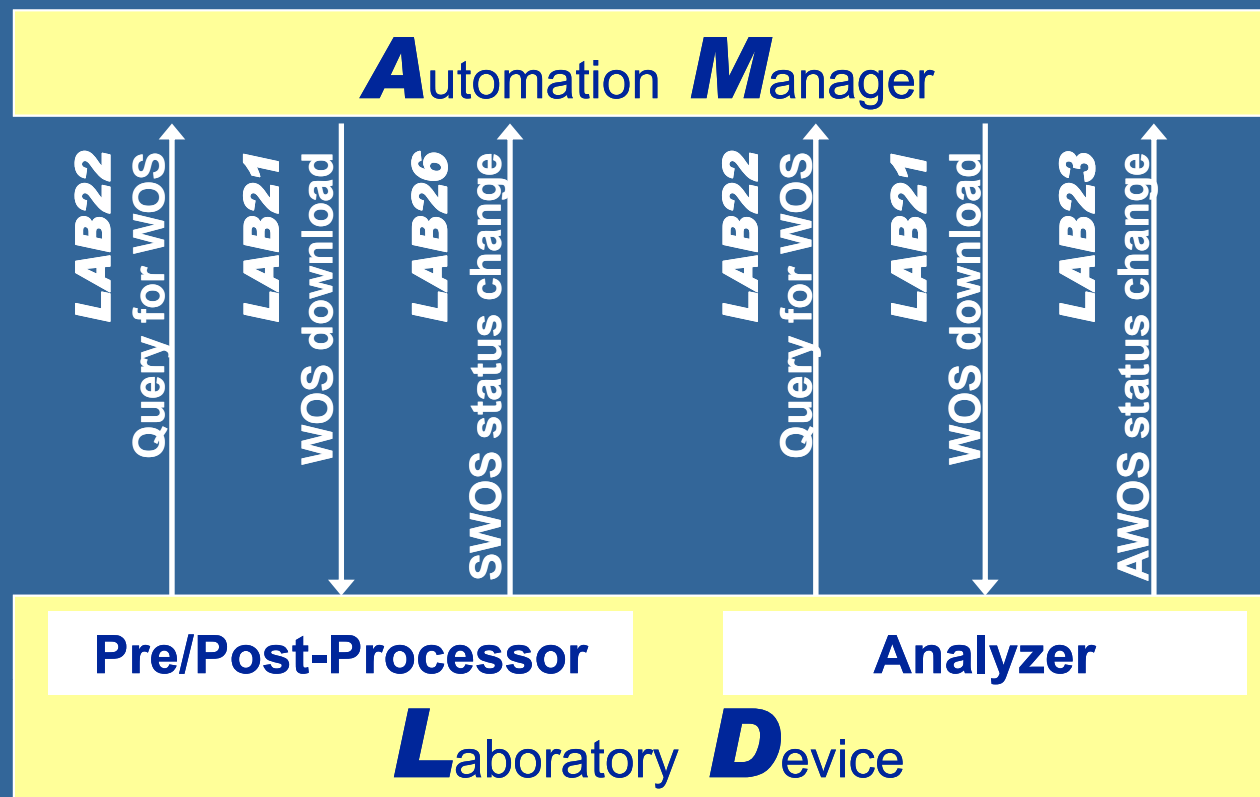


Two level of LAS and
single path



One level of LAS and
multi-path

アクターとトランザクション



WOS

(**W**ork **O**rd**S**teps)

AMからLDへ送信される実施オーダ、分析装置、分析前後処理装置毎、実施プロセス毎に存在する

AWOS

(**A**nalytical **W**ork **O**rd**S**tep)

分析装置により、検体に対して行われるステップオーダ

SWOS

(**S**pecimen **W**ork **O**rd**S**tep)

分析装置以外の、分析前後処理装置により、検体に対して行われるステップオーダ

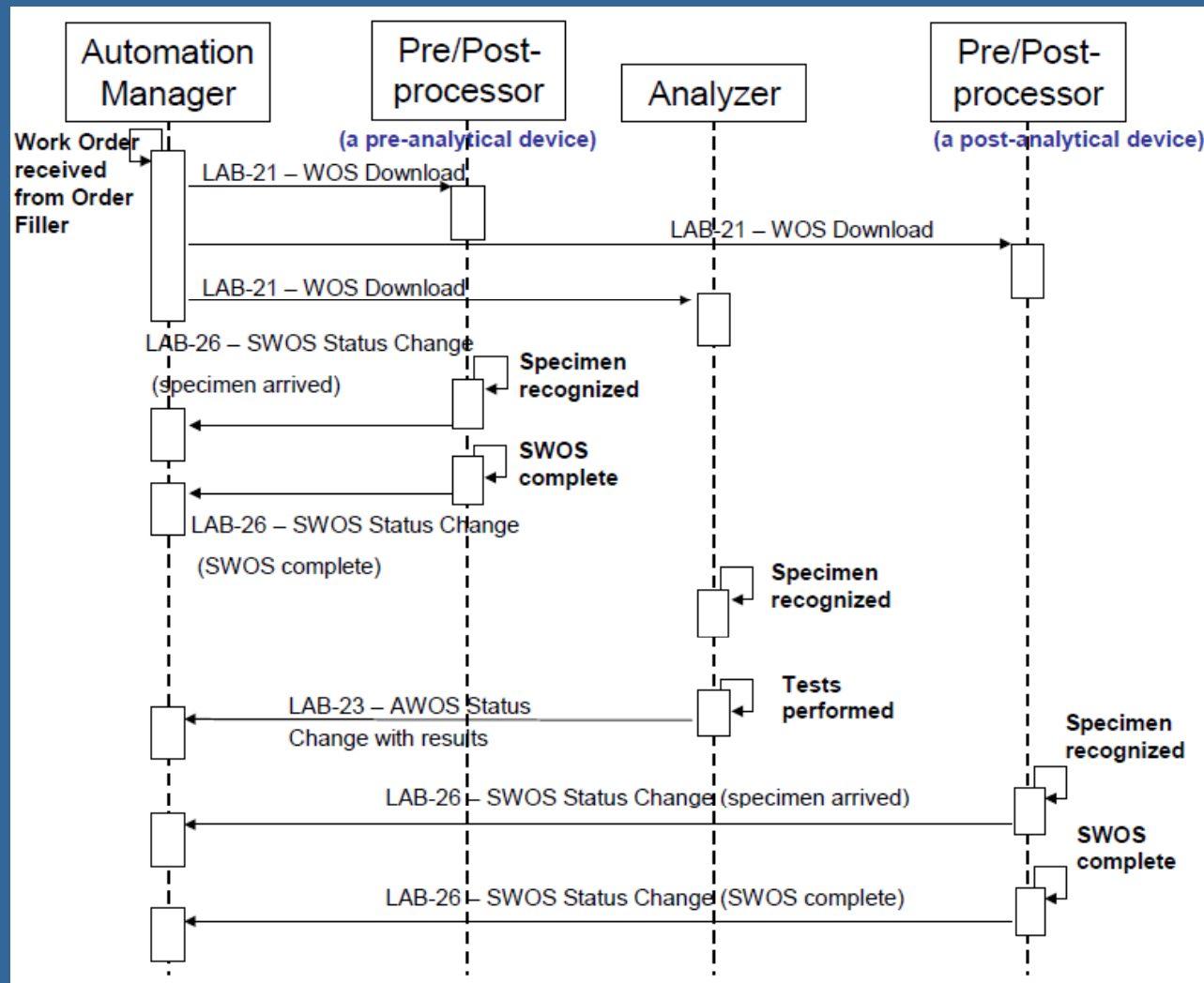
アクターとトランザクション

| Actors | Transactions | Optionality | Section in Vol.2 |
|--------------------|-----------------------------|-------------|------------------|
| Automation Manager | LAB-21 : WOS Download | R | LAB TF-2: 9 |
| | LAB-22 : WOS Query | R | LAB TF-2: 10 |
| | LAB-23 : AWOS Status Change | R | LAB TF-2: 11 |
| | LAB-26 : SWOS Status Change | O | LAB TF-2: 12 |
| Analyzer | LAB-21 : WOS Download | O | LAB TF-2: 9 |
| | LAB-22 : WOS Query | O | LAB TF-2: 10 |
| | LAB-23 : AWOS Status Change | R | LAB TF-2: 11 |
| Pre/Post-processor | LAB-21 : WOS Download | O | LAB TF-2: 9 |
| | LAB-22 : WOS Query | O | LAB TF-2: 10 |
| | LAB-26 : SWOS Status Change | R | LAB TF-2: 11 |

