



IUG 24.

TOGETHER WE DRIVE INNOVATION

March 25 - 27, 2024 | Detroit, Michigan

Drawing Down the Data

An Introduction to PolarisTransactions

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IUG 24

TOGETHER WE DRIVE INNOVATION

March 25 - 27, 2024 | Detroit, Michigan

cyberpunklibrarian.com/iug2024

Notes, links, extras, and miscellany

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Pre-requisites and Disclaimers

Or - is this session right for me?

- Diving deep into the Polaris databases
- This is *not* an advanced SQL talk - more like higher-level beginner to intermediate
- You might want to know a bit of SQL and how it works
 - We'll be looking at actual T-SQL queries
- You might want to know the basic structure of the Polaris databases
- I am *not* a SQL expert
 - But I do write a helluva lot of it
 - I even wrote a book about it

Who's *this* guy?

Hello, I'm Dan (he/him)

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- Polaris ILS Administrator
- SQL hacker
- Data analyst & storyteller



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History



Parables

of the

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POLARIS TRANSACTIONS DATABASE

So, what is PolarisTransactions?

It's 1 of 3...



So, what is PolarisTransactions?

It's 1 of 3, and not half as cool as 7 of 9

- Three primary databases
 - Results - Notifications and queues
 - Polaris - What's happening now?
 - PolarisTransactions - What happened?
- Your history, your archive, and a record of what's happened in your Polaris system



