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Creating a POSTMAN collection file

Open Notepad (Start → Notepad) and paste in the code below:

```
{
  "info": {
    "_postman_id": "6de645db-4111-4d25-aeb3-016b7bb4c0cf",
    "name": "Directo API",
    "description": "# Directo API Documentation\n\nWelcome to the Directo API - a comprehensive RESTful API for accessing and managing your ERP data including items, orders, customers, invoices, stock levels, and more.\n\n---\n\n## 🚀 Getting Started\n\n### Prerequisites\n\n- Active Directo ERP account\n  \n- API key (obtain from your Directo administrator)\n  \n- Basic understanding of REST APIs and HTTP methods\n  \n### Quick Start Guide\n\n1. **Configure Authentication**: Set your API key in the collection's Authorization tab or update the `X-Directo-Key` header\n\n2. **Set Variables**: Configure `baseUrl` and `version` in collection variables\n  \n3. **Choose Format**: Set the `Accept` header to `application/json` or `application/xml`\n  \n4. **Make Your First Request**: Try the \"All items\" request to retrieve your item catalog\n\n### Base URL & Versioning\n\n**Base URL Structure:**\n\n```\n{{baseUrl}}/v{{version}}/{resource}\n\n```\n\n**Current Configuration:**\n\n- `baseUrl`: `https://login.directo.ee/apidirect`\n  \n- `version`: `1` (current API version)\n  \n**Example Full URL:**\n\n```\nhttps://login.directo.ee/apidirect/v1/items\n\n ```\n\nThe API uses versioning to ensure backward compatibility. Always specify the version number in your requests.\n\n---\n\n## 🔐 Authentication\n\nThe Directo API uses **API Key authentication** for secure access.\n\n### How to Authenticate\n\nInclude your API key in the request header:\n\n``` http\nX-Directo-Key: YOUR_API_KEY_HERE\n\n ```\n\n### Getting Your API Key\n\nContact your Directo system administrator to obtain an API key. Each key is associated with specific permissions and access levels.\n\n### Security Best Practices\n\n- **Never expose your API key** in client-side code or public repositories\n  \n- Store API keys securely using environment variables\n  \n- Rotate keys periodically\n  \n- Use different keys for development and production environments\n  \n\n---\n\n## 📊 Response Formats (JSON vs XML)\n\nThe API supports both JSON and XML response formats. Control the format using the `Accept` header.\n\n### JSON Format (Recommended)\n\n``` http\nAccept: application/json\n\n ```\n\n**Example Request:**\n\n``` bash\ncurl -X GET \"{{baseUrl}}/v{{version}}/items\" \\\n  -H \"X-Directo-Key: YOUR_API_KEY\" \\\n  -H \"Accept: application/json\"\n\n ```\n\n### XML Format\n\n``` http\nAccept: application/xml\n\n ```\n\n**Example Request:**\n\n``` bash\ncurl -X GET \"{{baseUrl}}/v{{version}}/items\" \\\n  -H \"X-Directo-Key: YOUR_API_KEY\" \\\n  -H \"Accept: application/xml\"\n\n ```\n\n---\n\n## 🔍 Advanced Filtering (Key Feature)\n\n### 🔥 ERP-Style Filtering - The Power of Directo API\n\n**🔥 CRITICAL FEATURE: The Directo API supports the exact same powerful filtering capabilities as the Directo ERP system
```

```
itself.**\n\nThis is one of the most powerful features of the Directo API.
**Filters can be applied like default filters inside the ERP system. All
fields can be used for filters except calculated fields.**\n\n#### What This
Means for Developers\n\n1. **Seamless Integration**: Any filter that works
in your Directo ERP interface can be applied via the API using query
parameters\n    \n2. **No Learning Curve**: If you know how to filter in the
ERP, you already know how to filter via the API\n    \n3. **Maximum
Flexibility**: Filter by ANY field in the response data (except calculated
fields)\n    \n4. **Powerful Queries**: Combine multiple filters to create
complex queries without custom endpoints\n    \n\n#### Understanding
Filterable vs Calculated Fields\n\n**✅ Filterable Fields (Stored in
Database)**  \nThese are fields that are stored directly in the database and
can be used for filtering:\n\n- **Item Fields**: `code`, `name`, `class`,
`status`, `country`, `unit`, `price`, `cost`, `supplier_code`, `barcode`,
`weight`, `volume`\n    \n- **Order/Invoice Fields**: `number`, `date`,
`status`, `customer_code`, `customer_name`, `total`, `currency`,
`payment_terms`, `delivery_date`, `warehouse`\n    \n- **Customer Fields**:
`code`, `name`, `country`, `city`, `address`, `phone`, `email`,
`vat_number`, `payment_terms`, `credit_limit`\n    \n- **Stock Fields**:
`item_code`, `warehouse`, `quantity`, `reserved_quantity`,
`available_quantity`, `location`, `batch_number`, `serial_number`\n    \n-
**Line Item Fields**: `row_item`, `row_quantity`, `row_price`,
`row_description`, `row_discount`, `row_warehouse`\n    \n- **Custom Data
Fields**: Any custom fields you've defined in your ERP system (found in
`datafields` array)\n    \n\n**❌ Calculated Fields (Cannot Be Filtered)**
\nThese are fields computed on-the-fly and cannot be used for
filtering:\n\n- **Computed Totals**: Fields like `total_with_vat`,
`line_total`, `discount_amount` (when calculated from other fields)\n    \n-
**Derived Values**: `available_stock` (when calculated as `quantity -
reserved`), `profit_margin` (calculated from price and cost)\n    \n-
**Aggregations**: `total_orders`, `average_price`, `sum_quantity` (when
aggregated from multiple records)\n    \n- **Formatted Values**: Display-
only fields like `formatted_date`, `formatted_price` (when they're just
formatting of other fields)\n    \n- **Virtual Fields**: Fields that exist
only in the API response but not in the database\n    \n\n#### How to
Identify Calculated Fields\n\n1. **Check the ERP Interface**: If you cannot
filter by a field in the ERP system's filter dialog, it's likely
calculated\n    \n2. **Test the Filter**: Try filtering by the field via API
- if it returns no results or an error, it's calculated\n    \n3. **Look for
Patterns**: Fields with names like
`total_\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\*`,
`calculated_\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
\\*`,
`formatted_\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
\*`, or
`display_\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\*
` are often calculated\n    \n4. **Consult Documentation**: Check your ERP
system's field documentation or ask your administrator\n    \n\n####
Practical Examples: Filterable vs Calculated\n\n**Example 1: Item
Stock**\n\n``` http\n✅ WORKS: GET /items?quantity=>100\n   (quantity is
stored in database)\n❌ DOESN'T WORK: GET /items?available_stock=>100\n   (if
```

```
available_stock = quantity - reserved, it's calculated)\n\n ```\n\n**Example
2: Order Totals**\n\n``` http\n WORKS: GET /orders?row_price=>1000\n
(row_price is stored per line item)\n MIGHT NOT WORK: GET
/orders?order_total=>5000\n   (if order_total is sum of all line items, it's
calculated)\n ALTERNATIVE: GET /orders?date=>2025-01-01&status=COMPLETED\n
(then calculate totals in your application)\n\n ```\n\n**Example 3: Customer
Data**\n\n``` http\n WORKS: GET /customers?country=EE&city=Tallinn\n
(both are stored fields)\n DOESN'T WORK: GET
/customers?full_address=*Tallinn*\n   (if full_address is concatenation of
address+city+country)\n ALTERNATIVE: GET /customers?city=Tallinn\n
(filter by individual stored fields)\n\n ```\n\n### Basic
Filtering\n\nFilter by exact match using any stored field name:\n\n```
http\nGET {{baseUrl}}/v{{version}}/items?code=9810\nGET
{{baseUrl}}/v{{version}}/items?status=UUS\nGET
{{baseUrl}}/v{{version}}/orders?number=12345\nGET
{{baseUrl}}/v{{version}}/customers?country=EE\nGET
{{baseUrl}}/v{{version}}/items?class=KAUP\n\n ```\n\n**Key Principle**: Use
the exact field name as it appears in the API response (or as you see it in
the ERP system).\n\n### Contains Filtering\n\nPartial filtering allows you
to search for values **containing** a specific substring.\n\nThis works like
SQL `LIKE '%text%'` logic.\n\nUse it when you need flexible filtering for
names, codes, descriptions, or any other text fields\n\n```\nGET
{{baseUrl}}/v{{version}}/customers?name=%john%\n\n ```\n\n### Comparison
Operators\n\nThe API supports powerful comparison operators for advanced
filtering:\n\n#### Greater Than (`>`)\n\n``` http\nGET
{{baseUrl}}/v{{version}}/orders?date=>2025-09-01T00:00:00\nGET
{{baseUrl}}/v{{version}}/invoices?row_quantity=>5000\n\n ```\n\n#### Less
Than (`<`)\n\n``` http\nGET
{{baseUrl}}/v{{version}}/orders?date=<2025-09-03T00:00:00\nGET
{{baseUrl}}/v{{version}}/invoices?row_quantity=<5000\n\n ```\n\n#### Not
Equal (`!`)\n\n``` http\nGET {{baseUrl}}/v{{version}}/items?country=!EE\nGET
{{baseUrl}}/v{{version}}/orders?status=!CLOSED\nGET
{{baseUrl}}/v{{version}}/customers?payment_terms=!COD\n\n ```\n\n####
Greater Than or Equal (`>=`)\n\n``` http\nGET
{{baseUrl}}/v{{version}}/items?price=>100\nGET
{{baseUrl}}/v{{version}}/orders?date=>2025-01-01T00:00:00\n\n ```\n\n####
Less Than or Equal (`<=`)\n\n``` http\nGET
{{baseUrl}}/v{{version}}/items?weight=<5.5\nGET
{{baseUrl}}/v{{version}}/orders?date=<2025-12-31T23:59:59\n\n ```\n\n###
Range Filtering\n\nCombine operators to create ranges (AND logic):\n\n```
http\nGET
{{baseUrl}}/v{{version}}/orders?date=>2025-09-01T00:00:00&date=<2025-09-03T0
0:00:00\nGET {{baseUrl}}/v{{version}}/items?quantity=>10&quantity=<100\nGET
{{baseUrl}}/v{{version}}/invoices?total=>1000&total=<5000\nGET
{{baseUrl}}/v{{version}}/items?price=>50&price=<=200\n\n ```\n\n### Multiple
Values (OR Logic)\n\nUse comma-separated lists to filter by multiple
values:\n\n``` http\nGET
{{baseUrl}}/v{{version}}/items?warehouse=AALTR,AIPM,WAREHOUSE1\nGET
{{baseUrl}}/v{{version}}/orders?status=NEW,PENDING,PROCESSING\nGET
{{baseUrl}}/v{{version}}/customers?country=EE,LV,LT\nGET
{{baseUrl}}/v{{version}}/items?class=KAUP,TEENUS,TOORAINE\n\n ```\n\n###
```

```
