

EDB Test Plan

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1 Databases

1.1 Postgres

1.2 Schema

1.2.1 DONE Table Basics

- ☒ Add database
- ☒ Add account and product tables
- ☒ Add account and product data
- ☒ Perform CRUD operations

– Read

```
query MyQuery {
  account(order_by: {name: asc}, limit: 10) {
    id
    name
    created_at
    updated_at
  }
}
```

```
query MyQuery {
  product(order_by: {price: asc}, limit: 10) {
    id
    name
    price
    updated_at
    created_at
  }
}
```

– Insert

```
mutation MyMutation {
  insert_account(objects: {name: "John Doe"}) {
    affected_rows
  }
}
```

```

mutation MyMutation {
  insert_product(objects: {name: "Doughnut", price: 100}) {
    returning {
      id
      name
      price
      updated_at
      created_at
    }
  }
}

- Update

mutation MyMutation {
  update_account(where: {name: {_eq: "John Doe"}}, _set: {name: "Jane Doe"}) {
    affected_rows
  }
}

- Delete

mutation MyMutation {
  delete_product(where: {name: {_eq: "Doughnut"}}) {
    affected_rows
  }
}

```

1.2.2 DONE Table Relationships

- ☒ Add the order and order detail tables
- ☒ Add relationships for account, order, order detail, and product
- ☒ Generate order and order detail data
- ☒ Perform queries across relationships

```

query MyQuery {
  account(limit: 2) {
    id
    name
    created_at
  }
}

```

```

        updated_at
      orders {
        id
        created_at
        updated_at
        order_details {
      id
      created_at
      updated_at
      units
      product {
        id
        name
        created_at
        updated_at
        price
      }
    }
  }
}

```

1.2.3 TODO Remote Relationships DOES _NOT_ INVOLVE _DB

1.2.4 DONE Extend with Views

- ☒ Add account_{summary} view and relationships
- ☒ Query across table and view relationships

```

query MyQuery {
  account_summary(limit: 10) {
    id
    sum
    account {
      name
    }
  }
}

```

1.2.5 DONE Extend with SQL Functions

- ☒ Add search functions
- ☒ Query search functions

```
query MyQuery {
  product_search(args: {search: "apple"}) {
    name
    price
  }
}
```

```
query MyQuery {
  product_fuzzy_search(args: {search: "apple"}) {
    name
    price
  }
}
```

1.2.6 DONE Default field values

1.2.7 DONE Enum type fields

- ☒ Create a native Postgres enum type for order status.
- ☒ Create a enum table for region and track it as order sales_{region}.

1.2.8 DONE Computed fields

- ☒ Add product_{sku} function and track it as a computed field
- ☒ Query product table with computed field

```
query {
  product(limit: 10) {
    id
    name
    price
    sku
  }
}
```

1.2.9 DONE Customize auto-generated fields DOES_NOT_INVOLVE_DB

- ☒ Change order.status to order.state for the GraphQL field name

1.2.10 DONE Data validations

- ☒ Add non_{negative}price check constraint
- ☒ Attempt mutations with and without negative prices

```
mutation MyMutation {
  update_product(where: {name: {_eq: "Chilli Paste, Sambal Oelek"}}, _set: {price: -10}) {
    affected_rows
  }
}
```

```
mutation MyMutation {
  update_product(where: {name: {_eq: "Pastry - Raisin Muffin - Mini"}}, _set: {price: -10}) {
    affected_rows
  }
}
```

1.2.11 DONE Using an existing database

1.2.12 DONE Relay Schema DOES_NOT_INVOLVE_DB

- ☒ Turn on the Relay API in the Console

```
query MyQuery {
  account_connection(first: 10) {
    edges {
      node {
name
orders {
  id
  region
  order_details {
    units
    product {
      name
      price
      sku
    }
  }
}
```

```

    }
  }
}
    }
    cursor
  }
}
}

```

1.3 Queries

1.3.1 DONE Simple object queries

1.3.2 DONE Nested object queries

1.3.3 DONE Aggregation queries

```

query MyQuery {
  account_aggregate {
    aggregate {
      count
    }
  }
}

```

```

query MyQuery {
  account(limit: 10) {
    orders {
      order_details_aggregate {
        aggregate {
          sum {
            units
          }
        }
      }
    }
  }
}