Please, I get everything from PolarisTransactions





A Vast Difference

Polaris vs PolarisTransactions

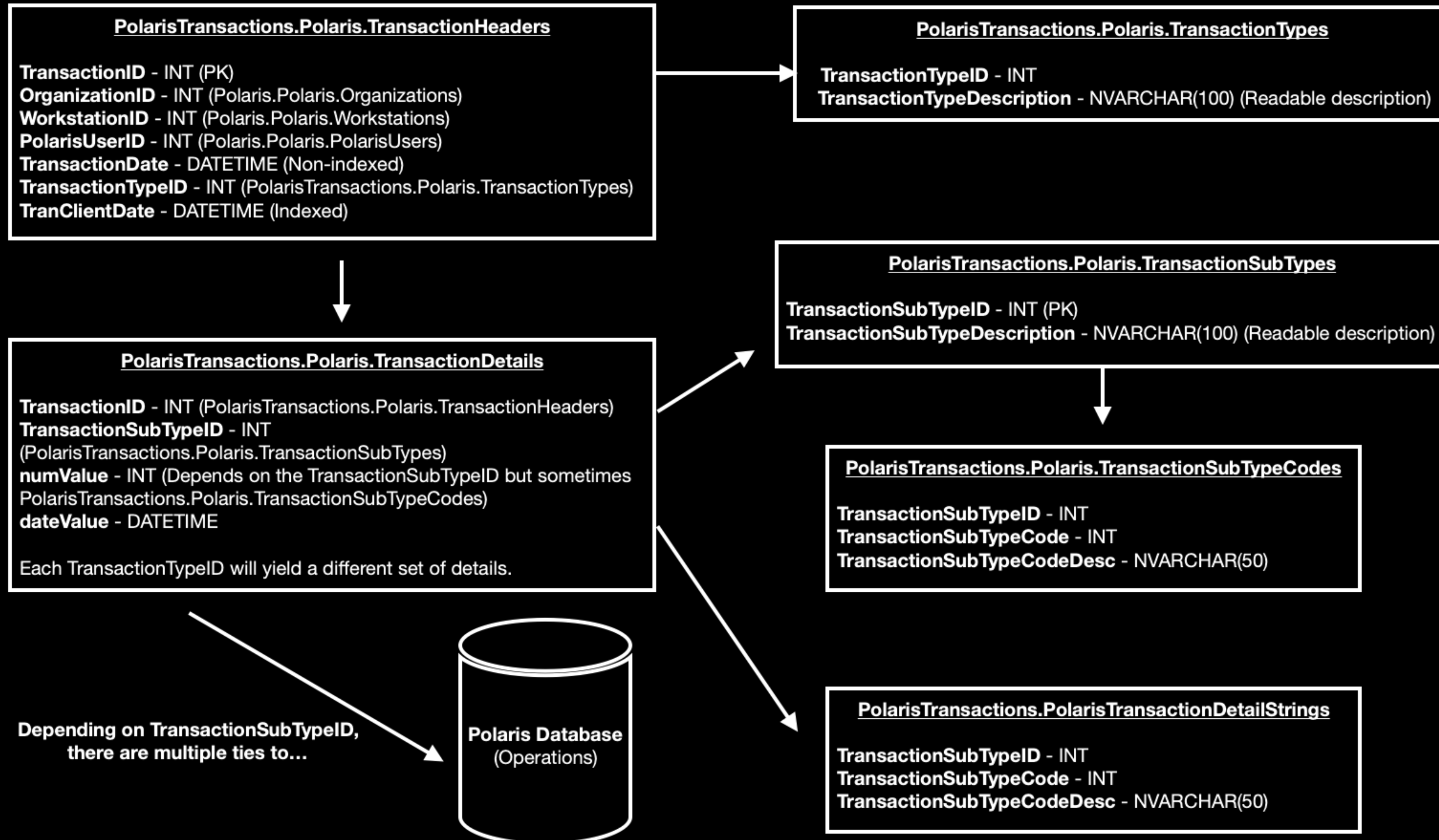
- **Polaris database**

- Over 1,500 tables

- **PolarisTransactions**

- 16 tables
 - No really, that's it
- And you really only need 8 of them

PolarisTransactions Database - Basic Layout and Connections





JOINS... JOINS EVERYWHERE



**You will never find a more wretched hive
of codes and references**

So... let's do stuff

A real world walk through PolarisTransactions

Two roads diverged at a conference talk, and I —

I took the one based on the Wi-Fi

And that will make all the difference.

The Mystery of the Checked Out Item

Who did what, with whom, and where?

- Was there an item checked out?
- Who checked it out to this patron?
- Where did the patron check out this item?
- Who was the patron?
- What was the title of the item they checked out?
- What can we discover about this item?
- What can you tell me about the patron?

One quick note

To allay fears and ease anxiety

- We shall only SELECT
- We shall do naught but SELECT
- Creating temporary tables is okay
- For the most part...