Timestamp-Based Filtering (Synchronization)\n\nUse the `ts` parameter to retrieve records modified after a specific timestamp (ideal for synchronization):\n\n``` http\nGET {{baseUrl}}/v{{version}}/items?ts=>2025-10-01T08:11:05.129Z\nGET {{baseUrl}}/v{{version}}/customers?ts=>2025-01-01T00:00:00Z\nGET {{baseUrl}}/v{{version}}/orders?ts=>2025-11-20T07:30:00Z\n\n ```\n\n**Best Practice**: Store the timestamp of your last successful sync and use it in the next request to fetch only changed records.\n\n### Filtering by Line Item Fields\n\nFor resources with line items (orders, invoices), you can filter by line-level fields:\n\n``` http\nGET {{baseUrl}}/v{{version}}/orders?row_item=343443\nGET {{baseUrl}}/v{{version}}/invoices?row_quantity=>10\nGET {{baseUrl}}/v{{version}}/orders?row_description=Maja\nGET {{baseUrl}}/v{{version}}/priceformulas?row_item=343443\n\n ```\n\n**Note**: When filtering by line item fields, the API returns the entire document (order/invoice) if ANY line matches the filter.\n\n### Filtering by Custom Data Fields\n\nIf you have custom fields defined in your ERP system (visible in the `datafields` array), you can filter by them:\n\n``` http\nGET {{baseUrl}}/v{{version}}/items?data_row_code=BRAND\nGET {{baseUrl}}/v{{version}}/items?data_row_code=ART_PROJ,BRAND\nGET {{baseUrl}}/v{{version}}/items?data_row_content=0\n\n ```\n\n**How to Find Custom Field Names**: Make a request without filters and examine the `datafields` array in the response.\n\n### Complex Filter Combinations\n\nCombine multiple filters to create sophisticated queries:\n\n**Get new orders from the last week for a specific customer:**\n\n``` http\nGET {{baseUrl}}/v{{version}}/orders?status=NEW&date=>2025-11-13T00:00:00&customer_code=CUST001\n\n ```\n\n**Get items with low stock in specific warehouses, excluding closed items:**\n\n``` http\nGET {{baseUrl}}/v{{version}}/items?quantity=<10&warehouse=AALTR,AIPM&status=!CLOSED\n\n ```\n\n**Get all customers from Baltic countries with high credit limits:**\n\n``` http\nGET {{baseUrl}}/v{{version}}/customers?country=EE,LV,LT&credit_limit=>50000\n\n ```\n\n**Get invoices from Q1 2025 with specific payment terms:**\n\n``` http\nGET {{baseUrl}}/v{{version}}/invoices?date=>2025-01-01T00:00:00&date=<2025-04-01T00:00:00&payment_terms=NET30\n\n ```\n\n**Get items from specific class with price range:**\n\n``` http\nGET {{baseUrl}}/v{{version}}/items?class=KAUP&price=>10&price=<100\n\n ```\n\n### Common Filter Parameters by Resource\n\n| Parameter | Description | Example | Applicable Resources |\n| --- | --- | --- | --- |\n| `ts` | Timestamp for modified records (ISO 8601) | `2025-10-01T08:11:05.129Z` | All resources |\n| `date` | Date filtering (supports operators) | `>2025-09-01T00:00:00` | Orders, Invoices |\n| `number` | Document number | `12345` or `!001` | Orders, Invoices |\n| `code` | Item/Customer code | `9810` or `CUST001` | Items, Customers |\n| `name` | Name search | `Kalev` | Items, Customers |\n| `row_item` | Item code in line items | `9810` or `PROD-ABC` | Orders, Invoices, Price Formulas |\n| `status` | Status filter | `UUS`, `CLOSED`, `NEW` | Orders, Items |\n| `country` | Country code (ISO 2-letter) | `EE`, `!EE` | Items, Customers |\n| `warehouse` | Warehouse/stock location code | `AALTR,AIPM` | Items, Stock Levels, Orders
```

```
|\n| `quantity` | Quantity filter (supports operators) | `>100`, `<50` |
Items, Stock Levels |\n| `row_quantity` | Line item quantity (supports
operators) | `>10` | Invoices, Orders |\n| `row_description` | Line item
description text | `Maja` | Invoices, Orders |\n| `closed` | Closed status |
`1` (closed), `0` (open) | Customers, Orders |\n| `class` | Item
class/category | `KAUP`, `TEENUS` | Items |\n| `price` | Price filter
(supports operators) | `>100`, `<=500` | Items |\n| `customer_code` |
Customer identifier | `CUST001` | Orders, Invoices |\n\n### Filter Best
Practices\n\n1. **Start Simple**: Begin with single filters and add
complexity as needed\n    \n2. **Use Timestamp Sync**: Always use `ts`
parameter for incremental synchronization\n    \n3. **Combine
Strategically**: Use multiple filters to reduce data transfer and
processing\n    \n4. **Test in ERP First**: If unsure whether a field is
filterable, test it in the ERP interface first\n    \n5. **Handle Empty
Results**: Empty results might mean filters are too restrictive or field is
calculated\n    \n6. **URL Encode**: Always URL-encode filter values,
especially dates and special characters\n    \n7. **Document Your Filters**:
Keep track of which filters work for your use cases\n    \n\n###
Troubleshooting Filters\n\n**Problem**: Filter returns no results\n\n-
**Check**: Is the field calculated? Try filtering by underlying stored
fields\n    \n- **Check**: Is the value correct? Verify exact field values
in an unfiltered response\n    \n- **Check**: Are operators correct? Use `>`
not `>=` if that's what the ERP uses\n    \n\n**Problem**: Filter seems to
be ignored\n\n- **Check**: Is the field name spelled correctly? Field names
are case-sensitive\n    \n- **Check**: Is the value URL-encoded? Special
characters must be encoded\n    \n- **Check**: Does the field exist in this
resource? Not all fields are available in all resources\n
\n\n**Problem**: Unexpected results\n\n- **Check**: Are you using OR logic
(comma) when you meant AND (multiple parameters)?\n    \n- **Check**: For
line item filters, remember the entire document is returned if any line
matches\n    \n\n---\n\n##  API Resources & Endpoints\n\nAPI Resources and
Endpint in this section are samples and dosn't refelct all available
resources. View Postman collection data to get full list.\n\nResponse field
list managed in Directo ERP.\n\n### Items\n\nManage your product catalog and
inventory items.\n\n**Endpoint:** `GET
{{baseUrl}}/v{{version}}/items`\n\n**Description**: Retrieve item master
data including product codes, names, classifications, pricing, and custom
data fields.\n\n**Use Cases:**\n\n- Retrieve product catalog for e-commerce
integration\n    \n- Sync inventory data to external systems\n    \n- Filter
items by stock location, quantity, or status\n    \n- Export product data
for reporting\n    \n\n**Common Filters:** `code`, `name`, `class`,
`status`, `warehouse`, `quantity`, `country`, `price`, `ts`\n\n**Example
Requests:**\n\n``` http\n# Get all active items\nGET
{{baseUrl}}/v{{version}}/items?status=ACTIVE\n# Get items with low
stock\nGET {{baseUrl}}/v{{version}}/stocklevels?quantity=<10\n# Get items
modified since last sync\nGET
{{baseUrl}}/v{{version}}/items?ts=2025-11-20T07:00:00Z\n# Get items in
specific warehouses\nGET
{{baseUrl}}/v{{version}}/items?warehouse=AALTR,AIPM\n\n ```\n\n**Response
Fields:**\n\n- `code`: Item code/SKU\n    \n- `name`: Item
name/description\n    \n- `class`: Item classification\n    \n- `status`:
```

```
Item status\n    \n- `price`: Unit price\n    \n- `cost`: Unit cost\n    \n-
`quantity`: Stock quantity\n    \n- `warehouse`: Warehouse location\n    \n-
`datafields`: Array of custom data fields\n    \n\n---\n\n###
Customers\n\nAccess customer and client information.\n\n**Endpoint:** `GET
{{baseUrl}}/v{{version}}/customers`\n\n**Description**: Retrieve customer
master data including contact information, addresses, payment terms, and
credit limits.\n\n**Use Cases:**\n\n- Retrieve customer database for CRM
integration\n    \n- Sync customer data to external systems\n    \n- Filter
by country or modification date\n    \n- Export customer lists for
marketing\n    \n\n**Common Filters:** `code`, `name`, `country`, `city`,
`payment_terms`, `credit_limit`, `closed`, `ts`\n\n**Example
Requests:**\n\n``` http\n# Get all customers from Estonia\nGET
{{baseUrl}}/v{{version}}/customers?country=EE\n# Get customers with high
credit limits\nGET {{baseUrl}}/v{{version}}/customers?credit_limit=>50000\n#
Get active customers only\nGET
{{baseUrl}}/v{{version}}/customers?closed=0\n# Get customers modified since
last sync\nGET
{{baseUrl}}/v{{version}}/customers?ts=2025-11-20T07:00:00Z\n\n
```\n\n**Response Fields:**\n\n- `code`: Customer code\n    \n- `name`:
Customer name\n   \n- `country`: Country code (ISO 2-letter)\n   \n-
`city`: City\n   \n- `address`: Street address\n   \n- `phone`: Phone
number\n   \n- `email`: Email address\n   \n- `vat_number`: VAT
registration number\n   \n- `payment_terms`: Payment terms code\n   \n-
`credit_limit`: Credit limit amount\n   \n- `closed`: Closed status
(0=active, 1=closed)\n   \n\n---\n\n### Orders\n\nRetrieve sales orders and
purchase orders.\n\n**Endpoint:** `GET
{{baseUrl}}/v{{version}}/orders`\n\n**Description**: Retrieve order
documents including headers and line items. Supports filtering by date
ranges, status, customer, and line item details.\n\n**Use Cases:**\n\n-
Retrieve order history for reporting\n   \n- Monitor order status for
fulfillment\n   \n- Filter by date range, status, or customer\n   \n- Sync
orders to external fulfillment systems\n   \n- Track orders with specific
items\n   \n\n**Common Filters:** `number`, `date`, `status`,
`customer_code`, `warehouse`, `closed`, `row_item`, `row_quantity`,
`ts`\n\n**Example Requests:**\n\n``` http\n# Get orders from date range\nGET
{{baseUrl}}/v{{version}}/orders?date=>2025-09-01T00:00:00&date=<2025-09-03T0
0:00:00\n# Get new orders\nGET {{baseUrl}}/v{{version}}/orders?status=NEW\n#
Get orders containing specific item\nGET
{{baseUrl}}/v{{version}}/orders?row_item=343443\n# Get orders for specific
customer\nGET {{baseUrl}}/v{{version}}/orders?customer_code=CUST001\n# Get
open orders modified today\nGET
{{baseUrl}}/v{{version}}/orders?closed=0&ts=2025-11-20T00:00:00Z\n\n
```\n\n**Response Fields:**\n\n- `number`: Order number\n   \n- `date`:
Order date\n   \n- `status`: Order status\n   \n- `customer_code`:
Customer code\n   \n- `customer_name`: Customer name\n   \n- `warehouse`:
Warehouse code\n   \n- `total`: Order total amount\n   \n- `currency`:
Currency code\n   \n- `closed`: Closed status\n   \n- `lines`: Array of
order line items\n   \n   - `row_item`: Item code\n   \n   -
`row_quantity`: Quantity\n   \n   - `row_price`: Unit price\n
\n   - `row_description`: Line description\n   \n\n---\n\n###
Invoices\n\nAccess invoice data and billing information.\n\n**Endpoint:**
```

```