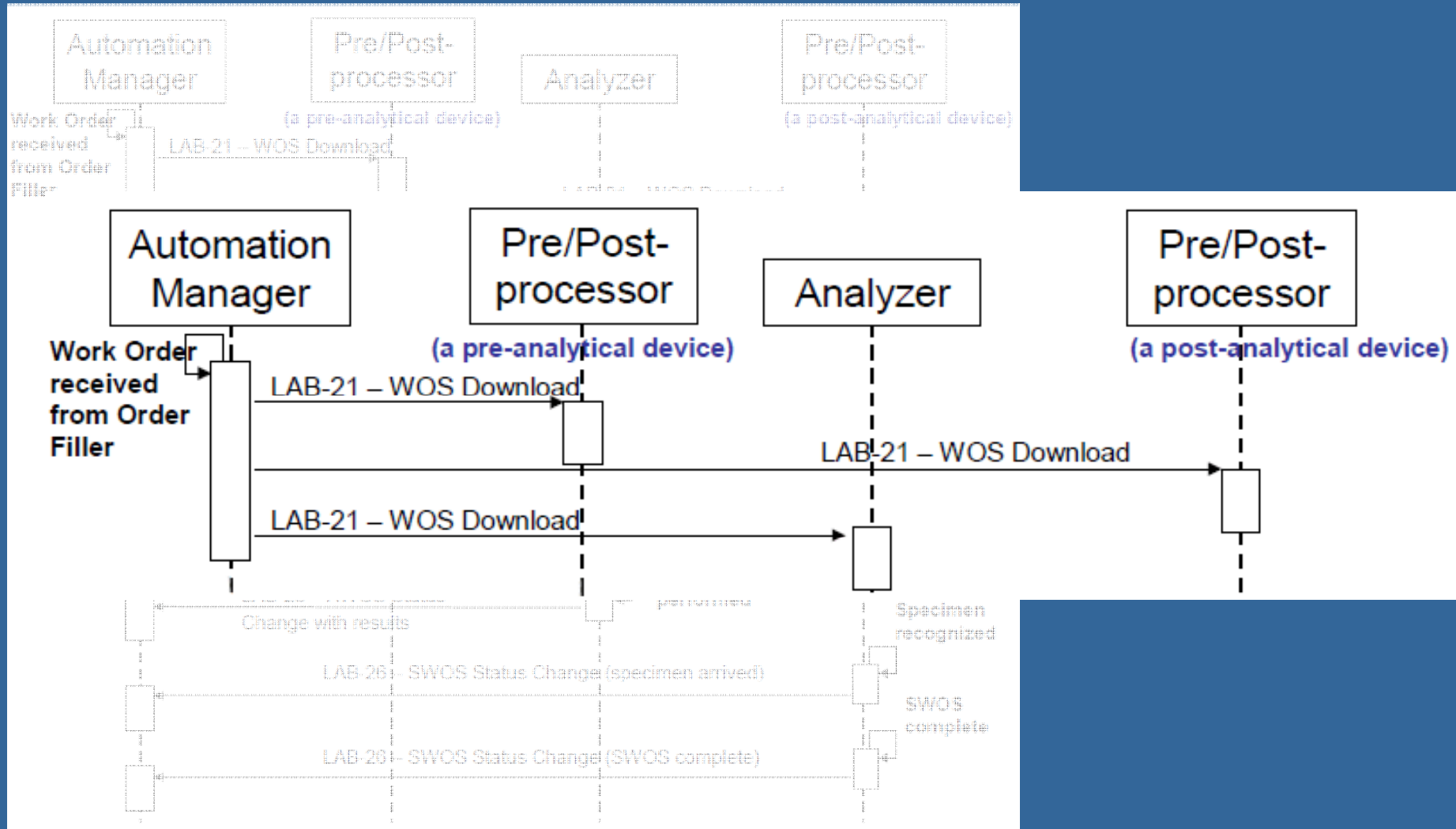
アクターごとのオプション

| Actors | Transactions |
|--------------------|---|
| Automation Manager | <i>Management of Pre/Post-processor</i> |
| Analyzer | <i>Query mode WOS</i> |
| | <i>Download mode WOS</i> |
| Pre/Post-processor | <i>Query mode WOS</i> |
| | <i>Download mode WOS</i> |

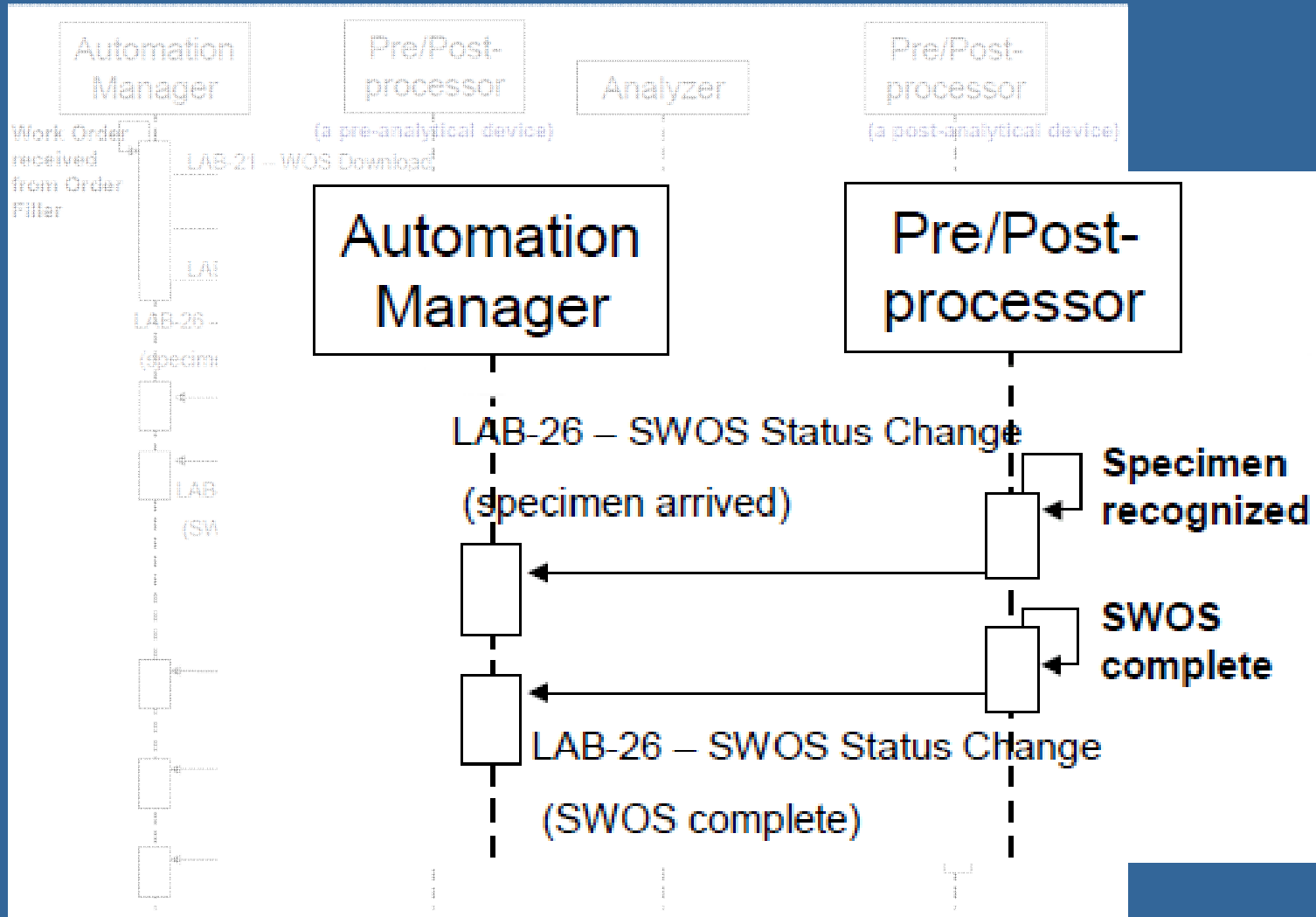
標準的なプロセス (Download)



