

Test Configuration Files

These test configs verify the validation system catches various errors.

Test 1: Invalid MQTT Broker

```
yaml

# test-invalid-broker.yaml
mqtt:
  broker: "not a valid hostname!"
  port: 1883
bus_type: system
mappings:
  dbus_to_mqtt: []
  mqtt_to_dbus: []
```

Expected error: Invalid MQTT broker

Test 2: Invalid Port

```
yaml

# test-invalid-port.yaml
mqtt:
  broker: localhost
  port: 99999
bus_type: system
mappings:
  dbus_to_mqtt: []
  mqtt_to_dbus: []
```

Expected error: Invalid MQTT port (must be 1-65535)

Test 3: Invalid D-Bus Service Name

yaml

test-invalid-service.yaml

mqtt:

broker: localhost

port: 1883

bus_type: system

mappings:

dbus_to_mqtt:

- service: "not-valid-service"
path: "/test"
interface: "org.example.Test"
signal: "Signal"
topic: "test/topic"

mqtt_to_dbus: []

Expected error: Invalid D-Bus service name (must be reverse-DNS format)

Test 4: Invalid D-Bus Object Path

yaml

test-invalid-path.yaml

mqtt:

broker: localhost

port: 1883

bus_type: system

mappings:

dbus_to_mqtt:

- service: "org.example.Service"
path: "no-leading-slash"
interface: "org.example.Test"
signal: "Signal"
topic: "test/topic"

mqtt_to_dbus: []

Expected error: Invalid D-Bus object path (must start with /)

Test 5: Wildcards in Publish Topic

```
yaml

# test-wildcard-publish.yaml
mqtt:
  broker: localhost
  port: 1883
  bus_type: system
  mappings:
    dbus_to_mqtt:
      - service: "org.example.Service"
        path: "/test"
        interface: "org.example.Test"
        signal: "Signal"
        topic: "test/#"
    mqtt_to_dbus: []
```

Expected error: Wildcards not allowed in publish topics

Test 6: Invalid Bus Type

```
yaml

# test-invalid-bus-type.yaml
mqtt:
  broker: localhost
  port: 1883
  bus_type: "invalid"
  mappings:
    dbus_to_mqtt: []
    mqtt_to_dbus: []
```

Expected error: Invalid bus_type (must be 'system' or 'session')

Test 7: Partial Authentication

```
yaml

# test-partial-auth.yaml
mqtt:
  broker: localhost
  port: 1883
  auth:
    username: "testuser"
    # Missing password
  bus_type: system
  mappings:
    dbus_to_mqtt: []
    mqtt_to_dbus: []
```

Expected error: Both username and password required

Test 8: Duplicate MQTT Topics

```
yaml

# test-duplicate-topics.yaml
mqtt:
  broker: localhost
  port: 1883
  bus_type: system
  mappings:
    dbus_to_mqtt: []
    mqtt_to_dbus:
      - topic: "test/topic"
        service: "org.example.Service1"
        path: "/test1"
        interface: "org.example.Test1"
        method: "Method1"
      - topic: "test/topic"
        service: "org.example.Service2"
        path: "/test2"
        interface: "org.example.Test2"
        method: "Method2"
```

Expected error: Duplicate MQTT topic in subscriptions

Test 9: Valid Config with Warnings

```
yaml

# test-valid-with-warnings.yaml
mqtt:
  broker: localhost
  port: 1883
  bus_type: system
  mappings:
    dbus_to_mqtt: []
    mqtt_to_dbus:
      - topic: "test/+/sensor/#"
        service: "org.example.Service"
        path: "/test"
        interface: "org.example.Test"
        method: "HandleSensor"
```

Expected: Valid, but warning about wildcard usage