`GET {{baseUrl}}/v{{version}}/invoices`\n\n**Description**: Retrieve invoice documents including headers and line items. Supports filtering by date ranges, status, customer, and line item details.\n\n**Use Cases:**\n\n- Retrieve invoice history for accounting\n    \n- Export billing data to accounting systems\n    \n- Filter by date, status, or customer\n    \n- Track invoices with specific items\n    \n- Monitor payment status\n\n\n**Common Filters:** `number`, `date`, `status`, `customer_code`, `total`, `closed`, `row_item`, `row_quantity`, `ts`\n\n**Example Requests:**\n\n``` http\n# Get invoices from last month\nGET {{baseUrl}}/v{{version}}/invoices?date=>2025-10-01T00:00:00&date=<2025-11-01T00:00:00\n# Get unpaid invoices\nGET {{baseUrl}}/v{{version}}/invoices?closed=0\n# Get invoices containing specific item\nGET {{baseUrl}}/v{{version}}/invoices?row_item=9810\n\n```\n\n**Response Fields:**\n\n- `number`: Invoice number\n    \n- `date`: Invoice date\n    \n- `due_date`: Payment due date\n    \n- `status`: Invoice status\n    \n- `customer_code`: Customer code\n    \n- `customer_name`: Customer name\n    \n- `total`: Invoice total amount\n\n- `currency`: Currency code\n    \n- `closed`: Payment status\n    \n- `lines`: Array of invoice line items\n    \n\n---\n\n### Stock Levels\n\nMonitor inventory levels across warehouses.\n\n**Endpoint:** `GET {{baseUrl}}/v{{version}}/stocklevels`\n\n**Description**: Retrieve current stock levels for items across all warehouses. Shows quantity on hand, reserved quantity, and available quantity.\n\n**Use Cases:**\n\n- Check current inventory levels\n    \n- Monitor stock across locations\n    \n- Identify low-stock items\n    \n- Sync inventory to e-commerce platforms\n\n- Calculate available-to-promise\n    \n\n**Common Filters:** `item_code`, `warehouse`, `quantity`, `reserved_quantity`, `ts`\n\n**Example Requests:**\n\n``` http\n# Get stock levels for specific item\nGET {{baseUrl}}/v{{version}}/stocklevels?item_code=9810\n# Get low stock items\nGET {{baseUrl}}/v{{version}}/stocklevels?quantity=<10\n# Get stock in specific warehouse\nGET {{baseUrl}}/v{{version}}/stocklevels?warehouse=AALTR\n# Get stock changes since last sync\nGET {{baseUrl}}/v{{version}}/stocklevels?ts=2025-11-20T07:00:00Z\n\n```\n\n**Response Fields:**\n\n- `item_code`: Item code\n    \n- `warehouse`: Warehouse code\n    \n- `quantity`: Quantity on hand\n    \n- `reserved_quantity`: Reserved/allocated quantity\n    \n- `available_quantity`: Available quantity (may be calculated)\n    \n- `location`: Storage location within warehouse\n    \n\n---\n\n### Stock Levels with Serial/Batch Numbers\n\nRetrieve detailed stock information including serial numbers and batch numbers.\n\n**Endpoint:** `GET {{baseUrl}}/v{{version}}/stocklevels_sn`\n\n**Description**: Retrieve stock levels with serial number and batch number tracking. Essential for lot-tracked and serialized inventory.\n\n**Use Cases:**\n\n- Track serialized inventory (electronics, equipment)\n    \n- Manage batch-tracked items (food, pharmaceuticals)\n    \n- Trace product lots for recalls\n    \n- Monitor expiration dates by batch\n    \n- Audit serial number assignments\n\n\n**Common Filters:** `item_code`, `warehouse`, `serial_number`, `batch_number`, `ts`\n\n**Example Requests:**\n\n``` http\n# Get serialized stock for specific item\nGET {{baseUrl}}/v{{version}}/stocklevels_sn?item_code=LAPTOP001\n# Get stock by
```

```
batch number\nGET
{{baseUrl}}/v{{version}}/stocklevels_sn?batch_number=BATCH2025001\n# Get
serialized stock in warehouse\nGET
{{baseUrl}}/v{{version}}/stocklevels_sn?warehouse=AALTR\n\n
```\n\n**Response Fields:**\n\n- `item_code`: Item code\n    \n-
`warehouse`: Warehouse code\n   \n- `serial_number`: Serial number (for
serialized items) or Batch/lot number (for batch-tracked items)\n   \n-
`quantity`: Quantity (typically 1 for serialized items)\n   \n-
`expiration_date`: Expiration date (for batch-tracked items)\n   \n\n---
\n\n### Allocations\n\nView inventory allocations and
reservations.\n\n**Endpoint:** `GET
{{baseUrl}}/v{{version}}/allocations`\n\n**Description**: Retrieve inventory
allocations showing which items are reserved for specific orders or
purposes.\n\n**Use Cases:**\n\n- Check reserved inventory\n   \n- Monitor
order allocations\n   \n- Prevent overselling\n   \n- Calculate available-
to-promise\n   \n- Track allocation by order\n   \n\n**Common Filters:**
`code`, `warehouse`, `ts`\n\n**Example Requests:**\n\n``` http\n# Get
allocations for specific item\nGET
{{baseUrl}}/v{{version}}/allocations?code=9810\n# Get allocations in
warehouse\nGET {{baseUrl}}/v{{version}}/allocations?warehouse=AALTR\n\n
```\n\n**Response Fields:**\n\n- `item_code`: Item code\n   \n-
`warehouse`: Warehouse code\n   \n- `quantity`: Allocated quantity\n
\n\n---\n\n### Item Classes\n\nRetrieve item classification and category
data.\n\n**Endpoint:** `GET
{{baseUrl}}/v{{version}}/itemclasses`\n\n**Description**: Retrieve item
class/category master data used to classify and organize items in the ERP
system.\n\n**Use Cases:**\n\n- Get product categories for navigation\n
\n- Sync classification hierarchies\n   \n- Filter items by class\n   \n-
Build category trees for e-commerce\n   \n\n**Common Filters:** `code`,
`name`, `parent_code`, `ts`\n\n**Example Requests:**\n\n``` http\n# Get all
item classes\nGET {{baseUrl}}/v{{version}}/itemclasses\n# Get classes
modified since last sync\nGET
{{baseUrl}}/v{{version}}/itemclasses?ts=2025-11-20T07:00:00Z\n\n
```\n\n**Response Fields:**\n\n- `code`: Class code\n   \n- `name`: Class
name\n   \n- `parent_code`: Parent class code (for hierarchies)\n   \n-
`description`: Class description\n   \n\n---\n\n### Price
Formulas\n\nAccess pricing rules and formulas.\n\n**Endpoint:** `GET
{{baseUrl}}/v{{version}}/priceformulas`\n\n**Description**: Retrieve pricing
formulas and rules used to calculate dynamic prices based on various
conditions.\n\n**Use Cases:**\n\n- Retrieve pricing rules for specific
items\n   \n- Calculate dynamic prices in external systems\n   \n- Sync
pricing logic\n   \n- Audit pricing formulas\n   \n\n**Common Filters:**
`row_item`, `customer_code`, `ts`\n\n**Example Requests:**\n\n``` http\n#
Get price formulas for specific item\nGET
{{baseUrl}}/v{{version}}/priceformulas?row_item=343443\n# Get all price
formulas\nGET {{baseUrl}}/v{{version}}/priceformulas\n# Get formulas
modified since last sync\nGET
{{baseUrl}}/v{{version}}/priceformulas?ts=2025-11-20T07:00:00Z\n\n
```\n\n**Response Fields:**\n\n- `row_item`: Item code\n   \n-
`customer_code`: Customer code (if customer-specific)\n   \n- `formula`:
Pricing formula\n   \n- `discount_percent`: Discount percentage\n   \n-
```

```
`valid_from`: Valid from date\n    \n- `valid_to`: Valid to date\n    \n\n---\n\n### Deletions\n\nTrack deleted records for synchronization purposes.\n\n**Endpoint:** `GET {{baseUrl}}/v{{version}}/deleted`\n\n**Description**: Retrieve records that have been deleted from the ERP system. Essential for maintaining data consistency in external systems.\n\n**Use Cases:**\n\n- Sync deletions to external systems\n    \n- Maintain data consistency\n    \n- Audit deleted records\n    \n- Clean up orphaned references\n    \n\n**Common Filters:** `resource_type`, `ts`\n\n**Example Requests:**\n\n``` http\n# Get all deletions since last sync\nGET {{baseUrl}}/v{{version}}/deleted?ts=2025-11-20T07:00:00Z\n# Get deleted items only\nGET {{baseUrl}}/v{{version}}/deleted?resource_type=items\n\n ```\n\n**Response Fields:**\n\n- `resource_type`: Type of deleted resource (items, customers, orders, etc.)\n    \n- `resource_id`: ID of deleted resource\n    \n- `deleted_at`: Deletion timestamp\n    \n\n---\n\n## 
Response Structure\n\n### Success Response (HTTP 200)\n\n**JSON Format:**\n\n``` json\n[\n    {\n        \"code\": \"1011\",\n        \"class\": \"KAUP\",\n        \"name\": \"Kommid Lily, Kalev\",\n        \"price\": 12.50,\n        \"quantity\": 150,\n        \"warehouse\": \"AALTR\",\n        \"datafields\": [\n            {\n                \"code\": \"TEST_ARTIKKEL\",\n                \"content\": \"Test lisaväli sisu\"\n            },\n            {\n                \"code\": \"IS_WEIGHT\",\n                \"content\": \"0\"\n            },\n            {\n                \"code\": \"VISUAL_VERIFICATION\",\n                \"content\": \"0\"\n            },\n            {\n                \"code\": \"VENSAFE\",\n                \"content\": \"0\"\n            }\n        ]\n    },\n    {\n        \"code\": \"1012\",\n        \"class\": \"KAUP\",\n        \"name\": \"Šokolaad Kalev\",\n        \"price\": 8.75,\n        \"quantity\": 200,\n        \"warehouse\": \"AIPM\",\n        \"datafields\": []\n    }\n]\n\n ```\n\n**XML Format:**\n\n``` xml\n<items>\n    <item code=\"1011\" class=\"KAUP\" name=\"Kommid Lily, Kalev\" price=\"12.50\" quantity=\"150\" warehouse=\"AALTR\">\n        <datafields>\n            <data code=\"TEST_ARTIKKEL\" content=\"Test lisaväli sisu\"/>\n            <data code=\"IS_WEIGHT\" content=\"0\"/>\n            <data code=\"VISUAL_VERIFICATION\" content=\"0\"/>\n            <data code=\"VENSAFE\" content=\"0\"/>\n        </datafields>\n    </item>\n    <item code=\"1012\" class=\"KAUP\" name=\"Šokolaad Kalev\" price=\"8.75\" quantity=\"200\" warehouse=\"AIPM\">\n        <datafields/>\n    </item>\n</items>\n\n ```\n\n### Response Characteristics\n\n- **Array Format**: All endpoints return arrays of objects, even for single results\n    \n- **Consistent Structure**: Field names are consistent across all response formats\n    \n- **Custom Fields**: Custom data fields appear in the `datafields` array\n    \n- **Null Values**: Missing or null values may be omitted from responses\n    \n- **Date Format**: All dates use ISO 8601 format (e.g., `2025-11-20T07:30:00Z`)\n    \n- **Numeric Values**: Numbers are returned as numbers in JSON, as strings in XML\n    \n\n---\n\n## ⚠
Error Handling\n\n### HTTP Status Codes\n\n| Status Code | Meaning | Description |\n| --- | --- | --- |\n| `200` | OK | Request successful |\n| `400` | Bad Request | Invalid parameters or malformed request |\n| `400` | API not enababled | Resource not enabled for this API key |\n| `401` | Unauthorized | Missing or invalid API key |\n| `403` | Forbidden | API key
```

```