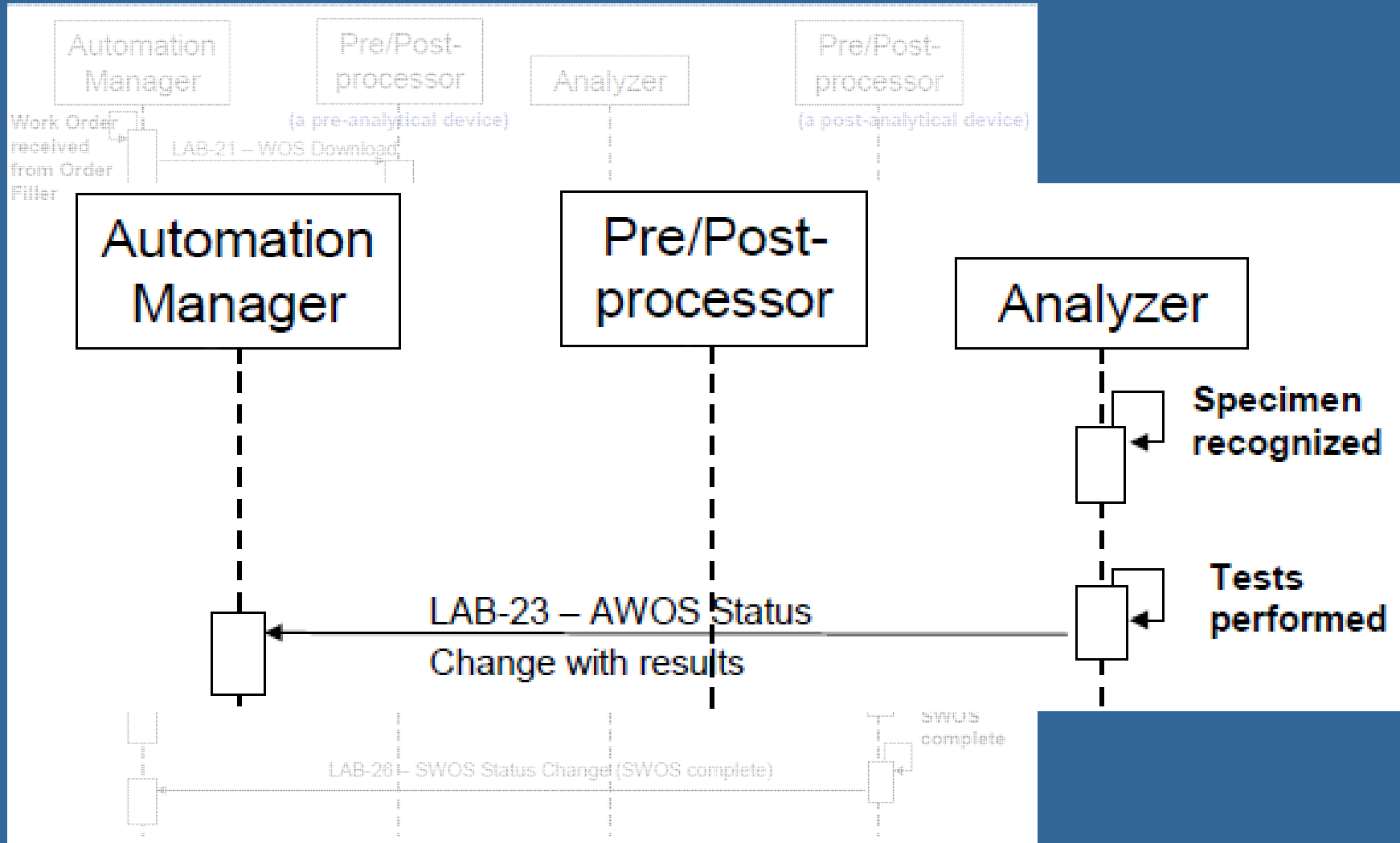
LAB-21 WOS Download



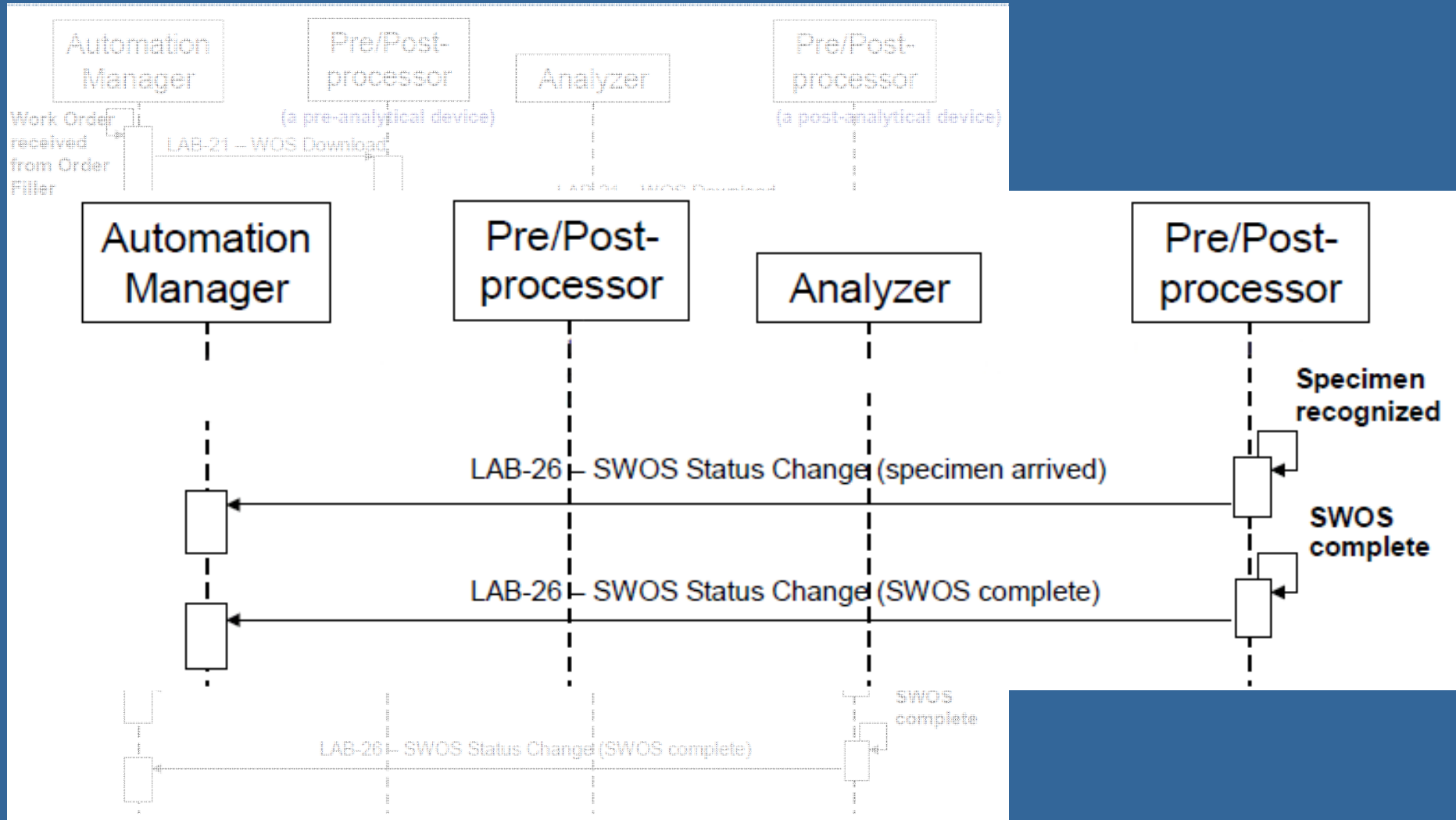