Don't Write Data to PolarisTransactions

Just... just don't



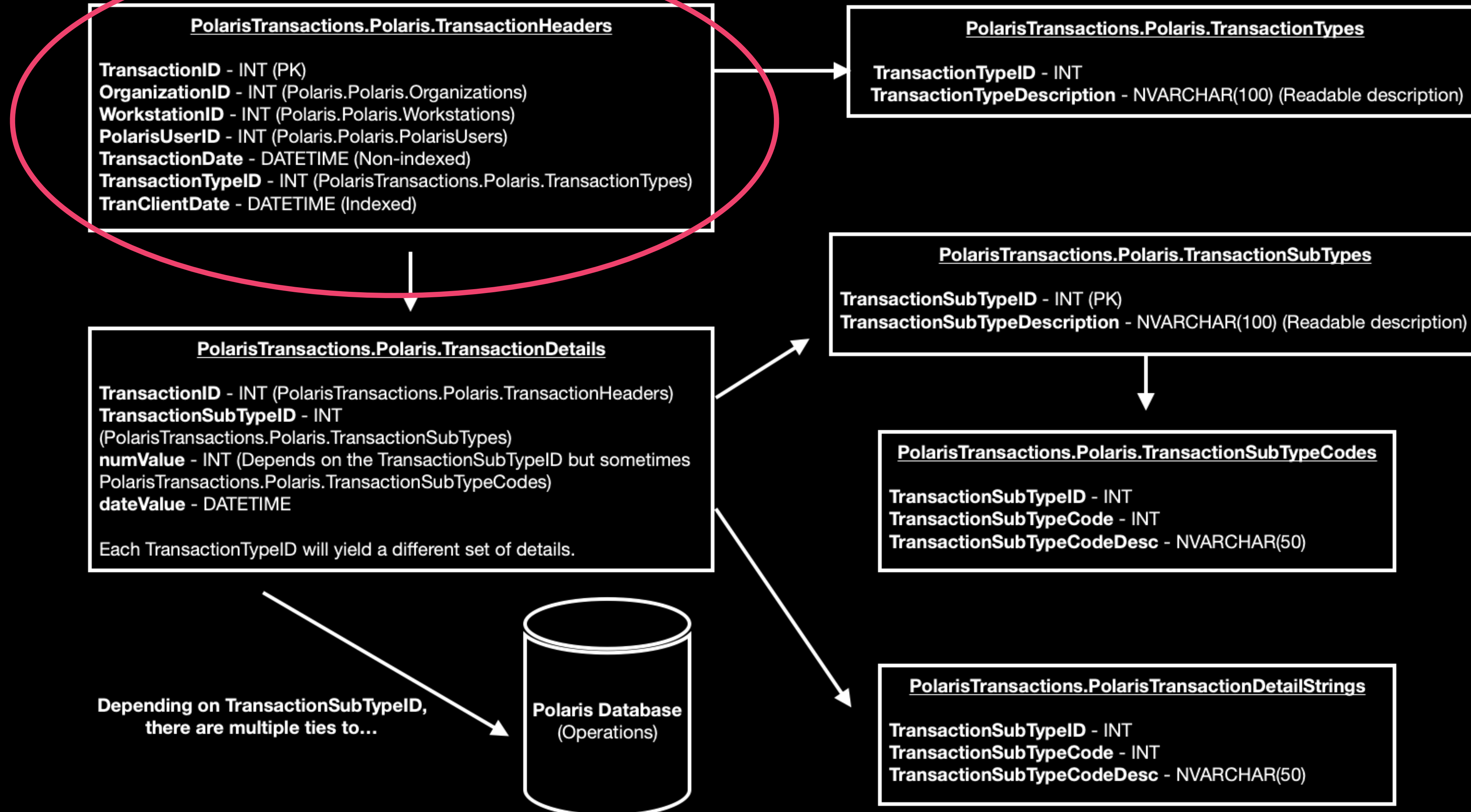
TransactionHeaders

Bottom up? Top down? Doesn't matter, just *start here*.

Source of the problem's at the origin.

~MCA (Beastie Boys), Triple Trouble

PolarisTransactions Database - Basic Layout and Connections




```

1 SELECT
2     TOP 10 *
3 FROM
4     PolarisTransactions.Polaris.TransactionHeaders WITH (NOLOCK)
5 ORDER BY
6     TranClientDate DESC
7
8
9

```

	TransactionID	OrganizationID	WorkstationID	PolarisUserID	TransactionDate	TransactionTypeID	TranClientDate
1	264747499	52	2282	2746	2024-02-12 07:10:14.700	6001	2024-02-12 07:10:14.647
2	264747498	10	1	1	2024-02-12 07:10:03.727	1022	2024-02-12 07:10:04.000
3	264747497	10	1	1	2024-02-12 07:09:39.393	1022	2024-02-12 07:09:39.000
4	264747496	107	1	1	2024-02-12 07:08:50.037	1006	2024-02-12 07:08:50.000
5	264747495	89	1	1	2024-02-12 07:08:49.140	1006	2024-02-12 07:08:49.000
6	264747494	107	1	1	2024-02-12 07:08:48.657	1006	2024-02-12 07:08:49.000
7	264747493	107	1	1	2024-02-12 07:08:47.143	1006	2024-02-12 07:08:47.000
8	264747492	107	1	1	2024-02-12 07:08:45.673	1006	2024-02-12 07:08:46.000
9	264747491	107	1	1	2024-02-12 07:08:44.197	1006	2024-02-12 07:08:44.000
10	264747490	1	1	2	2024-02-12 07:08:42.440	6010	2024-02-12 07:08:42.440