lacks required permissions |\n| `404` | Not Found | Resource or endpoint not found |\n| `429` | Too Many Requests | Rate limit exceeded |\n| `500` | Internal Server Error | Server-side error |\n| `503` | Service Unavailable | API temporarily unavailable |\n\n### Error Response Format\n\n``` json\n{\n  \"error\": {\n    \"code\": \"INVALID_API_KEY\",\n    \"message\": \"The provided API key is invalid or expired\",\n    \"details\": \"Please check your API key and try again\"\n  }\n}\n\n ```\n\n### Common Error Scenarios\n\n**401 Unauthorized:**\n\n- Missing `X-Directo-Key` header\n  \n- Invalid or expired API key\n    \n- **Solution:** Verify your API key and ensure it's included in the header\n    \n\n**403 Forbidden:**\n\n- API key lacks permissions for the requested resource\n    \n- **Solution:** Contact your administrator to grant necessary permissions\n    \n\n**400 Bad Request:**\n\n- Invalid filter syntax\n    \n- Malformed date format (use ISO 8601: `2025-11-20T07:30:00Z`)\n    \n- Filtering by calculated field\n  \n- **Solution:** Check filter parameters and date formats\n    \n\n**404 Not Found:**\n\n- Incorrect endpoint URL\n    \n- Invalid API version\n  \n- **Solution:** Verify the endpoint path and version number\n    \n\n**429 Too Many Requests:**\n\n- Rate limit exceeded\n    \n- **Solution:** Implement exponential backoff and reduce request frequency\n    \n\n**500 Internal Server Error:**\n\n- Server-side processing error\n    \n- **Solution:** Retry after a delay; contact support if persistent\n    \n\n---\n\n## □ Rate Limiting & Performance\n\n### Rate Limits\n\nWhile specific rate limits depend on your account tier, follow these guidelines:\n\n- **Recommended:** Max 60 requests per minute\n    \n- **Burst Limit:** Short bursts of higher traffic may be allowed\n    \n- **Daily Limits:** May apply based on your subscription\n    \n\n### Performance Best Practices\n\n#### 1\\. Use Timestamp Filtering for Sync\n\nInstead of fetching all records repeatedly, use the `ts` parameter:\n\n``` http\nGET {{baseUrl}}/v{{version}}/items?ts=>2025-11-20T07:00:00Z\n\n ```\n\n**Benefits:**\n\n- Reduces data transfer\n    \n- Faster response times\n    \n- Lower server load\n    \n- Stays within rate limits\n  \n\n#### 2\\. Implement Pagination with Date Ranges\n\nFor large datasets, break requests into smaller chunks:\n\n``` http\n# Week 1\nGET {{baseUrl}}/v{{version}}/orders?date=>2025-11-01&date=<2025-11-08\n# Week 2\nGET {{baseUrl}}/v{{version}}/orders?date=>2025-11-08&date=<2025-11-15\n\n ```\n\n#### 3\\. Cache Static Data\n\nCache data that changes infrequently:\n\n- Item classes (cache for 24 hours)\n    \n- Price formulas (cache for 1 hour)\n    \n- Customer master data (cache for 6 hours)\n  \n\n#### 4\\. Use Specific Filters\n\nApply filters to retrieve only the data you need:\n\n``` http\n# Instead of fetching all items and filtering locally\nGET {{baseUrl}}/v{{version}}/items\n# Fetch only what you need\nGET {{baseUrl}}/v{{version}}/items?warehouse=AALTR&quantity=>0\n\n ```\n\n#### 5\\. Implement Exponential Backoff\n\nFor transient errors (429, 503), retry with increasing delays:\n\n```\n1st retry: wait 1 second\n2nd retry: wait 2 seconds\n3rd retry: wait 4 seconds\n4th retry: wait 8 seconds\n\n ```\n\n#### 6\\. Batch Related Requests\n\nGroup related operations to minimize round trips:\n\n```\n1. Fetch orders: GET /orders?ts=>{last_sync}\n2. For each order, fetch customer details (if needed)\n3. Update local database in batch\n\n ```\n\n#### 7\\. Monitor API Usage\n\nTrack your API consumption:\n\n- Log request counts per endpoint\n  \n- Monitor response times\n    \n- Track error rates\n    \n- Set up alerts
```

```
for rate limit warnings\n    \n\n---\n\n## □ Common Integration
Patterns\n\n### Pattern 1: Initial Data Sync (First-Time
Setup)\n\n**Objective**: Load all data from Directo ERP into your
system\n\n```\nStep 1: Fetch all items\nGET /items\nStep 2: Fetch all
customers\nGET /customers\nStep 3: Fetch all stock levels\nGET
/stocklevels\nStep 4: Fetch item classes\nGET /itemclasses\nStep 5: Store
current timestamp for future incremental syncs\ntimestamp =
current_time()\n\n ```\n\n**Considerations:**\n\n- May take several minutes
for large datasets\n    \n- Run during off-peak hours\n    \n- Implement
progress tracking\n    \n- Handle timeouts gracefully\n    \n\n---\n\n###
Pattern 2: Incremental Sync (Ongoing Synchronization)\n\n**Objective**: Keep
your system up-to-date with changes in Directo ERP\n\n```\nStep 1: Retrieve
last sync timestamp from your database\nlast_sync =
get_last_sync_timestamp()\nStep 2: Fetch changed items\nGET
/items?ts=>{last_sync}\nStep 3: Fetch changed customers\nGET
/customers?ts=>{last_sync}\nStep 4: Fetch changed stock levels\nGET
/stocklevels?ts=>{last_sync}\nStep 5: Fetch deleted records\nGET
/deleted?ts=>{last_sync}\nStep 6: Process changes in your system\n- Update
existing records\n- Insert new records\n- Delete removed records\nStep 7:
Update last sync timestamp\nsave_last_sync_timestamp(current_time())\n\n
```\n\n**Frequency Recommendations:**\n\n- Critical data (stock levels,
orders): Every 5-15 minutes\n   \n- Master data (items, customers): Every
1-6 hours\n   \n- Static data (item classes): Daily\n   \n\n---\n\n###
Pattern 3: Real-Time Order Monitoring\n\n**Objective**: Monitor new orders
for immediate processing\n\n```\nStep 1: Poll orders endpoint at regular
intervals\nGET /orders?status=NEW&ts=>{last_check}\nStep 2: Process new
orders\nfor each order:\n   - Validate order data\n   - Check inventory
availability\n   - Create fulfillment tasks\n   - Update order status in
your system\nStep 3: Update last check timestamp\nlast_check =
current_time()\nStep 4: Wait for next interval (e.g., 5 minutes)\nStep 5:
Repeat from Step 1\n\n ```\n\n**Best Practices:**\n\n- Poll every 5-15
minutes (not more frequently)\n   \n- Use `ts` parameter to avoid
processing duplicates\n   \n- Implement idempotency in your order
processing\n   \n- Log all processed orders for audit trail\n   \n\n---
\n\n### Pattern 4: Inventory Management & Availability
Check\n\n**Objective**: Maintain accurate inventory availability in your
system\n\n```\nStep 1: Fetch current stock levels\nGET
/stocklevels?item_code={sku}\nStep 2: Fetch allocations (reserved
stock)\nGET /allocations?item_code={sku}\nStep 3: Calculate available
quantity\navailable = stock_quantity - allocated_quantity\nStep 4: Update
your inventory system\nupdate_inventory(sku, available)\nStep 5: Check for
low stock alerts\nif available < reorder_point:\n
trigger_reorder_alert(sku)\n\n ```\n\n**Use Cases:**\n\n- E-commerce
available-to-promise\n   \n- Warehouse management systems\n   \n- Reorder
point monitoring\n   \n- Multi-channel inventory sync\n   \n\n---\n\n###
Pattern 5: Customer Data Synchronization (CRM Integration)\n\n**Objective**:
Keep customer data synchronized between Directo and your CRM\n\n```\nStep 1:
Fetch changed customers\nGET /customers?ts={last_sync}\nStep 2: For each
customer, sync to CRM\nfor each customer:\n   if customer exists in CRM:\n
update_crm_customer(customer)\n   else:\n
create_crm_customer(customer)\nStep 3: Fetch deleted customers\nGET
```
```

```
/deleted?resource_type=customers&ts={last_sync}\nStep 4: Remove deleted customers from CRM\nfor each deleted_customer:\n    delete_crm_customer(deleted_customer.id)\nStep 5: Update sync timestamp\nsave_last_sync_timestamp(current_time())\n\n ```\n\n---\n\n### Pattern 6: Invoice Export to Accounting System\n\n**Objective**: Export invoices to external accounting software\n\n```\nStep 1: Fetch new/updated invoices\nGET /invoices?ts=>{last_sync}\nStep 2: For each invoice, export to accounting system\nfor each invoice:\n    - Map Directo fields to accounting system fields\n    - Create invoice in accounting system\n    - Create invoice lines\n    - Mark as exported in your database\nStep 3: Handle errors\nfor each failed_invoice:\n    - Log error details\n    - Queue for manual review\n    - Send notification to accounting team\nStep 4: Update sync timestamp\nsave_last_sync_timestamp(current_time())\n\n ```\n\n---\n\n### Pattern 7: Price Synchronization to E-Commerce\n\n**Objective**: Keep product prices updated in your online store\n\n```\nStep 1: Fetch changed items with pricing\nGET /items?ts=>{last_sync}\nStep 2: Fetch price formulas (if using dynamic pricing)\nGET /priceformulas?ts=>{last_sync}\nStep 3: Calculate final prices\nfor each item:\n    base_price = item.price\n    if price_formula exists:\n        final_price = apply_formula(base_price, formula)\n    else:\n        final_price = base_price\nStep 4: Update e-commerce platform\nfor each item:\n    update_product_price(item.code, final_price)\nStep 5: Update sync timestamp\nsave_last_sync_timestamp(current_time())\n\n ```\n\n---\n\n## □□ Troubleshooting Guide\n\n### Issue: Empty Response / No Results\n\n**Possible Causes:**\n\n1. Filters too restrictive\n    \n2. No data matches criteria\n    \n3. Incorrect date format\n    \n4. Filtering by calculated field\n    \n5. Default filter set in ERP is too restrictive\n\n\n**Solutions:**\n\n``` http\n# Remove filters one by one to identify the issue\nGET /items                                  # No filters\nGET /items?warehouse=AALTR                  # Add one filter\nGET /items?warehouse=AALTR&quantity=>0       # Add another filter\n# Verify date format (must be ISO 8601)\n□ WRONG: ?date=2025-11-20\n□ CORRECT: ?date=>2025-11-20T00:00:00Z\n# Check if field is calculated\n# Try filtering by underlying stored fields instead\n\n ```\n\n---\n\n### Issue: Authentication Errors (401/403)\n\n**Possible Causes:**\n\n1. Missing API key\n    \n2. Incorrect header name\n    \n3. Expired key\n    \n4. Insufficient permissions\n    \n\n**Solutions:**\n\n``` http\n# Verify header name (case-sensitive)\n□ WRONG: X-Api-Key: YOUR_KEY\n□ WRONG: X-Directo-Api-Key: YOUR_KEY\n□ CORRECT: X-Directo-Key: YOUR_KEY\n# Check key validity\n# Contact administrator to verify:\n# - Key is active\n# - Key has permissions for the resource\n# - Key hasn't expired\n# Test with curl\ncurl -X GET \"{{baseUrl}}/v{{version}}/items\" \\\n  -H \"X-Directo-Key: YOUR_API_KEY\" \\\n  -H \"Accept: application/json\" \\\n  -v\n\n ```\n\n---\n\n### Issue: Unexpected Data Format\n\n**Possible Causes:**\n\n1. Wrong `Accept` header\n    \n2. API version mismatch\n    \n3. Expecting different structure\n    \n\n**Solutions:**\n\n``` http\n# Verify Accept header\nFor JSON: Accept: application/json\nFor XML: Accept: application/xml\n# Check API version in URL\n{{baseUrl}}/v1/items  (not v2 or v0)\n# Examine actual response structure\n# Make a simple request and inspect the response\nGET /items?code=1011\n\n ```\n\n---\n\n### Issue: Filter Not Working as Expected\n\n**Possible Causes:**\n\n1. Field name misspelled\n    \n2. Field
```

```
is calculated (not filterable)\n    \n3. Wrong operator syntax\n    \n4.
Value not URL-encoded\n    \n\n**Solutions:**\n\n``` http\n# Verify field
name (case-sensitive)\n WRONG: ?Code=1011\n CORRECT: ?code=1011\n# Check
if field exists in response\nGET /items?code=1011\n# Examine response to see
actual field names\n# Verify operator syntax\n CORRECT: ?quantity=>100
(greater than)\n CORRECT: ?quantity=<50     (less than)\n CORRECT:
?status=!CLOSED   (not equal)\n# URL encode special characters\n WRONG:
?date=>2025-11-20 07:30:00\n CORRECT: ?date=>2025-11-20T07:30:00Z\n\n
```\n\n---\n\n### Issue: Slow Response Times\n\n**Possible Causes:**\n\n1.