LAB-26 SWOS Status Change



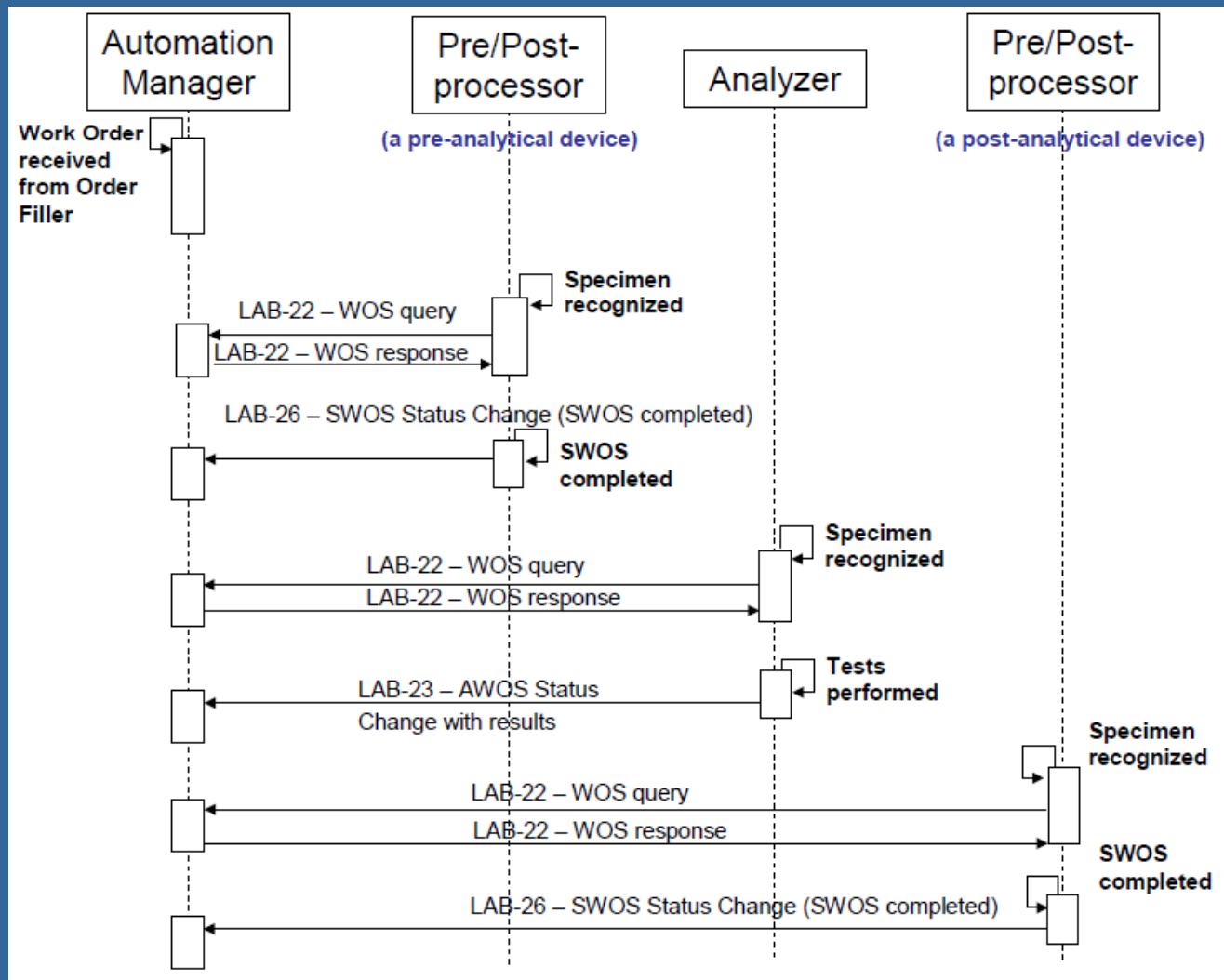
LAB-23 AWOS Status Change