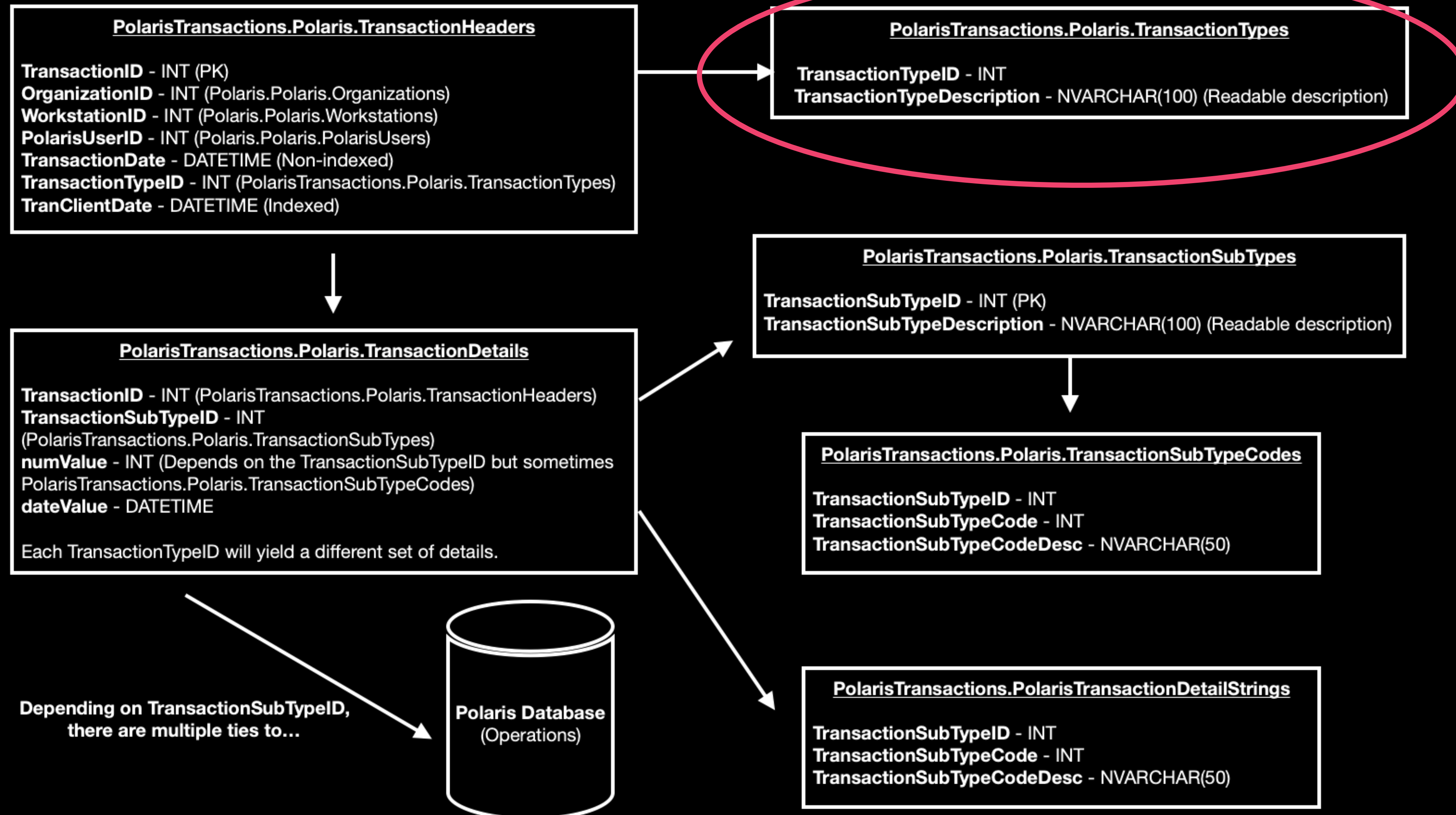

```

SELECT
    th.TransactionID AS [TransactionID],
    o.Name AS [Library/Branch],
    w.DisplayName AS [Workstation Name],
    pu.Name AS [Polaris User],
    th.TransactionDate,
    th.TransactionTypeID,
    th.TranClientDate
FROM
    PolarisTransactions.Polaris.TransactionHeaders th WITH (NOLOCK)
INNER JOIN
    Polaris.Polaris.Organizations o WITH (NOLOCK)
    ON (o.OrganizationID = th.OrganizationID)
INNER JOIN
    Polaris.Polaris.Workstations w WITH (NOLOCK)
    ON (w.WorkstationID = th.WorkstationID)
INNER JOIN
    Polaris.Polaris.PolarisUsers pu WITH (NOLOCK)
    ON (pu.PolarisUserID = th.PolarisUserID)
WHERE
    TransactionID = 264747499