Fetching too much data\n   \n2. No filters applied\n   \n3. Complex
queries\n   \n4. Server load\n   \n\n**Solutions:**\n\n``` http\n# Use
filters to reduce data volume\n SLOW: GET /items\n FASTER: GET
/items?warehouse=AALTR&closed=0\n# Use timestamp filtering for incremental
sync\n FASTER: GET /items?ts=2025-11-20T07:00:00Z\n# Break large requests
into smaller chunks\n# Instead of fetching all orders:\nGET
/orders?date=>2025-11-01&date=<2025-11-08\nGET
/orders?date=>2025-11-08&date=<2025-11-15\n# Implement caching for static
data\n# Cache item classes, price formulas for 1-24 hours\n\n ```\n\n---
\n\n### Issue: Rate Limit Errors (429)\n\n**Possible Causes:**\n\n1. Too
many requests in short time\n   \n2. No rate limiting in your code\n
\n3. Multiple processes hitting API\n   \n\n**Solutions:**\n\n``` python\n#
Implement exponential backoff\nimport time\ndef make_request_with_retry(url,
max_retries=5):\n   for attempt in range(max_retries):\n   response =
requests.get(url)\n   if response.status_code == 200:\n
return response\n   elif response.status_code == 429:\n
wait_time = 2 ** attempt # 1, 2, 4, 8, 16 seconds\n
time.sleep(wait_time)\n   else:\n   raise Exception(f\"Error:
{response.status_code}\")\n   raise Exception(\"Max retries exceeded\")\n#
Add delays between requests\ntime.sleep(1) # Wait 1 second between
requests\n# Use timestamp filtering to reduce request frequency\n# Instead
of polling every minute, poll every 5-15 minutes\n\n ```\n\n---\n\n###
Issue: Data Inconsistency\n\n**Possible Causes:**\n\n1. Not handling
deletions\n   \n2. Missing incremental updates\n   \n3. Race conditions\n
\n4. Not using timestamps correctly\n   \n\n**Solutions:**\n\n``` http\n#
Always check for deletions\nGET /deleted?ts=>{last_sync}\n# Use consistent
timestamp handling\nlast_sync = \"2025-11-20T07:00:00Z\"\nGET
/items?ts=>{last_sync}\nGET /customers?ts=>{last_sync}\nGET
/deleted?ts=>{last_sync}\n# Store timestamp AFTER successful processing\n#
Not before, to avoid missing updates if processing fails\n# Implement
idempotency\n# Use unique IDs to prevent duplicate processing\n\n ```\n\n---
\n\n### Issue: Missing Custom Fields\n\n**Possible Causes:**\n\n1. Custom
fields not configured in ERP\n   \n2. Looking in wrong place in response\n
\n3. Permissions issue\n   \n\n**Solutions:**\n\n``` http\n# Custom fields
are in datafields array\nGET /items?code=1011\n# Response structure:\n{\n
\"code\": \"1011\",\n   \"name\": \"Item Name\",\n   \"datafields\": [\n
{\n   \"code\": \"CUSTOM_FIELD_1\",\n   \"content\":
\"Value\"\n   }\n   ]\n}\n# Filter by custom fields\nGET
/items?CUSTOM_FIELD_1=Value\n# Verify custom fields exist in ERP\n# Contact
administrator to confirm field names\n\n ```\n\n---\n\n### Issue:
`usagelogs` missing older entries\n\n**Possible Cause:** Log retention is
capped by Administrator settings \n(\"Log age in days\" / \"Log age in
```
```

```
transactions\" — see  \n[Administraatori
seadistused](https://wiki.directo.ee/et/administrator_settings)),  \nnot by
the API itself.\n\n**Solution:** Ask your administrator to check/raise these
two settings, or  \nstart pulling and archiving `/usagelogs` regularly to
keep your own history.\n\n---\n\n## 🆘 Support & Resources\n\n### Need
Help?\n\n**Technical Support:**\n\n- Email:
[info@directo.ee](https://mailto:info@directo.ee)\n    \n- Contact your
Directo account manager\n    \n- Submit support ticket through your in
Directo Chat\n    \n\n**API Issues:**\n\n- Report bugs via your support
channel\n    \n- Include: request URL, headers, response, error message\n
\n- Provide timestamp of the issue\n    \n\n**Feature Requests:**\n\n-
Submit through your account manager\n    \n- Describe use case and business
value\n    \n- Include examples of desired functionality\n    \n\n###
Additional Resources\n\n- **Directo ERP Documentation**: Comprehensive guide
to ERP features\n    \n- **API Changelog**: Check for updates and new
features\n    \n- **Integration Examples**: Sample code in this collection\n
\n- **Community Forum**: Share experiences with other developers (if
available)\n    \n\n### Best Practices for Support Requests\n\nWhen
contacting support, include:\n\n1. **Request Details:**\n    \n    ```\n
Method: GET\n                                        URL:
{{baseUrl}}/v1/items?warehouse=AALTR\n
Headers:\n                                        X-Directo-Key: [REDACTED]\n
Accept: application/json\n    \n     ```\n    \n2. **Response Details:**\n
\n    ```\n                                        Status Code: 400\n
Response Body: {\"error\": \"Invalid filter\"}\n    \n     ```\n    \n3.
**Expected Behavior:**\n    \n    ```\n
Expected to receive items from AALTR warehouse\n    \n     ```\n    \n4.
**Actual Behavior:**\n    \n    ```\n
Received 400 error with \"Invalid filter\" message\n    \n     ```\n    \n5.
**Troubleshooting Steps Taken:**\n    \n    ```\n
- Verified field name in response\n                                        -
Tested without filters (works)\n                                        -
Checked URL encoding\n    \n     ```\n    \n\n---\n\n## 🔄 Changelog &
Version History\n\n### Version 1 (Current)\n\n**Release Date**:
2024\n\n**Features:**\n\n- Initial API release\n    \n- Support for all
major resources (items, customers, orders, invoices, stock levels)\n    \n-
JSON and XML response formats\n    \n- ERP-style filtering capabilities with
comparison operators\n    \n- Timestamp-based synchronization\n    \n- API
key authentication\n    \n- Rate limiting\n    \n\n**Endpoints:**\n\n-
`/items` - Item master data\n    \n- `/sales_quotations` - Sales qoutations
master data\n    \n- `/customers` - Customer master data\n    \n-
`/suppliers` - Suppliers master data\n    \n- `/contacts` - Contact persons
master data\n    \n- `/orders` - Sales orders\n    \n- `/purchase_orders` -
Purchase orders\n    \n- `/invoices` - Sales Invoice documents\n    \n-
`/purchase_invoices` - Purchase Invoice documents\n    \n-
`/purchase_payments` - Purchase Payments documents\n    \n- `/stocklevels` -
Inventory levels\n    \n- `/stocklevels_sn` - Inventory with serial/batch
numbers\n    \n- `/allocations` - Inventory allocations\n    \n-
`/itemclasses` - Item classifications\n    \n- `/priceformulas` - Pricing
rules\n    \n- `/accounts` - Financial account master data\n    \n-
`/transactions` - Financial transaction documents\n    \n- `/deleted` -
```

```
Deletion tracking\n    \n\n**Known Limitations:**\n\n- Calculated fields
cannot be filtered\n    \n- No pagination (use date ranges and timestamp
filtering)\n    \n- Rate limits apply (60 requests/minute recommended)\n
\n\n---\n\n## □ Security & Compliance\n\n### Data Security\n\n-
**Encryption**: All API requests must use HTTPS\n    \n- **Authentication**:
API key required for all requests\n    \n- **Authorization**: Role-based
access control via API keys\n    \n- **Audit Logging**: All API requests are
logged server-side\n    \n\n### Compliance Considerations\n\n- **GDPR**:
Customer data includes personal information - handle according to GDPR
requirements\n    \n- **Data Retention**: Implement appropriate data
retention policies\n    \n- **Access Control**: Limit API key distribution
to authorized personnel only\n    \n- **Monitoring**: Monitor API usage for
unusual patterns\n    \n\n### Security Best Practices\n\n1. **Protect API
Keys:**\n    \n    - Never commit keys to version control\n        \n    -
Use environment variables or secure vaults\n        \n    - Rotate keys
regularly (quarterly recommended)\n        \n    - Use different keys for
dev/staging/production\n        \n2. **Implement Access Controls:**\n    \n
- Limit API key permissions to minimum required\n        \n    - Use
separate keys for different integrations\n        \n    - Revoke keys
immediately when no longer needed\n        \n3. **Monitor Usage:**\n    \n
- Log all API requests in your application\n        \n    - Set up alerts
for unusual activity\n        \n    - Review access logs regularly\n
\n4. **Handle Data Responsibly:**\n    \n    - Encrypt sensitive data at
rest\n        \n    - Implement data retention policies\n        \n    -
Comply with privacy regulations (GDPR, etc.)\n        \n    - Secure data
transmission (HTTPS only)\n        \n\n---\n\n## □ Tips & Tricks\n\n### Tip
1: Discover Available Fields\n\n``` http\n# Make a request without filters
to see all available fields\nGET /items?code=1011\n# Examine the response to
discover:\n# - Field names (for filtering)\n# - Data types\n# - Custom
fields (in datafields array)\n\n ```\n\n### Tip 2: Test Filters in ERP
First\n\nBefore implementing filters in your code, test them in the Directo
ERP interface. If a filter works in the ERP, it will work in the API.\n\n###
Tip 3: Use Postman Variables\n\nSet up collection variables for easy
environment switching:\n\n- `baseUrl`:
`https://login.directo.ee/apidirect`\n    \n- `version`: `1`\n    \n-
`apiKey`: `YOUR_API_KEY`\n    \n\n### Tip 4: Build Filter Strings
Programmatically\n\n``` python\n# Python example\ndef
build_filter_url(base_url, filters):\n    params = \"&\".join([f\"{k}={v}\"
for k, v in filters.items()])\n    return f\"{base_url}?{params}\"\nfilters
= {\n    \"warehouse\": \"AALTR\",\n    \"quantity\": \">0\",\n
\"status\": \"ACTIVE\"\n}\nurl = build_filter_url(\"{{baseUrl}}/v1/items\",
filters)\n# Result:
{{baseUrl}}/v1/items?warehouse=AALTR&quantity=>0&status=ACTIVE\n\n
```\n\n### Tip 5: Handle Timestamps Consistently\n\n``` python\n# Always use
ISO 8601 format with timezone\nfrom datetime import datetime, timezone\n#
Get current timestamp\nnow = datetime.now(timezone.utc).isoformat()\n#
Result: 2025-11-20T07:30:00+00:00\n# Or use Z notation\nnow =
datetime.now(timezone.utc).strftime(\"%Y-%m-%dT%H:%M:%SZ\")\n# Result:
2025-11-20T07:30:00Z\n\n ```\n\n### Tip 6: Implement Robust Error
Handling\n\n``` python\n# Python example with comprehensive error
handling\nimport requests\nimport time\ndef fetch_directo_data(endpoint,
```
```

```
params=None, max_retries=3):\n    url =
f\"{{{{baseUrl}}}}/v{{{{version}}}}/{endpoint}\"\n    headers = {\n
\"X-Directo-Key\": \"YOUR_API_KEY\",\n        \"Accept\":
\"application/json\"\n    }\n    for attempt in range(max_retries):\n
try:\n            response = requests.get(url, headers=headers,
params=params, timeout=30)\n            if response.status_code == 200:\n
return response.json()\n            elif response.status_code == 429:\n
# Rate limit - wait and retry\n                wait_time = 2 ** attempt\n
time.sleep(wait_time)\n            elif response.status_code in [401,
403]:\n                # Auth error - don't retry\n                raise
Exception(f\"Authentication error: {response.status_code}\")\n
else:\n                # Other error - log and retry\n
print(f\"Error {response.status_code}: {response.text}\")\n
time.sleep(1)\n        except requests.exceptions.Timeout:\n
print(f\"Timeout on attempt {attempt + 1}\")\n            time.sleep(2)\n
except requests.exceptions.RequestException as e:\n
print(f\"Request failed: {e}\")\n            time.sleep(2)\n    raise
Exception(f\"Failed after {max_retries} attempts\")\n# Usage\nitems =
fetch_directo_data(\"items\", params={\"warehouse\": \"AALTR\",
\"quantity\": \">0\"})\n\n ```\n\n---\n\n**Last Updated:** 29-01-2026
\n**API Version:** 1  \n**Documentation Version:** 3.0 (Enterprise
Edition)\n\n---\n\n## □ Quick Reference Card\n\n### Essential
Endpoints\n\n```\nItems:        GET /v1/items\nCustomers:    GET
/v1/customers\nOrders:       GET /v1/orders\nInvoices:     GET
/v1/invoices\nStock:        GET /v1/stocklevels\nDeletions:    GET
/v1/deleted\n\n ```\n\n### Authentication\n\n``` http\nX-Directo-Key:
YOUR_API_KEY\n\n ```\n\n### Response Format\n\n``` http\nAccept:
application/json  (or application/xml)\n\n ```\n\n### Common
Filters\n\n```\nExact match:      ?field=value\nGreater than:
?field=>value\nLess than:        ?field=Not equal:
?field=!value\nMultiple values:  ?field=value1,value2\nTimestamp:
?ts=2025-11-20T07:00:00Z\n\n ```\n\n### Filter Examples\n\n```
http\n?warehouse=AALTR\n?quantity=>100\n?date=>2025-11-01T00:00:00&date=<202
5-12-01T00:00:00\n?status=NEW,PENDING\n?country=!EE\n?ts=2025-11-20T07:00:00
Z\n\n ```\n\n### Remember\n\n□ All fields can be filtered (except calculated
fields)  \n□ Filters mirror ERP system behavior  \n□ Use timestamp filtering
for sync  \n□ URL encode special characters  \n□ Implement rate limiting (60
req/min)  \n□ Handle errors with exponential backoff\n\n---\n\n_This
documentation is maintained by the Directo development team. For questions
or feedback, contact_
[<i>info@directo.ee</i>](https://mailto:info@directo.ee)",
    "schema":
"https://schema.getpostman.com/json/collection/v2.1.0/collection.json",
    "_exporter_id": "14246513"
  },
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```

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```

```
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```

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                        "disabled": true
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                      {
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```

```
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```

```
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                }
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```

```
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```

```
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```

```
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                {
```

```
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```
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            },
            {
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```

```
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```

```
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                }
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                ],
                "path": [
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                  "purchase_invoices"
                ],
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                  {
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                  },
                  {
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                    "value": "9810",
                    "disabled": true
                  },
                  {
                    "key": "status",
                    "value": "UUS",
                    "disabled": true
                  },
                  {
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```

```
                    },
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                    },
                    {
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                      "type": "text",
                      "disabled": true
                    }
                  ]
                }
              },
              "response": [
                {
                  "name": "OK",
                  "originalRequest": {
                    "method": "GET",
                    "header": [
                      {
                        "key": "Accept",
                        "value": "application/xml"
                      },
                      {
```

```
                            "key": "X-Directo-Key",
                            "value": "<API Key>",
                            "description": "Added as a part of security
scheme: apikey"
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                          "host": [
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                          ],
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                            "purchase_invoices"
                          ],
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                              "key": "ts",
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                            }
                          ]
                        }
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                      "code": 200,
                      "_postman_previewlanguage": "xml",
                      "header": [
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                          "value": "application/xml"
                        }
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                      "cookie": [],
                      "body": ""
                    }
                  ]
                }
              ]
            },
            {
              "name": "purchase_payments",
              "item": [
                {
                  "name": "All purchase payments",
                  "request": {
                    "method": "GET",
                    "header": [
                      {
                        "key": "Accept",
                        "value": "application/xml"
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            }
          ],
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            ],
            "path": [
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              "purchase_payments"
            ],
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                "value": "!1908694",
                "disabled": true
              },
              {
                "key": "ts",
                "value": "2025-01-01T08:11:05Z",
                "disabled": true
              },
              {
                "key": "confirmed",
                "value": "UUS",
                "disabled": true
              },
              {
                "key": "date",
                "value": "<2025-09-03T00:00:00",
                "disabled": true
              },
              {
                "key": "date",
                "value": ">2025-09-01T00:00:00",
                "disabled": true
              },
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                "key": "object",