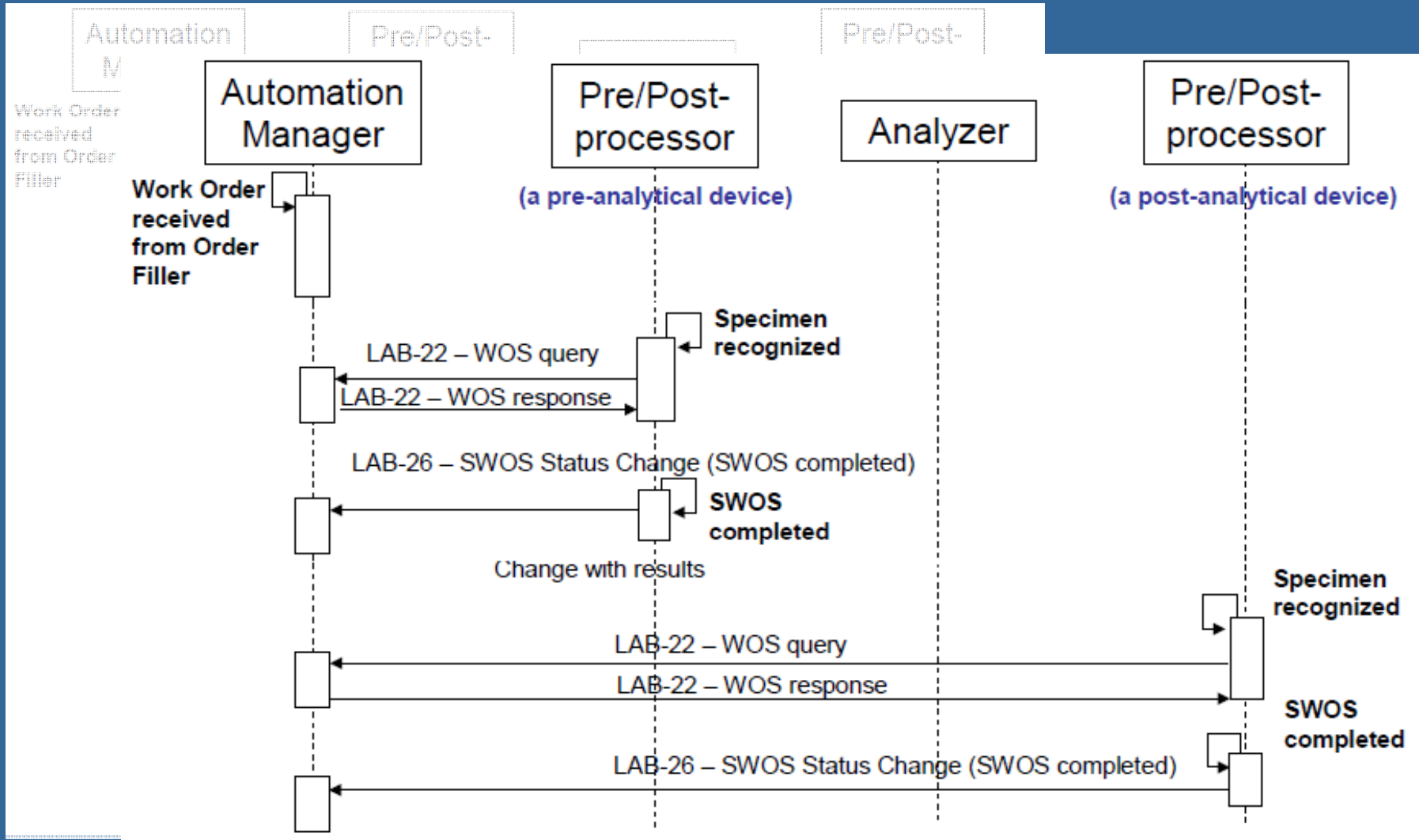
LAB-26 SWOS Status Change



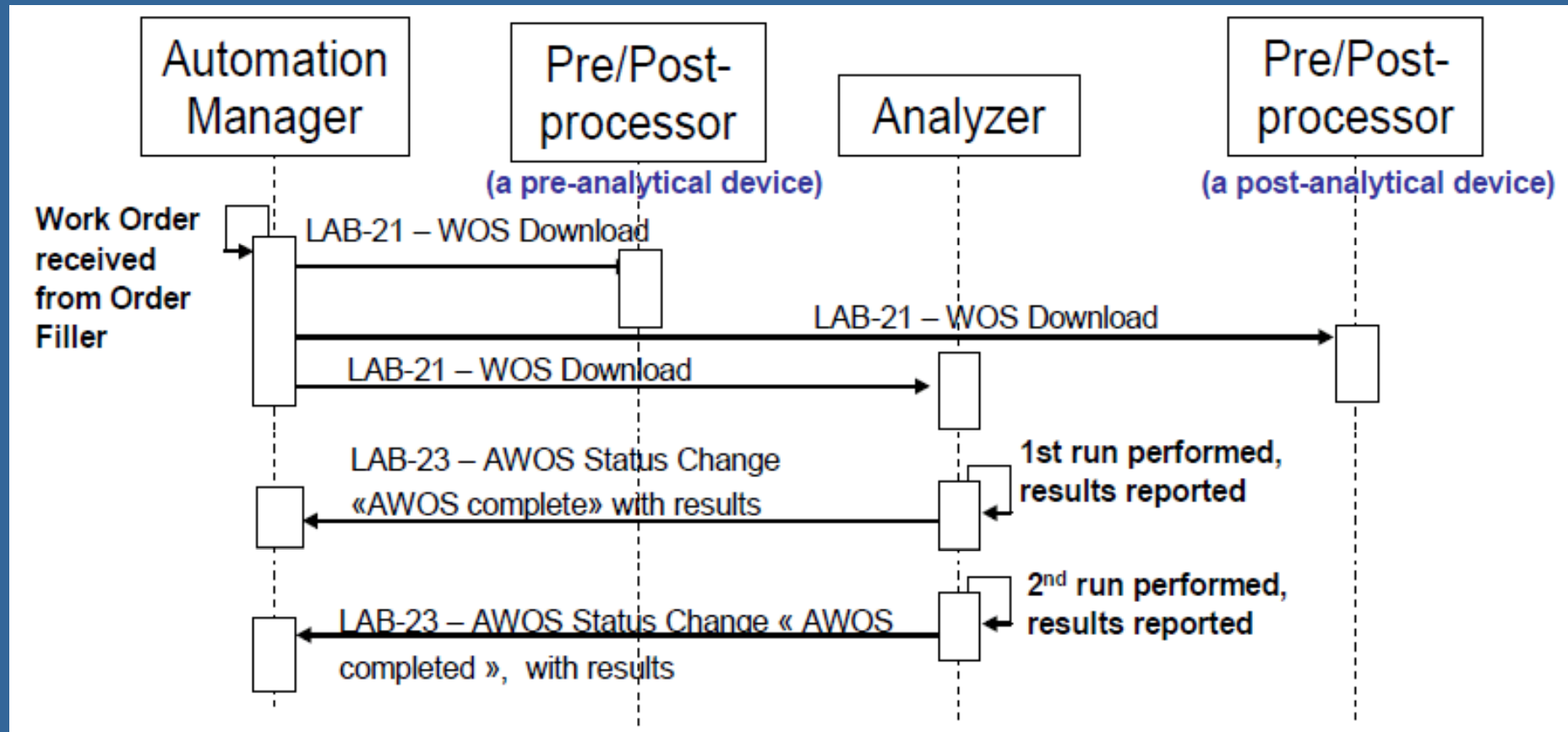
標準的なプロセス (Query)