```

	TransactionID	Library/Branch	Workstation Name	Polaris User	TransactionDate	TransactionTypeID	TranClientDate
1	264747499	RCLS - Temecula Public Library	TEM-CIRC01	dmesser	2024-02-12 07:10:14.700	6001	2024-02-12 07:10:14.647

PolarisTransactions Database - Basic Layout and Connections




```

SELECT
    *
FROM
    PolarisTransactions.Polaris.TransactionTypes WITH (NOLOCK)

```

	TransactionTypeID	TransactionTypeDescription	Mnemonic	SysAdminuseTransaction	IsImplemented
2...	6001	Check out	TR_CIRC_CHECK_OUT	1	1
2...	6002	Check in	TR_CIRC_CHECK_IN	1	1
2...	6003	Reset due date	TR_CIRC_RESET_DUE_DATE	1	1
2...	6005	Hold request created	TR_CIRC_HOLD_REQUEST_CREATED	1	1
2...	6006	Holds become held (item rece...	TR_CIRC_HOLDS_BECOME_HELD	1	1
2...	6007	Holds become expired	TR_CIRC_HOLDS_BECOME_EXPIRED	1	1
2...	6008	Holds become unclaimed	TR_CIRC_HOLDS_BECOME_UNCLAIMED	1	1
2...	6009	Holds become denied	TR_CIRC_HOLDS_BECOME_DENIED	1	1
2...	6010	Holds become pending	TR_CIRC_HOLDS_BECOME_PENDING	1	1
2...	6011	Holds become not supplied	TR_CIRC_HOLDS_BECOME_NOT_SUPPLIED	1	1
2...	6012	Holds become shipped	TR_CIRC_HOLDS_BECOME_SHIPPED	1	1
2...	6013	Holds become cancelled	TR_CIRC_HOLDS_BECOME_CANCELLED	1	1
2...	6014	Patron accounting charge	TR_CIRC_PATRON_ACCOUNTING_CHARGE	1	1
2...	6015	OBSOLETE: Patron accounting ...	TR_CIRC_PATRON_ACCOUNTING_PAYMENT_...	0	0
2...	6016	Patron accounting payment	TR_CIRC_PATRON_ACCOUNTING_PAYMENT	1	1
2...	6017	OBSOLETE: Patron accounting ...	TR_CIRC_PATRON_ACCOUNTING_PAYMENT_...	0	0


```

SELECT
    th.TransactionID AS [TransactionID],
    o.Name AS [Library/Branch],
    w.DisplayName AS [Workstation Name],
    pu.Name AS [Polaris User],
    th.TransactionDate,
    tt.TransactionTypeDescription AS [Transaction Type],
    th.TranClientDate
FROM
    PolarisTransactions.Polaris.TransactionHeaders th WITH (NOLOCK)
INNER JOIN
    Polaris.Polaris.Organizations o WITH (NOLOCK)
    ON (o.OrganizationID = th.OrganizationID)
INNER JOIN
    Polaris.Polaris.Workstations w WITH (NOLOCK)
    ON (w.WorkstationID = th.WorkstationID)
INNER JOIN
    Polaris.Polaris.PolarisUsers pu WITH (NOLOCK)
    ON (pu.PolarisUserID = th.PolarisUserID)
INNER JOIN
    PolarisTransactions.Polaris.TransactionTypes tt WITH (NOLOCK)
    ON (tt.TransactionTypeID = th.TransactionTypeID)
WHERE
    TransactionID = 264747499