                "value": "!EE",
                "disabled": true
              },
              {
                "key": "project",
                "value": "AALTR,AIPM",
                "disabled": true
              },
              {
                "key": "row_rn",
                "value": "Maja",
                "disabled": true
```

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                        },
                        {
                          "key": "row_suppliercode",
                          "value": "9810",
                          "disabled": true
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                          "key": "row_quantity",
                          "value": "as",
                          "disabled": true
                        },
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                          "value": "223TEST",
                          "disabled": true
                        }
                      ]
                    }
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                          {
                            "key": "Accept",
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                          },
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                            "key": "X-Directo-Key",
                            "value": "<API Key>",
                            "description": "Added as a part of security
scheme: apikey"
                          }
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                          "host": [
                            "{{baseUrl}}"
                          ],
                          "path": [
                            "v{{version}}",
                            "purchase_payments"
                          ],
                          "query": [
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                              "key": "ts",
                              "value": "1949-07-30T08:11:05.129Z"
                            }
```

```
                    ]
                  }
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                "code": 200,
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                "header": [
                  {
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                    "value": "application/xml"
                  }
                ],
                "cookie": [],
                "body": ""
              }
            ]
          }
        ]
      },
      {
        "name": "customers",
        "item": [
          {
            "name": "All customers",
            "request": {
              "method": "GET",
              "header": [
                {
                  "key": "Accept",
                  "value": "application/xml"
                }
              ],
              "url": {
                "raw": "{{baseUrl}}/v{{version}}/customers",
                "host": [
                  "{{baseUrl}}"
                ],
                "path": [
                  "v{{version}}",
                  "customers"
                ],
                "query": [
                  {
                    "key": "ts",
                    "value": "2025-01-01T08:11:05.129Z",
                    "disabled": true
                  },
                  {
                    "key": "code",
                    "value": null,
                    "disabled": true
```

```
                        },
                        {
                          "key": "closed",
                          "value": "0",
                          "disabled": true
                        }
                      ]
                    }
                  },
                  "response": [
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                        "header": [
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                            "key": "Accept",
                            "value": "application/xml"
                          },
                          {
                            "key": "X-Directo-Key",
                            "value": "<API Key>",
                            "description": "Added as a part of security
scheme: apikey"
                          }
                        ],
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                          "host": [
                            "{{baseUrl}}"
                          ],
                          "path": [
                            "v{{version}}",
                            "customers"
                          ],
                          "query": [
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                              "key": "ts",
                              "value": "1949-07-30T08:11:05.129Z"
                            }
                          ]
                        }
                      },
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                      "code": 200,
                      "_postman_previewlanguage": "xml",
                      "header": [
                        {
                          "key": "Content-Type",
                          "value": "application/xml"
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                    }
                  ],
                  "cookie": [],
                  "body": ""
                }
              ]
            }
          ]
        },
        {
          "name": "suppliers",
          "item": [
            {
              "name": "All suppliers",
              "request": {
                "method": "GET",
                "header": [
                  {
                    "key": "Accept",
                    "value": "application/xml"
                  }
                ],
                "url": {
                  "raw": "{{baseUrl}}/v{{version}}/suppliers",
                  "host": [
                    "{{baseUrl}}"
                  ],
                  "path": [
                    "v{{version}}",
                    "suppliers"
                  ],
                  "query": [
                    {
                      "key": "ts",
                      "value": "2025-01-01T08:11:05.129Z",
                      "disabled": true
                    },
                    {
                      "key": "data_row_code",
                      "value": "PROMO,HANKIJA_LINK_SIS",
                      "disabled": true
                    },
                    {
                      "key": "closed",
                      "value": "0",
                      "disabled": true
                    }
                  ]
                }
              },
              "response": [
```

```
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                        "header": [
                          {
                            "key": "Accept",
                            "value": "application/xml"
                          },
                          {
                            "key": "X-Directo-Key",
                            "value": "<API Key>",
                            "description": "Added as a part of security
scheme: apikey"
                          }
                        ],
                        "url": {
                          "raw":
"{{baseUrl}}/v{{version}}/suppliers?ts=1949-07-30T08:11:05.129Z",
                          "host": [
                            "{{baseUrl}}"
                          ],
                          "path": [
                            "v{{version}}",
                            "suppliers"
                          ],
                          "query": [
                            {
                              "key": "ts",
                              "value": "1949-07-30T08:11:05.129Z"
                            }
                          ]
                        }
                      },
                      "status": "OK",
                      "code": 200,
                      "_postman_previewlanguage": "xml",
                      "header": [
                        {
                          "key": "Content-Type",
                          "value": "application/xml"
                        }
                      ],
                      "cookie": [],
                      "body": ""
                    }
                  ]
                }
              ]
            },
            {
```

```
            "name": "contacts",
            "item": [
              {
                "name": "All contacts",
                "request": {
                  "method": "GET",
                  "header": [
                    {
                      "key": "Accept",
                      "value": "application/xml"
                    }
                  ],
                  "url": {
                    "raw": "{{baseUrl}}/v{{version}}/contacts",
                    "host": [
                      "{{baseUrl}}"
                    ],
                    "path": [
                      "v{{version}}",
                      "contacts"
                    ],
                    "query": [
                      {
                        "key": "ts",
                        "value": "2025-01-01T08:11:05.129Z",
                        "disabled": true
                      },
                      {
                        "key": "code",
                        "value": null,
                        "disabled": true
                      },
                      {
                        "key": "closed",
                        "value": "0",
                        "disabled": true
                      }
                    ]
                  }
                },
                "response": [
                  {
                    "name": "OK",
                    "originalRequest": {
                      "method": "GET",
                      "header": [
                        {
                          "key": "Accept",
                          "value": "application/xml"
                        },
                        {
```

```
                            "key": "X-Directo-Key",
                            "value": "<API Key>",
                            "description": "Added as a part of security
scheme: apikey"
                          }
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                        "url": {
                          "raw":
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                          "host": [
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                          ],
                          "path": [
                            "v{{version}}",
                            "contacts"
                          ],
                          "query": [
                            {
                              "key": "ts",
                              "value": "1949-07-30T08:11:05.129Z"
                            }
                          ]
                        }
                      },
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                      "code": 200,
                      "_postman_previewlanguage": "xml",
                      "header": [
                        {
                          "key": "Content-Type",
                          "value": "application/xml"
                        }
                      ],
                      "cookie": [],
                      "body": ""
                    }
                  ]
                }
              ]
            },
            {
              "name": "items",
              "item": [
                {
                  "name": "All items",
                  "event": [
                    {
                      "listen": "test",
                      "script": {
                        "exec": [
                          ""
```

```
                ],
                "type": "text/javascript",
                "packages": {},
                "requests": {}
              }
            },
            {
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              "script": {
                "exec": [
                  ""
                ],
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                "packages": {},
                "requests": {}
              }
            }
          ],
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            "header": [
              {
                "key": "Accept",
                "value": "application/xml"
              },
              {
                "key": "",
                "value": "",
                "type": "text",
                "disabled": true
              }
            ],
            "url": {
              "raw": "{{baseUrl}}/v{{version}}/items",
              "host": [
                "{{baseUrl}}"
              ],
              "path": [
                "v{{version}}",
                "items"
              ],
              "query": [
                {
                  "key": "code",
                  "value": "",
                  "disabled": true
                },
                {
                  "key": "ts",
                  "value": "2025-01-01T08:11:05.129Z",
                  "disabled": true
```

```
                        },
                        {
                          "key": "stock",
                          "value": "AALTR,AIPM",
                          "disabled": true
                        },
                        {
                          "key": "country",
                          "value": "EE",
                          "disabled": true
                        },
                        {
                          "key": "class",
                          "value": "AUTOD",
                          "disabled": true
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                        {
                          "key": "closed",
                          "value": "1",
                          "disabled": true
                        },
                        {
                          "key": "name",
                          "value": "%name%",
                          "type": "text",
                          "disabled": true
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                        {
                          "key": "description",
                          "value": "%description%",
                          "disabled": true
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                      ]
                    }
                  },
                  "response": [
                    {
                      "name": "OK",
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                        "method": "GET",
                        "header": [
                          {
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                          },
                          {
                            "key": "X-Directo-Key",
                            "value": "<API Key>",
                            "description": "Added as a part of security
scheme: apikey"
                          }
```

```
                        ],
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                          "host": [
                            "{{baseUrl}}"
                          ],
                          "path": [
                            "v{{version}}",
                            "items"
                          ],
                          "query": [
                            {
                              "key": "ts",
                              "value": "1949-07-30T08:11:05.129Z"
                            }
                          ]
                        }
                      },
                      "status": "OK",
                      "code": 200,
                      "_postman_previewlanguage": "xml",
                      "header": [
                        {
                          "key": "Content-Type",
                          "value": "application/xml"
                        }
                      ],
                      "cookie": [],
                      "body": ""
                    }
                  ]
                }
              ]
            },
            {
              "name": "itemclasses",
              "item": [
                {
                  "name": "All itemclasses",
                  "request": {
                    "method": "GET",
                    "header": [
                      {
                        "key": "Accept",
                        "value": "application/xml"
                      }
                    ],
                    "url": {
                      "raw": "{{baseUrl}}/v{{version}}/itemclasses",
                      "host": [
```

```
                        "{{baseUrl}}"
                      ],
                      "path": [
                        "v{{version}}",
                        "itemclasses"
                      ],
                      "query": [
                        {
                          "key": "ts",
                          "value": "2025-01-01T08:11:05.129Z",
                          "disabled": true
                        },
                        {
                          "key": "masters",
                          "value": "CON",
                          "disabled": true
                        },
                        {
                          "key": "code",
                          "value": null,
                          "disabled": true
                        }
                      ]
                    }
                  },
                  "response": [
                    {
                      "name": "OK",
                      "originalRequest": {
                        "method": "GET",
                        "header": [
                          {
                            "key": "Accept",
                            "value": "application/xml"
                          },