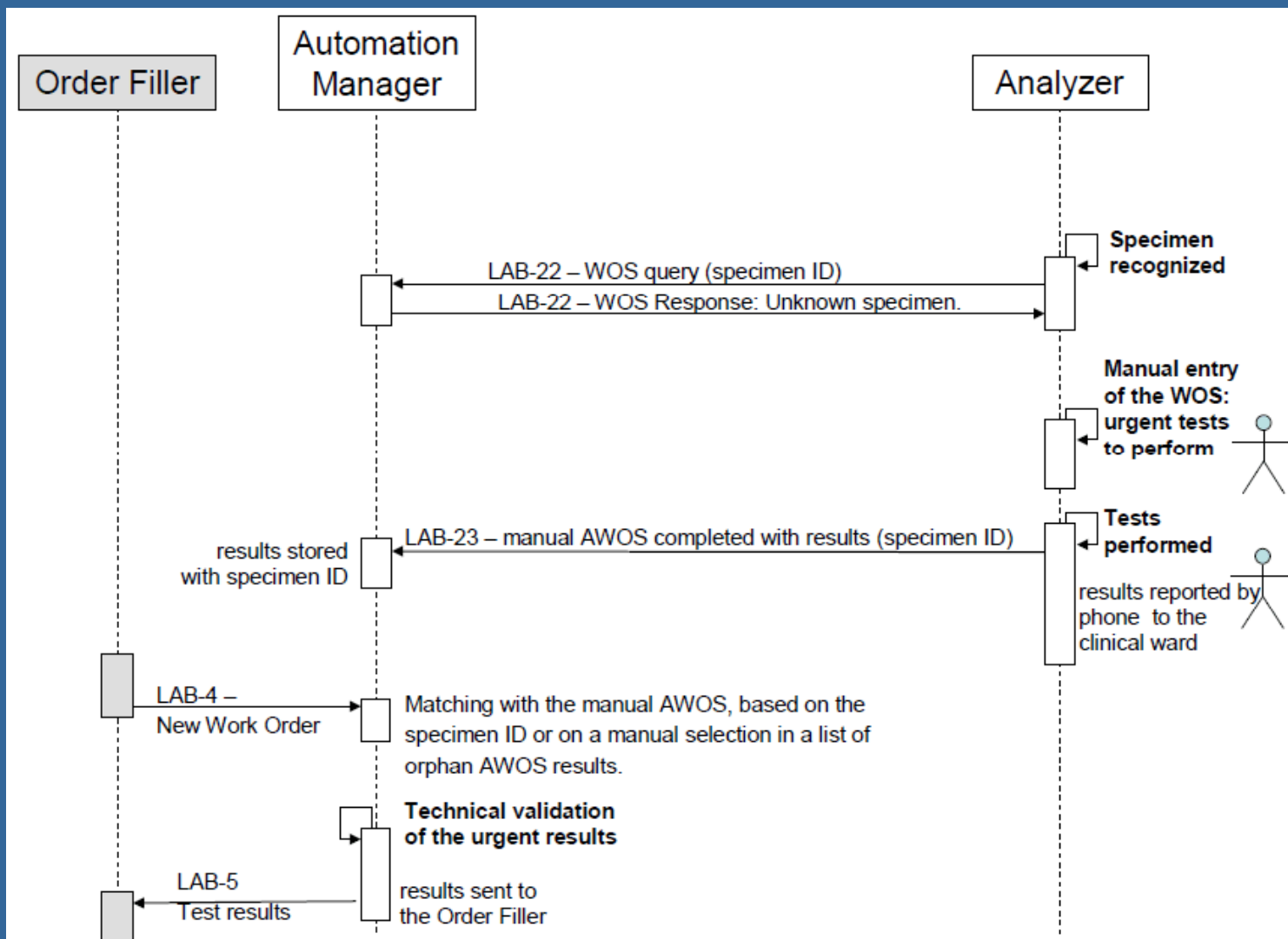
LAB-22 WOS Query-Response



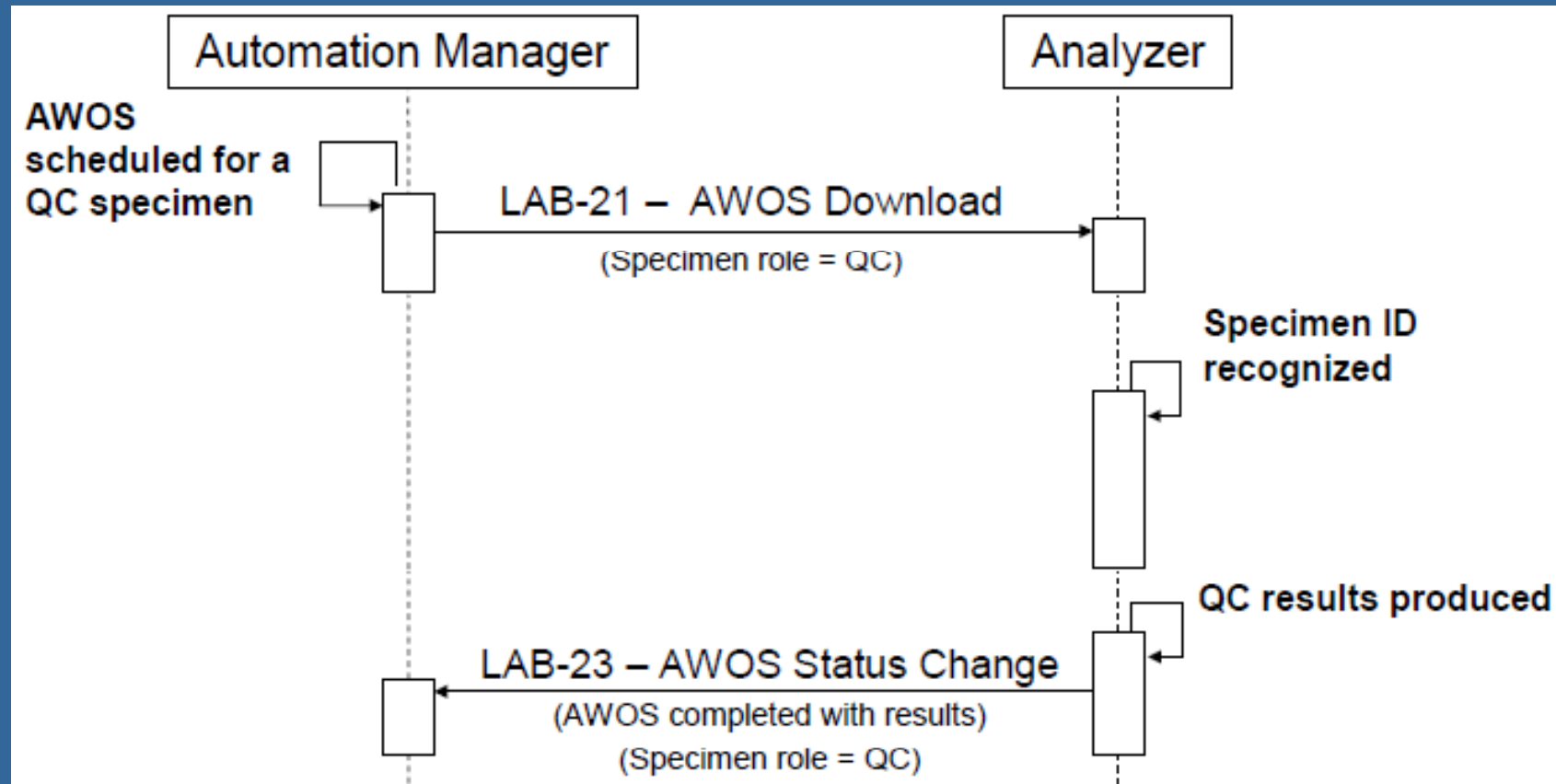
AMからの再検指示



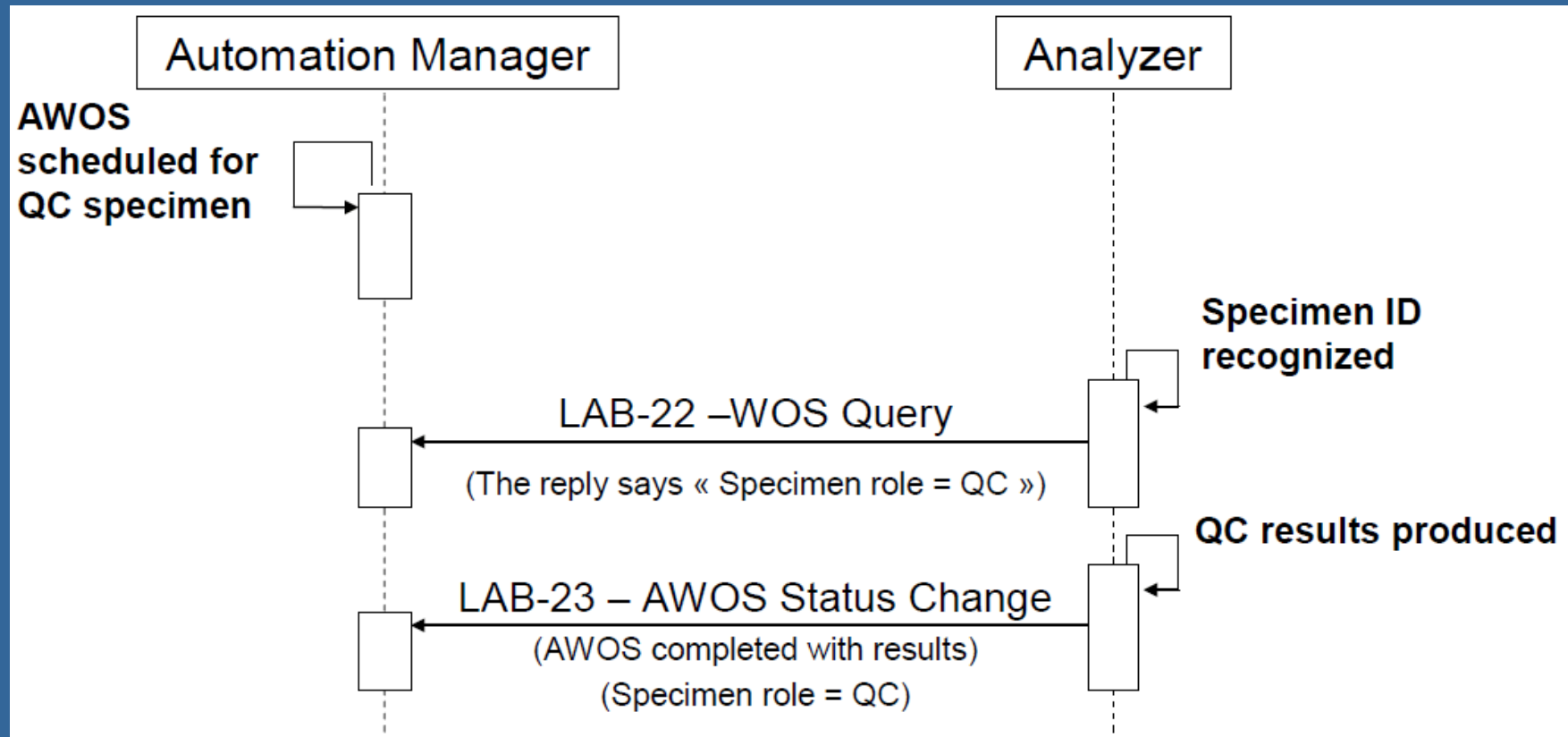
緊急検体処理



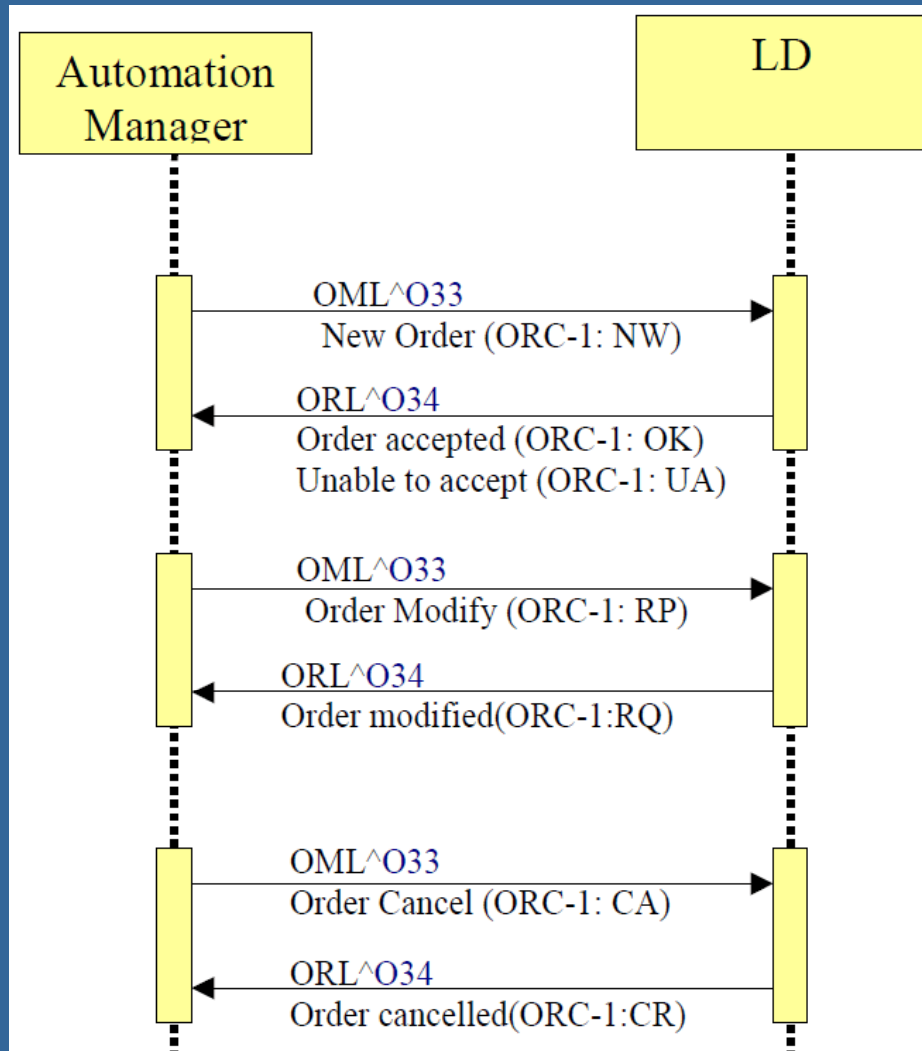
QC検体処理1



QC検体処理2



LAB-21: Work Order Step Download to LD



Actor: Automation Manager

Role: Translates a Work Order into a series of WOS assigned to the LDs. Downloads a WOS related to a specimen to the appropriate LD.