```

	TransactionID	Library/Branch	Workstation Name	Polaris User	TransactionDate	Transaction Type	TranClientDate
1	264747499	RCLS - Temecula Public Library	TEM-CIRC01	dmesser	2024-02-12 07:10:14.700	Check out	2024-02-12 07:10:14.647

TransactionDetails

Just the facts, ma'am

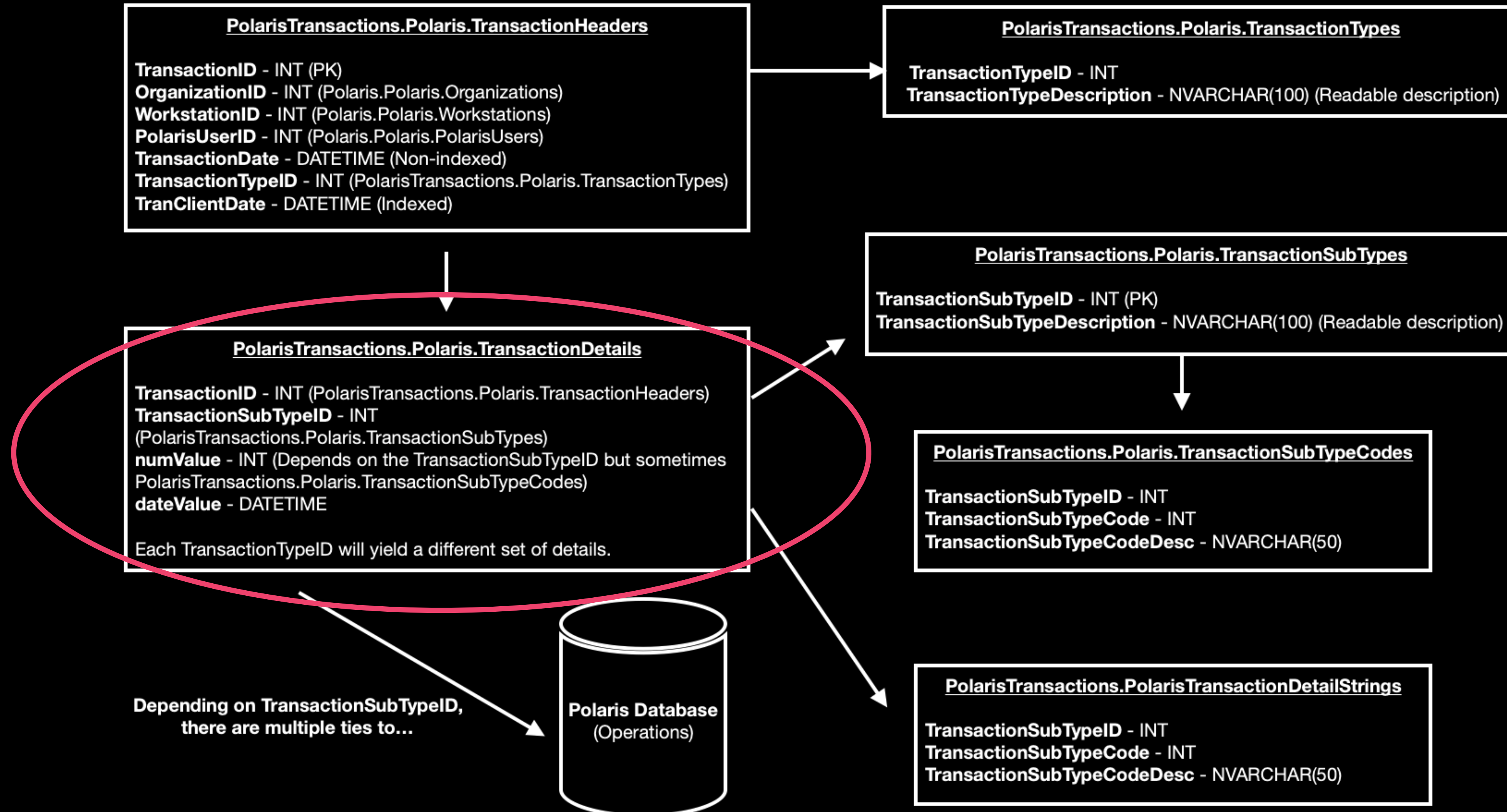


TransactionDetails

Just the facts, ma'am

- Each Transaction Type has its own sets of details
- There is no primary key
- All is code
- But all is *referenced*

PolarisTransactions Database - Basic Layout and Connections




```

SELECT
    *
FROM
    PolarisTransactions.Polaris.TransactionDetails WITH (NOLOCK)
WHERE
    TransactionID = 264747499

```

	TransactionID	TransactionSubTypeID	numValue	dateValue
1	264747499	4	18	NULL
2	264747499	6	2745879	NULL
3	264747499	7	3	NULL
4	264747499	33	8266	NULL
5	264747499	38	5867545	NULL
6	264747499	60	61	NULL
7	264747499	61	105	NULL
8	264747499	123	52	NULL
9	264747499	125	52	NULL
10	264747499	145	51	NULL
11	264747499	186	NULL	2024-02-12 07:10:14.647
12	264747499	220	NULL	NULL
13	264747499	224	NULL	NULL
14	264747499	233	NULL	NULL
15	264747499	264	NULL	NULL
16	264747499	268	52	NULL
17	264747499	296	NULL	NULL
18	264747499	300	NULL	NULL
19	264747499	302	23298	NULL

TransactionSubTypes

Data points become connections



TransactionSubTypes

Data points become connections

- Each TransactionSubType is coded
- The code is consistent throughout the entire database
- Refer to PolarisTransactions.Polaris.TransactionSubTypes


```

SELECT
    td.TransactionID,
    td.TransactionSubTypeID,
    tst.TransactionSubTypeDescription,
    td.numValue,
    td.dateValue
FROM
    PolarisTransactions.Polaris.TransactionDetails td WITH (NOLOCK)
INNER JOIN
    PolarisTransactions.Polaris.TransactionSubTypes tst WITH (NOLOCK)
    ON (tst.TransactionSubTypeID = td.TransactionSubTypeID)
WHERE
    td.TransactionID = 264747499
ORDER BY
    TransactionSubTypeID ASC