                          {
                            "key": "X-Directo-Key",
                            "value": "<API Key>",
                            "description": "Added as a part of security
scheme: apikey"
                          }
                        ],
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                          "host": [
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                          ],
                          "path": [
                            "v{{version}}",
                            "itemclasses"
```

```
                    ],
                    "query": [
                      {
                        "key": "ts",
                        "value": "1949-07-30T08:11:05.129Z"
                      }
                    ]
                  }
                },
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                "code": 200,
                "_postman_previewlanguage": "xml",
                "header": [
                  {
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                    "value": "application/xml"
                  }
                ],
                "cookie": [],
                "body": ""
              }
            ]
          }
        ]
      },
      {
        "name": "priceformulas",
        "item": [
          {
            "name": "All priceformulas",
            "request": {
              "method": "GET",
              "header": [
                {
                  "key": "Accept",
                  "value": "application/xml"
                }
              ],
              "url": {
                "raw": "{{baseUrl}}/v{{version}}/priceformulas",
                "host": [
                  "{{baseUrl}}"
                ],
                "path": [
                  "v{{version}}",
                  "priceformulas"
                ],
                "query": [
                  {
                    "key": "ts",
                    "value": "2025-01-01T08:11:05.129Z",
```

```
                            "disabled": true
                          },
                          {
                            "key": "row_item",
                            "value": "0009",
                            "disabled": true
                          }
                        ]
                      }
                    },
                    "response": [
                      {
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                        "originalRequest": {
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                          "header": [
                            {
                              "key": "Accept",
                              "value": "application/xml"
                            },
                            {
                              "key": "X-Directo-Key",
                              "value": "<API Key>",
                              "description": "Added as a part of security
scheme: apikey"
                            }
                          ],
                          "url": {
                            "raw":
"{{baseUrl}}/v{{version}}/priceformulas?ts=1949-07-30T08:11:05.129Z",
                            "host": [
                              "{{baseUrl}}"
                            ],
                            "path": [
                              "v{{version}}",
                              "priceformulas"
                            ],
                            "query": [
                              {
                                "key": "ts",
                                "value": "1949-07-30T08:11:05.129Z"
                              }
                            ]
                          }
                        },
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                        "code": 200,
                        "_postman_previewlanguage": "xml",
                        "header": [
                          {
                            "key": "Content-Type",
```

```
                        "value": "application/xml"
                      }
                    ],
                    "cookie": [],
                    "body": ""
                  }
                ]
              }
            ]
          },
          {
            "name": "stocklevels",
            "item": [
              {
                "name": "All stocklevels",
                "request": {
                  "method": "GET",
                  "header": [
                    {
                      "key": "Accept",
                      "value": "application/xml"
                    }
                  ],
                  "url": {
                    "raw": "{{baseUrl}}/v{{version}}/stocklevels",
                    "host": [
                      "{{baseUrl}}"
                    ],
                    "path": [
                      "v{{version}}",
                      "stocklevels"
                    ],
                    "query": [
                      {
                        "key": "code",
                        "value": "_4008110308067",
                        "disabled": true
                      },
                      {
                        "key": "stock",
                        "value": "123TEST",
                        "disabled": true
                      }
                    ]
                  }
                },
                "response": [
                  {
                    "name": "OK",
                    "originalRequest": {
                      "method": "GET",
```

```
                        "header": [
                          {
                            "key": "Accept",
                            "value": "application/xml"
                          },
                          {
                            "key": "X-Directo-Key",
                            "value": "<API Key>",
                            "description": "Added as a part of security
scheme: apikey"
                          }
                        ],
                        "url": {
                          "raw": "{{baseUrl}}/v{{version}}/stocklevels",
                          "host": [
                            "{{baseUrl}}"
                          ],
                          "path": [
                            "v{{version}}",
                            "stocklevels"
                          ],
                          "query": [
                            {
                              "key": "ts",
                              "value": "1949-07-30T08:11:05.129Z",
                              "disabled": true
                            }
                          ]
                        }
                      },
                      "status": "OK",
                      "code": 200,
                      "_postman_previewlanguage": "xml",
                      "header": [
                        {
                          "key": "Content-Type",
                          "value": "application/xml"
                        }
                      ],
                      "cookie": [],
                      "body": ""
                    }
                  ]
                },
                {
                  "name": "All stocklevels with serialnumbers/batchnumbers",
                  "request": {
                    "method": "GET",
                    "header": [
                      {
                        "key": "Accept",
```

```
                        "value": "application/xml"
                      }
                    ],
                    "url": {
                      "raw": "{{baseUrl}}/v{{version}}/stocklevels_sn",
                      "host": [
                        "{{baseUrl}}"
                      ],
                      "path": [
                        "v{{version}}",
                        "stocklevels_sn"
                      ],
                      "query": [
                        {
                          "key": "code",
                          "value": "",
                          "disabled": true
                        },
                        {
                          "key": "sn",
                          "value": "E101-10",
                          "disabled": true
                        },
                        {
                          "key": "stock",
                          "value": "TL1,TL",
                          "disabled": true
                        }
                      ]
                    }
                  },
                  "response": [
                    {
                      "name": "OK",
                      "originalRequest": {
                        "method": "GET",
                        "header": [
                          {
                            "key": "Accept",
                            "value": "application/xml"
                          },
                          {
                            "key": "X-Directo-Key",
                            "value": "<API Key>",
                            "description": "Added as a part of security
scheme: apikey"
                          }
                        ],
                        "url": {
                          "raw": "{{baseUrl}}/v{{version}}/stocklevels_sn",
                          "host": [
```

```
                    "{{baseUrl}}"
                  ],
                  "path": [
                    "v{{version}}",
                    "stocklevels_sn"
                  ]
                }
              },
              "status": "OK",
              "code": 200,
              "_postman_previewlanguage": "xml",
              "header": [
                {
                  "key": "Content-Type",
                  "value": "application/xml"
                }
              ],
              "cookie": [],
              "body": ""
            }
          ]
        },
        {
          "name": "All Allocations",
          "request": {
            "method": "GET",
            "header": [
              {
                "key": "Accept",
                "value": "application/xml"
              }
            ],
            "url": {
              "raw": "{{baseUrl}}/v{{version}}/allocations",
              "host": [
                "{{baseUrl}}"
              ],
              "path": [
                "v{{version}}",
                "allocations"
              ],
              "query": [
                {
                  "key": "code",
                  "value": null,
                  "disabled": true
                }
              ]
            }
          },
          "response": [
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```
                    {
                      "name": "OK",
                      "originalRequest": {
                        "method": "GET",
                        "header": [
                          {
                            "key": "Accept",
                            "value": "application/xml"
                          },
                          {
                            "key": "X-Directo-Key",
                            "value": "<API Key>",
                            "description": "Added as a part of security
scheme: apikey"
                          }
                        ],
                        "url": {
                          "raw": "{{baseUrl}}/v{{version}}/allocations",
                          "host": [
                            "{{baseUrl}}"
                          ],
                          "path": [
                            "v{{version}}",
                            "allocations"
                          ]
                        }
                      },
                      "status": "OK",
                      "code": 200,
                      "_postman_previewlanguage": "xml",
                      "header": [
                        {
                          "key": "Content-Type",
                          "value": "application/xml"
                        }
                      ],
                      "cookie": [],
                      "body": ""
                    }
                  ]
                }
              ]
            },
            {
              "name": "accounts",
              "item": [
                {
                  "name": "All accounts",
                  "request": {
                    "method": "GET",
                    "header": [
```

```
                        {
                          "key": "Accept",
                          "value": "application/xml"
                        }
                      ],
                      "url": {
                        "raw": "{{baseUrl}}/v{{version}}/accounts",
                        "host": [
                          "{{baseUrl}}"
                        ],
                        "path": [
                          "v{{version}}",
                          "accounts"
                        ],
                        "query": [
                          {
                            "key": "code",
                            "value": "",
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scheme: apikey"
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```

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                "path": [
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            "response": []
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        ]
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                  "response": []
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                "path": [
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                        "disabled": true
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                            "value": "digiallkiri",
                            "type": "text",
                            "disabled": true
                          },
                          {
                            "key": "signaturestatus",
                            "value": "",
                            "type": "text",
```

```
                        "disabled": true
                      },
                      {
                        "key": "signature",
                        "value": "",
                        "type": "text",
                        "disabled": true
                      },
                      {
                        "key": "signaturetime",
                        "value": "",
                        "type": "text",
                        "disabled": true
                      },
                      {
                        "key": "ts",
                        "value": null,
                        "type": "text",
                        "disabled": true
                      },
                      {
                        "key": "changedby",
                        "value": "",
                        "type": "text",
                        "disabled": true
                      },
                      {
                        "key": "externalid",
                        "value": null,
                        "type": "text",
                        "disabled": true
                      }
                    ]
                  }
                },
                "response": []
              }
            ]
          }
        ]
      }
    ]
  }
],
"auth": {
  "type": "apikey",
  "apikey": [
    {
      "key": "value",
      "value": "{{APIKey}}",
      "type": "string"
```

```
      },
      {
        "key": "key",
        "value": "X-Directo-Key",
        "type": "string"
      },
      {
        "key": "in",
        "value": "header",
        "type": "string"
      }
    ]
  },
  "event": [
    {
      "listen": "prerequest",
      "script": {
        "type": "text/javascript",
        "packages": {},
        "requests": {},
        "exec": [
          ""
        ]
      }
    },
    {
      "listen": "test",
      "script": {
        "type": "text/javascript",
        "requests": {},
        "exec": [
          "// ==========================================",
          "// DIRECTO API - COMPREHENSIVE TEST SUITE",
          "// ==========================================",
          "// These tests run for all requests in the collection",
          "// Covers: Status codes, response structure, data validation,
error handling",
          "",
          "// Test 1: Response Status Code Validation",
          "pm.test(\"Status code is 200 OK\", function () {",
          "    pm.response.to.have.status(200);",
          "});",
          "",
          "// Test 2: Response Time Performance Check",
          "pm.test(\"Response time is acceptable (under 5 seconds)\",
function () {",
          "    pm.expect(pm.response.responseTime).to.be.below(5000);",
          "});",
          "",
          "// Test 3: Content-Type Header Validation",
          "pm.test(\"Content-Type header is present\", function () {",
```

```
          "    pm.response.to.have.header(\"Content-Type\");",
          "});",
          "",
          "// Test 4: Response Body Exists",
          "pm.test(\"Response body is not empty\", function () {",
          "    pm.expect(pm.response.text()).to.not.be.empty;",
          "});",
          "",
          "// Test 5: Valid JSON or XML Response",
          "pm.test(\"Response is valid JSON or XML format\", function () {",
          "    const contentType = pm.response.headers.get(\"Content-
Type\");",
          "    ",
          "    if (contentType &&
contentType.includes(\"application/json\")) {",
          "        pm.expect(() => pm.response.json()).to.not.throw();",
          "    } else if (contentType &&
(contentType.includes(\"application/xml\") ||
contentType.includes(\"text/xml\"))) {",
          "        pm.expect(() =>
xml2Json(pm.response.text())).to.not.throw();",
          "    }",
          "});",
          "",
          "// ============================================",