Actor: (LD) Pre/Post-processor, Analyzer

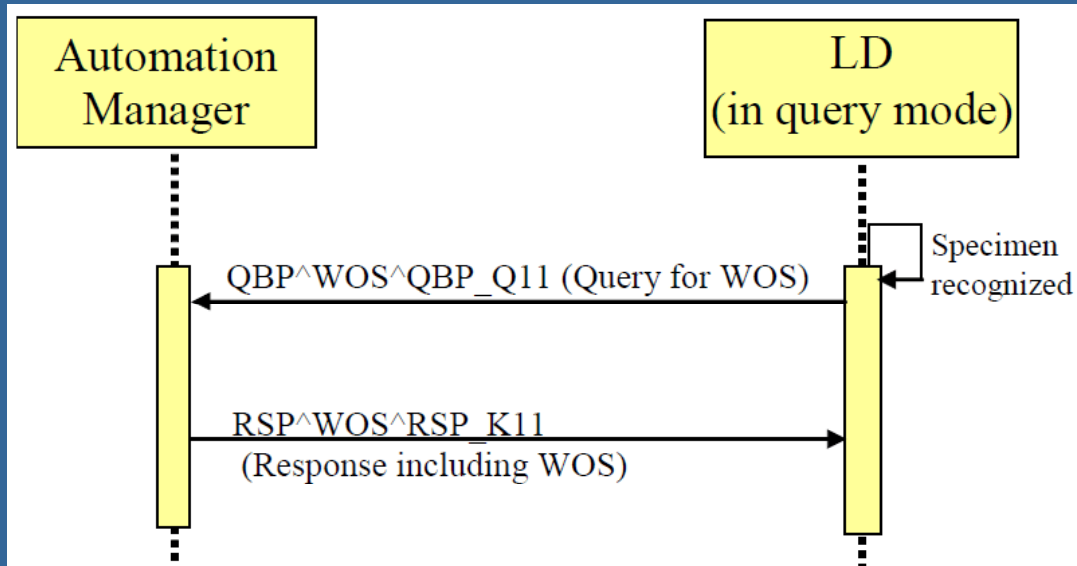
Role: Performs the WOS on the specimen

Trigger Events

OML (O33): Event on WOS sent by the AM.

ORL (O34): Acknowledgement sent by the LD.

LAB-22: WOS Query



Actor: Automation Manager

Role: Manages the Work Orders and WOS. Responds with the appropriate WOS to a query from the LD.