```


- 1.3.4 **DONE** Filter query results / search queries
- 1.3.5 **DONE** Sort query results
- 1.3.6 **DONE** Distinct query results
- 1.3.7 **TODO** Using multiple arguments**DOES _NOT_ INVOLVE _DB**
- 1.3.8 **TODO** Multiple queries in a request**DOES _NOT_ INVOLVE _DB**
- 1.3.9 **TODO** Using variables / aliases / fragments / directives
DOES _NOT_ INVOLVE _DB
- 1.3.10 **TODO** Query performance
- 1.4 Mutations
 - 1.4.1 **DONE** Insert
 - 1.4.2 **TODO** Upsert
 - 1.4.3 **DONE** Update
 - 1.4.4 **TODO** Delete
 - 1.4.5 **TODO** Multiple mutations in a request
- 1.5 Subscriptions
 - 1.5.1 **TODO** Live queries
- 1.6 Supported Postgres types
 - 1.6.1 **DONE** Perform inserts on the misc table.

```
mutation {
  insert_misc(objects: [
    {
      bigint_field: 1
      bigserial_field: 1
      boolean_field: true
      box_field: "((0,0),(1,1))"
      bytea_field: "\\xDEADBEEF"
      character_field: "foo"
      character_varying_field: "bar"
      cidr_field: "192.168.100.128/25"
      circle_field: "0,0,1"
      date_field: "2022-01-01"
```

```

double_precision_field: 9673143120,
inet_field: "192.168.0.1/24"
integer_field: 1
interval_field: "'1 month ago'"
json_field: {}
jsonb_field: {}
line_field: "0,0,1,1"
lseg_field: "0,0,1,1"
macaddr_field: "08:00:2b:01:02:03"
macaddr8_field: "08:00:2b:01:02:03:04:05"
money_field: 52093.89
numeric_field: 10
path_field: "0,0,1,1,2,2,3,3,3,0,2,0,0,0"
pg_lsn_field: "FFFFFFFF/FFFFFFFF"
point_field: "0,0"
polygon_field: "0,0,1,0,1,1,0,1"
real_field: 3.14159
serial_field: 1
smallint_field: 1
smallserial_field: 1
text_field: "abc"
time_with_time_zone_field: "04:05:06 PST"
time_without_time_zone_field: "04:05:06"
timestamp_with_time_zone_field: "2022-01-01 04:05:06 PST"
timestamp_without_time_zone_field: "2022-01-01 04:05:06"
txid_snapshot_field: "566:566:"
uuid_field: "61a41be6-4eb4-45a5-bfb5-b68c20e9ccde"
xml_field: "<?xml version=\"1.0\"?><book><title>Manual</title><chapter>...</chapter></?>"
}
]) {
    returning {
        bigint_field
        bigserial_field
        boolean_field
        box_field
        bytea_field
        character_field
        character_varying_field
        cidr_field
        circle_field

```

```

date_field
double_precision_field
inet_field
integer_field
interval_field
json_field
jsonb_field
line_field
lseg_field
macaddr_field
macaddr8_field
money_field
numeric_field
path_field
pg_lsn_field
point_field
polygon_field
real_field
serial_field
smallint_field
smallserial_field
text_field
time_with_time_zone_field
time_without_time_zone_field
timestamp_with_time_zone_field
timestamp_without_time_zone_field
txid_snapshot_field
uuid_field
xml_field
    }
}
}

```

2 Remote Schema

2.1 Remote relationships

2.1.1 TODO To remote database

2.1.2 TODO To Remote Schema DOES_NOT_INVOLVE_DB

2.2 Authorization in remote schema

2.2.1 TODO Forwarding auth context to/from remote schema DOES_NOT_INVOLVE_DB

2.2.2 TODO Remote schema permissions DOES_NOT_INVOLVE_DB

2.2.3 TODO Bypassing Hasura's auth for remote schema DOES_NOT_INVOLVE_DB

3 Event Triggers

3.1 Creating an Event Trigger

3.1.1 DONE Create an insert trigger

3.1.2 DONE Create an update trigger

☐ Perform a mutation to update an order

☐ Update an order from the Console

```
mutation MyMutation {  
  update_order_by_pk(pk_columns: {id: "1564344e-e528-43de-b88e-dab9c3efa44e"}, _set: {  
    id  
    state  
  })  
}
```