          "// RESPONSE STRUCTURE & DATA VALIDATION",
          "// ============================================",
          "",
          "try {",
          "    const contentType = pm.response.headers.get(\"Content-
Type\");",
          "    let responseData;",
          "    let isJson = false;",
          "    ",
          "    // Parse response based on content type",
          "    if (contentType &&
contentType.includes(\"application/json\")) {",
          "        responseData = pm.response.json();",
          "        isJson = true;",
          "        ",
          "        // Test 6: JSON Response Structure",
          "        pm.test(\"JSON response has valid structure\", function
() {",
          "
pm.expect(responseData).to.be.an('object').or.to.be.an('array');",
          "        });",
          "        ",
          "    } else if (contentType &&
(contentType.includes(\"application/xml\") ||
contentType.includes(\"text/xml\"))) {",
          "        responseData = xml2Json(pm.response.text());",
```

```
            "        ",
            "        // Test 6: XML Response Structure",
            "        pm.test(\"XML response has valid structure\", function ()
{",
            "            pm.expect(responseData).to.be.an('object');",
            "        });",
            "    }",
            "    ",
            "    // ============================================",
            "    // ENDPOINT-SPECIFIC DATA VALIDATION",
            "    // ============================================",
            "    ",
            "    const requestName = pm.info.requestName.toLowerCase();",
            "    ",
            "    // Test 7: Response Data Type and Array Validation",
            "    if (responseData) {",
            "        if (Array.isArray(responseData)) {",
            "            pm.test(\"Response is an array with items\", function
() {",
            "                pm.expect(responseData).to.be.an('array');",
            "            });",
            "            ",
            "            if (responseData.length > 0) {",
            "                pm.test(\"Array contains valid objects\",
function () {",
            "
pm.expect(responseData[0]).to.be.an('object');",
            "                });",
            "                ",
            "                // Test 8: Data Integrity - Check for required
fields based on endpoint",
            "                if (requestName.includes(\"item\")) {",
            "                    pm.test(\"Items have required fields\",
function () {",
            "                        const item = responseData[0];",
            "
pm.expect(item).to.have.property('id').or.to.have.property('itemId').or.to.h
ave.property('code');",
            "                    });",
            "                    ",
            "                    // Type checking for items",
            "                    pm.test(\"Item fields have correct data
types\", function () {",
            "                        const item = responseData[0];",
            "                        if (item.id)
pm.expect(item.id).to.satisfy(val => typeof val === 'string' || typeof val
=== 'number');",
            "                        if (item.name)
pm.expect(item.name).to.be.a('string');",
            "                        if (item.price)
pm.expect(item.price).to.be.a('number').or.to.be.a('string');",
```

```
          "                    });",
          "                }",
          "                ",
          "                if (requestName.includes(\"customer\")) {",
          "                    pm.test(\"Customers have required fields\",
function () {",
          "                        const customer = responseData[0];",
          "
pm.expect(customer).to.have.property('id').or.to.have.property('customerId')
.or.to.have.property('code');",
          "                    });",
          "                    ",
          "                    pm.test(\"Customer fields have correct data
types\", function () {",
          "                        const customer = responseData[0];",
          "                        if (customer.id)
pm.expect(customer.id).to.satisfy(val => typeof val === 'string' || typeof
val === 'number');",
          "                        if (customer.name)
pm.expect(customer.name).to.be.a('string');",
          "                        if (customer.email)
pm.expect(customer.email).to.be.a('string');",
          "                    });",
          "                }",
          "                ",
          "                if (requestName.includes(\"order\")) {",
          "                    pm.test(\"Orders have required fields\",
function () {",
          "                        const order = responseData[0];",
          "
pm.expect(order).to.have.property('id').or.to.have.property('orderId').or.to
.have.property('orderNumber');",
          "                    });",
          "                    ",
          "                    pm.test(\"Order fields have correct data
types\", function () {",
          "                        const order = responseData[0];",
          "                        if (order.id)
pm.expect(order.id).to.satisfy(val => typeof val === 'string' || typeof val
=== 'number');",
          "                        if (order.date)
pm.expect(order.date).to.be.a('string');",
          "                        if (order.total)
pm.expect(order.total).to.be.a('number').or.to.be.a('string');",
          "                    });",
          "                }",
          "                ",
          "                if (requestName.includes(\"invoice\")) {",
          "                    pm.test(\"Invoices have required fields\",
function () {",
          "                        const invoice = responseData[0];",
```

```
          "
pm.expect(invoice).to.have.property('id').or.to.have.property('invoiceId').o
r.to.have.property('invoiceNumber');",
          "                    });",
          "                    ",
          "                    pm.test(\"Invoice fields have correct data
types\", function () {",
          "                        const invoice = responseData[0];",
          "                        if (invoice.id)
pm.expect(invoice.id).to.satisfy(val => typeof val === 'string' || typeof
val === 'number');",
          "                        if (invoice.date)
pm.expect(invoice.date).to.be.a('string');",
          "                        if (invoice.amount)
pm.expect(invoice.amount).to.be.a('number').or.to.be.a('string');",
          "                    });",
          "                }",
          "                ",
          "                if (requestName.includes(\"stocklevel\")) {",
          "                    pm.test(\"Stock levels have required
fields\", function () {",
          "                        const stock = responseData[0];",
          "
pm.expect(stock).to.have.property('itemId').or.to.have.property('item').or.t
o.have.property('quantity');",
          "                    });",
          "                    ",
          "                    pm.test(\"Stock level fields have correct
data types\", function () {",
          "                        const stock = responseData[0];",
          "                        if (stock.quantity)
pm.expect(stock.quantity).to.be.a('number').or.to.be.a('string');",
          "                        if (stock.itemId)
pm.expect(stock.itemId).to.satisfy(val => typeof val === 'string' || typeof
val === 'number');",
          "                    });",
          "                }",
          "                ",
          "                if (requestName.includes(\"allocation\")) {",
          "                    pm.test(\"Allocations have required fields\",
function () {",
          "                        const allocation = responseData[0];",
          "
pm.expect(allocation).to.have.property('id').or.to.have.property('itemId').o
r.to.have.property('quantity');",
          "                    });",
          "                }",
          "                ",
          "                if (requestName.includes(\"itemclass\")) {",
          "                    pm.test(\"Item classes have required
fields\", function () {",
```

```
          "                        const itemClass = responseData[0];",
          "
pm.expect(itemClass).to.have.property('id').or.to.have.property('code').or.t
o.have.property('name');",
          "                    });",
          "                }",
          "                ",
          "                if (requestName.includes(\"priceformula\")) {",
          "                    pm.test(\"Price formulas have required
fields\", function () {",
          "                        const formula = responseData[0];",
          "
pm.expect(formula).to.have.property('id').or.to.have.property('code').or.to.
have.property('formula');",
          "                    });",
          "                }",
          "                ",
          "                if (requestName.includes(\"deleted\")) {",
          "                    pm.test(\"Deleted records have required
fields\", function () {",
          "                        const deleted = responseData[0];",
          "
pm.expect(deleted).to.have.property('id').or.to.have.property('deletedId').o
r.to.have.property('type');",
          "                    });",
          "                }",
          "            } else {",
          "                pm.test(\"Empty array response is valid (no data
available)\", function () {",
          "
pm.expect(responseData).to.be.an('array').that.is.empty;",
          "                });",
          "            }",
          "        } else if (typeof responseData === 'object') {",
          "            pm.test(\"Response is a valid object\", function ()
{",
          "                pm.expect(responseData).to.be.an('object');",
          "            });",
          "            ",
          "            // Check if it's an error response",
          "            if (responseData.error || responseData.message) {",
          "                pm.test(\"Error response contains error
details\", function () {",
          "
pm.expect(responseData).to.have.property('error').or.to.have.property('messa
ge');",
          "                });",
          "            }",
          "        }",
          "    }",
          "    ",
```

```
            "    // ============================================",
            "    // DATA INTEGRITY CHECKS",
            "    // ============================================",
            "    ",
            "    // Test 9: No Null or Undefined Critical Values",
            "    if (Array.isArray(responseData) && responseData.length > 0)
{",
            "        pm.test(\"Critical fields are not null or undefined\",
function () {",
            "            responseData.forEach((item, index) => {",
            "                if (item.id !== undefined) {",
            "                    pm.expect(item.id, `Item ${index} has
null/undefined id`).to.not.be.null;",
            "                    pm.expect(item.id, `Item ${index} has
null/undefined id`).to.not.be.undefined;",
            "                }",
            "            });",
            "        });",
            "    }",
            "    ",
            "    // Test 10: Consistent Data Structure Across Array Items",
            "    if (Array.isArray(responseData) && responseData.length > 1)
{",
            "        pm.test(\"Array items have consistent structure\",
function () {",
            "            const firstItemKeys =
Object.keys(responseData[0]).sort();",
            "            const allConsistent = responseData.every(item => {",
            "                const itemKeys = Object.keys(item).sort();",
            "                return JSON.stringify(firstItemKeys) ===
JSON.stringify(itemKeys);",
            "            });",
            "            ",
            "            // This is a soft check - log warning if inconsistent
but don't fail",
            "            if (!allConsistent) {",
            "                console.warn(\"Warning: Array items have
inconsistent structure\");",
            "            }",
            "            pm.expect(true).to.be.true; // Always pass but log
the warning",
            "        });",
            "    }",
            "    ",
            "} catch (error) {",
            "    // ============================================",
            "    // ERROR HANDLING",
            "    // ============================================",
            "    ",
            "    pm.test(\"Response parsing error handled gracefully\",
function () {",
```

```
          "        console.error(\"Error parsing response:\",
error.message);",
          "        console.error(\"Response body:\",
pm.response.text().substring(0, 500));",
          "        ",
          "        // Check if it's an authentication error",
          "        if (pm.response.code === 401 || pm.response.code === 403)
{",
          "            pm.expect.fail(\"Authentication failed - check X-
Directo-Key header\");",
          "        }",
          "        ",
          "        // Check if it's a server error",
          "        if (pm.response.code >= 500) {",
          "            pm.expect.fail(\"Server error - API may be
unavailable\");",
          "        }",
          "        ",
          "        // For other errors, log but don't fail the test suite",
          "        console.warn(\"Unexpected response format or parsing
error\");",
          "    });",
          "}",
          "",
          "// ============================================",
          "// SECURITY & HEADERS VALIDATION",
          "// ============================================",
          "",
          "// Test 11: Security Headers Check (Optional but recommended)",
          "pm.test(\"Response has security considerations\", function () {",
          "    // This is informational - we check but don't fail",
          "    const hasSecurityHeaders = pm.response.headers.has(\"X-
Content-Type-Options\") ||",
          "                               pm.response.headers.has(\"X-Frame-
Options\") ||",
          "                               pm.response.headers.has(\"Strict-
Transport-Security\");",
          "    ",
          "    if (!hasSecurityHeaders) {",
          "        console.info(\"Info: No common security headers
detected\");",
          "    }",
          "    pm.expect(true).to.be.true; // Always pass",
          "});",
          "// Test 12: SQL injection (For testing  add {{payload}} to
parameters like \\v1\\items\\code={{payload}})",
          "pm.test(\"Check SQL error messages\", function () {",
          "    const body = pm.response.text().toLowerCase();",
          "    const sqlErrors = [\"sql\", \"mysql\", \"syntax error\",
\"driver\", \"database\", \"query\"];",
          "    sqlErrors.forEach(error => {",
```

```
          "        pm.expect(body).to.not.include(error);",
          "    });",
          "});",
          "",
          "pm.test(\"Response time normal (Time-based Blind SQL
Injection)\", function () {",
          "    pm.expect(pm.response.responseTime).to.be.below(2000); ",
          "});",
          "",
          "// Test: Erro messages disclosere",
          "pm.test(\"Error message is generic and safe\", function () {",
          "    const responseBody = pm.response.text();",
          "    const sensitiveTerms = [\"SQL\", \"stack trace\", \"syntax
error at\", \"fatal error\", \"uncaught exception\", \"on line [0-9]\",
\"original_query\", \"exception\", \"database\"];",
          "    sensitiveTerms.forEach(term => {",
          "
pm.expect(responseBody.toLowerCase()).to.not.include(term.toLowerCase());",
          "    });",
          "});",
          "",
          "pm.test(\"Response should not contain sensitive data\", function
() {",
          "
pm.expect(pm.response.text()).to.not.include(\"item_name\");",
          "});",
          "",
          "// Test xx:  Information Disclosure (DISABLED)",
          "pm.test(\"Should not reveal server technology in headers\",
function () {",
          "    const headersToHide = [",
          "        \"X-AspNet-Version\",",
          "        \"X-AspNetMvc-Version\",",
          "        \"X-Powered-By\",",
          "        \"Server\"",
          "    ];",
          "",
          "    headersToHide.forEach(header => {",
          "        const value = pm.response.headers.get(header);",
          "        pm.expect(value, `Header ${header}
found!`).to.be.oneOf([undefined, \"\"]);",
          "    });",
          "});",
          "",
          "// ============================================",
          "// SUMMARY LOGGING",
          "// ============================================",
          "",
          "console.log(\"=========================================\");",
          "console.log(\"Test Summary for:\", pm.info.requestName);",
          "console.log(\"Status Code:\", pm.response.code);",
```

```
          "console.log(\"Response Time:\", pm.response.responseTime +
\"ms\");",
          "console.log(\"Response Size:\", pm.response.size().body + \"
bytes\");",
          "console.log(\"========================================\");"
        ]
      }
    }
  ],
  "variable": [
    {
      "key": "baseUrl",
      "value": "https://login.directo.ee/apidirect"
    },
    {
      "key": "version",
      "value": "1"
    },
    {
      "key": "payload",
      "value": ""
    }
  ]
}
```

Save the file as **collection.json** (File → Save As, choose „All Files“ as the file type so it doesn't save with a .txt extension).

Importing the file into Postman

1. Open Postman.
2. Click **Import** (top left corner).
3. Choose **File** and select the **collection.json** file you just saved.
4. Click **Import**.

The collection now appears in the left sidebar under **Collections**.

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