Actor: (LD) Pre/Post-processor, Analyzer

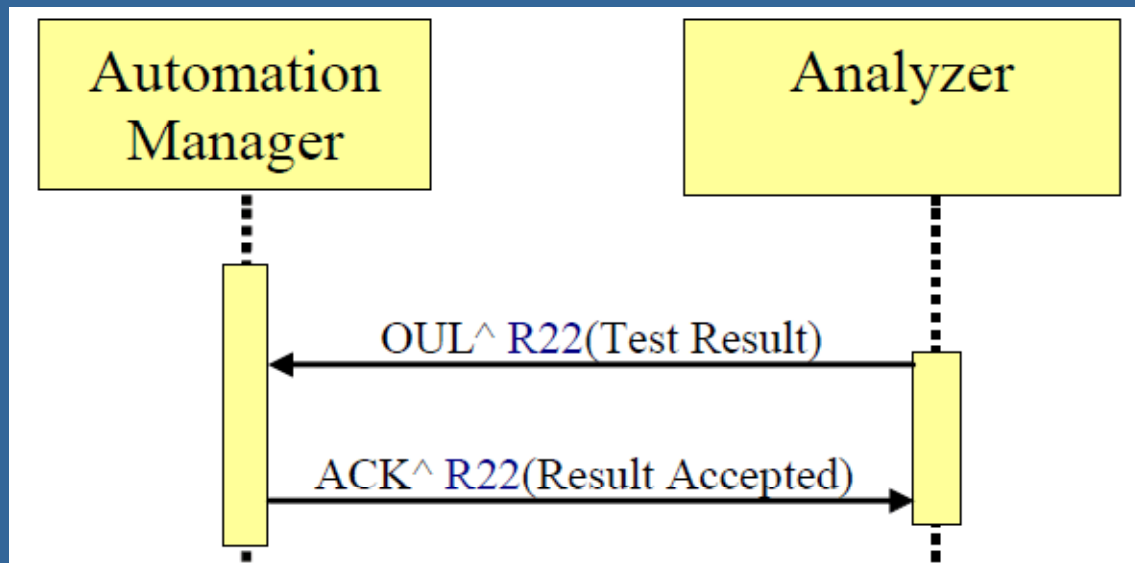
Role: Queries the Automation Manager for a WOS related to the specimen, and receives the WOS as the response.

Trigger Events

QBP(Q11) : Query for the WOS sent by the LD.

RSP(K11) : Response including the WOS sent by the Automation Manager.

LAB-23: AWOS Status Change



Actor: Automation Manager

Role: Manages Analyzer in order to implement the AWOS. Receives the test results from Analyzer, performs technical validation, then sends the validated results to Order filler.

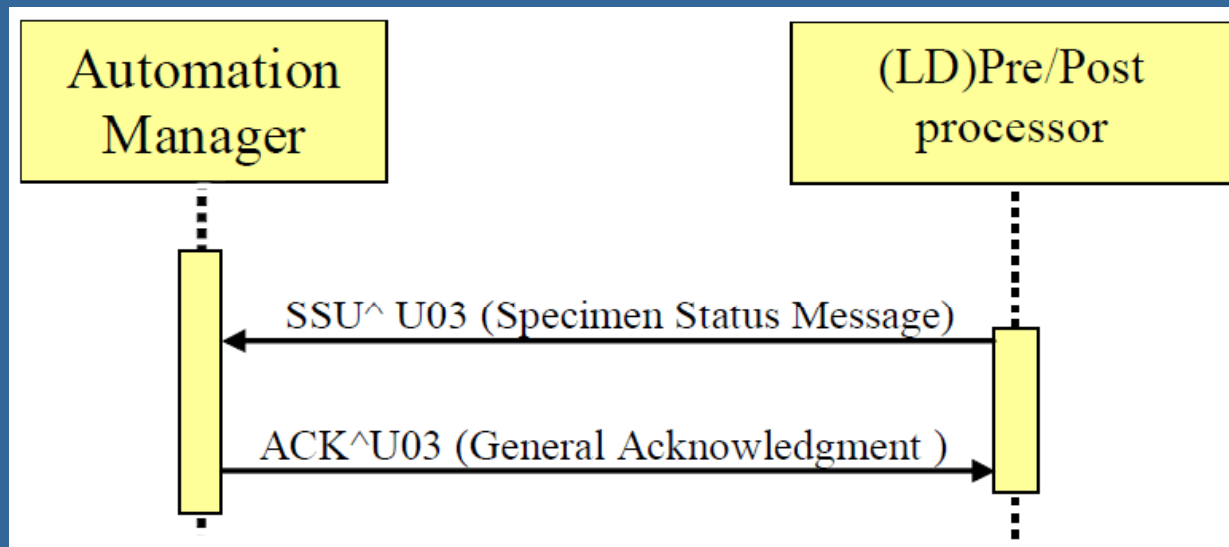
Actor: Analyzer

Role: Analyzes the specimen and outputs the test results.

Trigger Events

Analyzer sends test results. Automation Manager returns acknowledgement.

LAB-26: SWOS Status Change



Actor: Automation Manager

Role: Manages the SWOS

Actor: (LD) Pre/Post Processor

Role: Manages the Pre/Post-analysis process on the specimen and generates a Process Result or Specimen Status Message.

Trigger Events

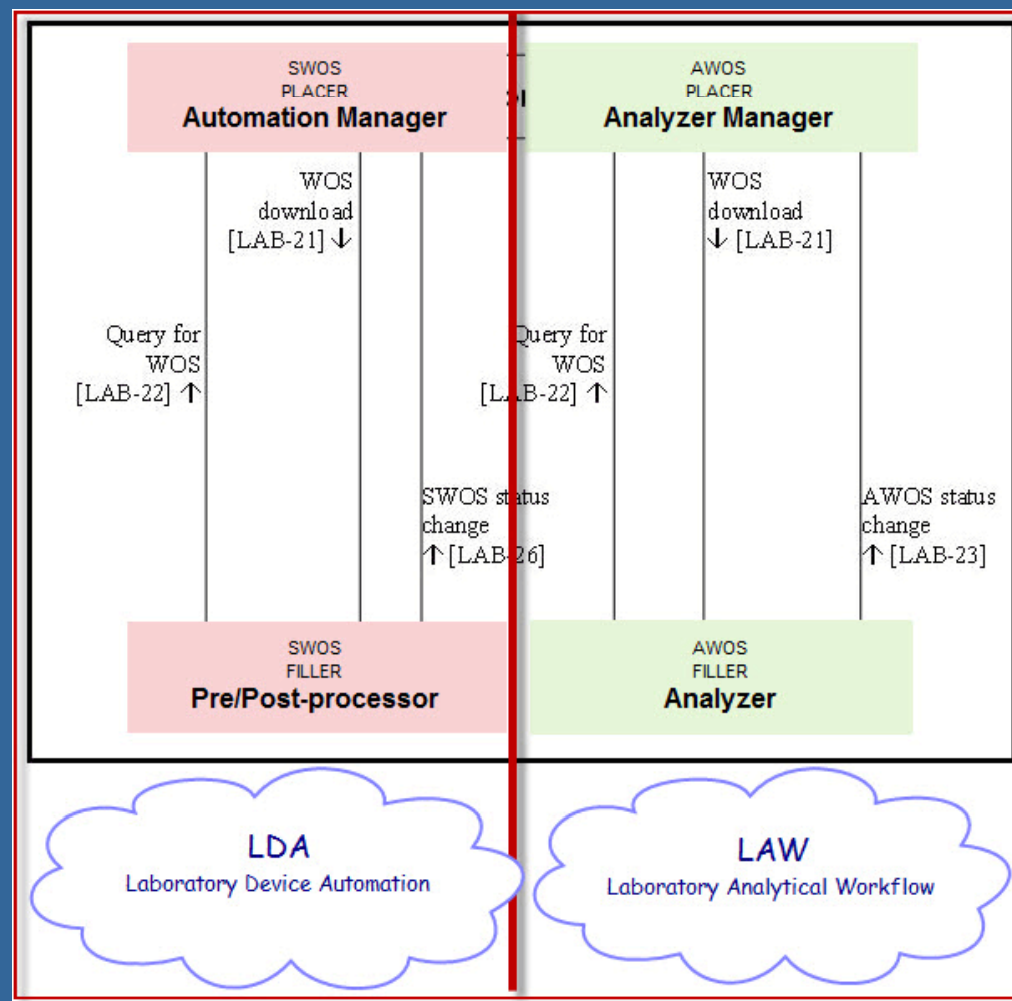
SSU (U03): Pre/Post Processor transmits a Specimen Status Update Message.

ACK (U03): Automation Manager sends the affirmative response.

トピックス

LAW

Laboratory Analytical Workflow



Questions ?



WWW.IHE-J.ORG