☐ Check the events logs

4 Scheduled Triggers

4.1 Creating a chron trigger

4.1.1 TODO Create a chron trigger

☐ Allow time to pass

☐ Check the events logs

4.2 Creating a one-off scheduled event

4.2.1 TODO Create a one-off scheduled event

4.3 Cleaning up scheduled triggers data

4.3.1 TODO Clear Everything

- ☐ Cron triggers

```
DELETE FROM hdb_catalog.hdb_cron_events;
```

- ☐ Scheduled events

```
DELETE FROM hdb_catalog.hdb_scheduled_events;
```

5 Test Matrix

Function	Test	Outcome	Comments
Remote Relationships	NO		Remote Schema con
Add Database	YES	SUCCESS	
Add tables and relationships in Console	YES	SUCCESS	
Perform CRUD operations in API	YES	SUCCESS	
Set up and use table relationships	YES	SUCCESS	
Track views	YES	SUCCESS	
Manually add relationships to views	YES	SUCCESS	
Query across view/table relationships	YES	SUCCESS	
Track a function as a table and use	YES	SUCCESS	
Track a function as a computed field and use	YES	SUCCESS	
Use defaults for field values	YES	SUCCESS	
Use a native enum as a Hasura enum	YES	SUCCESS	
Use a table as a Hasura enum	YES	SUCCESS	
Customize field-names in API	YES	SUCCESS	Doesn't actually inv
Data validation with a database constraint	YES	SUCCESS	
Test using the Relay API	YES	SUCCESS	Doesn't actually inv
Simple object queries	YES	SUCCESS	
Nested object queries (involves JOINS)	YES	SUCCESS	
Aggregation queries (count)	YES	SUCCESS	We didn't test min,
Filter queries (involves WHERE)	YES	SUCCESS	
Sort queries (involves ORDER BY)	YES	SUCCESS	
Distinct queries (involves DISTINCT)	YES	SUCCESS	
Limit queries (involves LIMIT)	YES	SUCCESS	
Using multiple arguments	NO		Doesn't actually inv
Multiple queries in a request	NO		Doesn't actually inv
Multiple variables / aliases / fragments / directives	NO		Doesn't actually inv
INSERT (see "Perform CRUD operations in API" above)	YES	SUCCESS	
UPDATE (see "Perform CRUD operations in API" above)	YES	SUCCESS	
DELETE (see "Perform CRUD operations in API" above)	TBD		We forgot to test thi
ON CONFLICT (an "upsert")	TBD		We forgot to test thi
Multiple mutations in a request	TBD		We forgot to test thi
Subscriptions (Live Queries)	TBD	SUCCESS	
Test all Postgres/Hasura types (mutation, query)	TBD	SUCCESS	
Remote Database	TBD		We forgot to test thi
Creating event triggers	YES	FAIL	Needs a Hasura fix.
Creating a chron trigger	TBD	FAIL	Needs a Hasura fix.
Creating a one-off scheduled event	TBD		Needs a Hasura fix
Cleaning up scheduled trigger data	TBD		Needs a Hasura fix
CI/CD: hasura metadata (apply, clear, reload, status)	YES	SUCCESS	
CI/CD: hasura migrate (apply, apply –down all, delete)	YES	SUCCESS	

5.1 NOTES

Test do we test this (YES, NO, TBD)

YES we should test this (and have)

NO we may not need to test this

TBD we should test this (but have not yet, possibly because we cannot)

SUCCESS we tested it and it passed

FAIL we tested it and it did not pass

"We forgot to test this!" either we forgot, or we suspect we may not need to (e.g. "Remote Database")

"Doesn't actually involve the DB" a Hasura function which we believe shouldn't work differently on BDR, since the function doesn't actually interact with the database.

"Needs a Hasura fix" either we have a FAIL test or a TBD test, because of an identified gap in Hasura that needs to be fixed.

5.2 Additional Notes

Event Trigger creation fails with the following error:

```
{
  "internal": {
    "statement": "\n INSERT INTO hdb_catalog.hdb_source_catalog_version(version, upgraded
    "prepared": false,
    "error": {
      "exec_status": "FatalError",
      "hint": "To enable updating the table, set REPLICA IDENTITY using ALTER TABLE.",
      "message": "cannot run INSERT ON CONFLICT DO UPDATE on table \"hdb_source_catalog_
      "status_code": "55000",
      "description": null
    },
    "arguments": [
      "(Oid 25,Just (\"2\",Binary))"
    ]
  },
  "path": "$.args[0].args",
```

```
    "error": "database query error",  
    "code": "unexpected"  
}
```