```

	TransactionID	TransactionSubTypeID	TransactionSubTypeDescription	numValue	dateValue
1	264747499	4	MaterialType	18	NULL
2	264747499	6	PatronID	2745879	NULL
3	264747499	7	PatronCode	3	NULL
4	264747499	33	PatronStatClassCode	8266	NULL
5	264747499	38	ItemRecordID	5867545	NULL
6	264747499	60	Item Statistical Code	61	NULL
7	264747499	61	Assigned Collection Code	105	NULL
8	264747499	123	Patrons Assigned Branch ID	52	NULL
9	264747499	125	Items Assigned Branch ID	52	NULL
10	264747499	145	Checkout Type	51	NULL
11	264747499	186	Checkout Date	NULL	2024-02-12 07:10:14.647
12	264747499	220	CourseReserveID	NULL	NULL
13	264747499	224	TermID	NULL	NULL
14	264747499	233	HoldRequestID	NULL	NULL
15	264747499	264	NextHoldRequestID	NULL	NULL
16	264747499	268	Item Home BranchID	52	NULL
17	264747499	296	Shelf location	NULL	NULL
18	264747499	300	Vendor Account ID	NULL	NULL
19	264747499	302	Patron Postal Code ID	23298	NULL


```

SELECT
    p.Barcode AS [Patron Barcode],
    pr.PatronFullName AS [Patron Name],
    pr.ExpirationDate AS [Expiration Date],
    pr.Birthdate AS [Birth Date]
FROM
    PolarisTransactions.Polaris.TransactionHeaders th WITH (NOLOCK)
INNER JOIN -- Get the PatronID from TransactionDetails
    PolarisTransactions.Polaris.TransactionDetails patron WITH (NOLOCK)
    ON (th.TransactionID = patron.TransactionID AND patron.TransactionSubTypeID = 6)
INNER JOIN -- Use the PatronID to link Patron table
    Polaris.Polaris.Patrons p WITH (NOLOCK)
    ON (p.PatronID = patron.numValue)
INNER JOIN -- Use the PatronID to link Patron Registration table
    Polaris.Polaris.PatronRegistration pr WITH (NOLOCK)
    ON (pr.PatronID = patron.numValue)
WHERE
    th.TransactionID = 264747499

```

	Patron Barcode	Patron Name	Expiration Date	Birth Date
1	29306000314159	Bestertester, Fester G	2027-01-17 00:00:00.000	1976-08-31 00:00:00.000


```

SELECT
  cir.Barcode AS [Item Barcode],
  br.BrowseTitle AS [Title],
  br.BrowseAuthor AS [Author],
  mat.Description AS [Material Type]
FROM
  PolarisTransactions.Polaris.TransactionHeaders th WITH (NOLOCK)
INNER JOIN -- Pull the ItemRecordID from TransactionDetails
  PolarisTransactions.Polaris.TransactionDetails itemrecord WITH (NOLOCK)
  ON (th.TransactionID = itemrecord.TransactionID AND itemrecord.TransactionSubTypeID = 38)
INNER JOIN -- Pull the MaterialTypeID from TransactionDetails
  PolarisTransactions.Polaris.TransactionDetails material WITH (NOLOCK)
  ON (th.TransactionID = material.TransactionID AND material.TransactionSubTypeID = 4)
INNER JOIN -- Use the ItemRecordID to get CircItemRecords
  Polaris.Polaris.CircItemRecords cir WITH (NOLOCK)
  ON (cir.ItemRecordID = itemrecord.numValue)
INNER JOIN -- Bring in the BibliographicRecords table
  Polaris.Polaris.BibliographicRecords br WITH (NOLOCK)
  ON (br.BibliographicRecordID = cir.AssociatedBibRecordID)
INNER JOIN -- Bring in the MaterialTypes table
  Polaris.Polaris.MaterialTypes mat WITH (NOLOCK)
  ON (mat.MaterialTypeID = material.numValue)
WHERE
  th.TransactionID = 264747499

```

	Item Barcode	Title	Author	Material Type
1	0000941336386	Altered carbon	Morgan, Richard K., 1965- author.	Book

The Mystery of the Checked Out Item

Who did what, with whom, and where?

- Was there an item checked out? — **Yes**
- Who checked it out to this patron? — **dmesser**
- Where did the patron check out this item? — **Temecula Public Library, TEM-CIRC01**
- Who was the patron? — **Fester Bestertester**
- What was the title of the item they checked out? — ***Altered Carbon***
- What can we discover about this item? — **Book, Richard K. Morgan, 0000941336386**
- What can you tell me about the patron? — **Fester Bestertester, 29306000314159**

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BRICKS WITHOUT CLAY

Demystifying PolarisTransactions



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Cyberpunk Librarian



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