

SQL Server Managed Instance IO Performance

 thedatacrew.com/articles/sql-server-managed-instance-io-performance

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SQL Server Managed Instance IO Performance is dependant on a few settings.

1. Service Tier
2. vCore Count
3. File Sizes !!

Yes, File Sizes. A quick explanation, if you have a small database < 128GB your not going to get much data throughput. Only around the 500 IOPS or 100 MB/s. It's all explained here. <https://docs.microsoft.com/en-us/azure/azure-sql/managed-instance/resource-limits>

You will need to make your data file bigger, how to do that and measure the impact – that's here <https://techcommunity.microsoft.com/t5/azure-sql-database/increase-data-file-size-to-improve-hammerdb-workload-performance/ba-p/823337>.

You can find the Azure Managed Disks and their performance profiles – <https://azure.microsoft.com/en-us/pricing/details/managed-disks/>

I wrote a small proc in SQL to show you your current file sizes, IOPS, Throughput and Disk Tier your data files would be on in your SQL Server Managed Instance.

If your moving big sets of data around then increasing your file sizes will have a big performance boost. As always you have to measure it against your current workload, and of course bigger files cost more money in Azure Storage costs.

1

```
USE master;
```

2

```
GO
```

3

4

```
DROP PROCEDURE IF EXISTS dbo.sp_tdc_get_sql_managed_instance_iops_performance;
```

5

```
GO
```

6

7

```
SET ANSI_NULLS ON;
```

8

GO

9

```
SET QUOTED_IDENTIFIER ON;
```

10

GO

11

12

```
CREATE PROCEDURE dbo.sp_tdc_get_sql_managed_instance_iops_performance
```

13

```
AS
```

14

```
BEGIN;
```

15

16

17

```
    WITH DatabaseFiles AS (
```

18

```
        SELECT DB_NAME(database_id)
        AS [Database Name],
```

19

```

        type_desc
    AS [File Type],
20
        name
    AS [File Name],
21
        CAST(( size * 8.0 ) / 1024 AS DECIMAL(38, 1))
    AS [Size MB],
22
        CAST(( size * 8.0 ) / 1024 / 1024 AS
DECIMAL(38, 1)) AS [Size GB]
23
        FROM sys.master_files
24
        WHERE type IN ( 0 ) AND
25
        database_id >= 5
26
    )
27
SELECT DF.[Database Name],
28
        DF.[File Type],
29
        DF.[File Name],
30
        DF.[Size MB],
31
        DF.[Size GB],
32
        CASE WHEN DF.[Size GB] >= 0 AND

```

33

```
DF.[Size GB] <= 128 THEN 'P10'
```

34

```
WHEN DF.[Size GB] > 128 AND
```

35

```
DF.[Size GB] <= 256 THEN 'P15'
```

36

```
WHEN DF.[Size GB] > 256 AND
```

37

```
DF.[Size GB] <= 512 THEN 'P20'
```

38

```
WHEN DF.[Size GB] > 512 AND
```

39

```
DF.[Size GB] <= 1024 THEN 'P30'
```

40

```
WHEN DF.[Size GB] > 1024 AND
```

41

```
DF.[Size GB] <= 2048 THEN 'P40'
```

42

```
WHEN DF.[Size GB] > 2048 AND
```

43

```
DF.[Size GB] <= 4096 THEN 'P40'
```

44

```
WHEN DF.[Size GB] > 4096 AND
```

45

```
DF.[Size GB] <= 8192 THEN 'P50'
```

46

```
ELSE 'P60'
```

47

```
END AS [Azure Disk],
```

48

```
CASE WHEN DF.[Size GB] >= 0 AND
```

49

```
    DF.[Size GB] <= 128 THEN 500
```

50

```
    WHEN DF.[Size GB] > 128 AND
```

51

```
        DF.[Size GB] <= 256 THEN 1100
```

52

```
        WHEN DF.[Size GB] > 256 AND
```

53

```
            DF.[Size GB] <= 512 THEN 2300
```

54

```
            WHEN DF.[Size GB] > 512 AND
```

55

```
                DF.[Size GB] <= 1024 THEN 5000
```

56

```
                WHEN DF.[Size GB] > 1024 AND
```

57

```
                    DF.[Size GB] <= 2048 THEN 7500
```

58

```
                    WHEN DF.[Size GB] > 2048 AND
```

59

```
                        DF.[Size GB] <= 4096 THEN 7500
```

60

```
                        WHEN DF.[Size GB] > 4096 AND
```

61

```
DF.[Size GB] <= 8192 THEN 12500
```

62

```
ELSE 12500
```

63

```
END AS [Max IOPS Per FILE],
```

64

```
CASE WHEN DF.[Size GB] >= 0 AND
```

65

```
DF.[Size GB] <= 128 THEN 100
```

66

```
WHEN DF.[Size GB] > 128 AND
```

67

```
DF.[Size GB] <= 256 THEN 125
```

68

```
WHEN DF.[Size GB] > 256 AND
```

69

```
DF.[Size GB] <= 512 THEN 150
```

70

```
WHEN DF.[Size GB] > 512 AND
```

71

```
DF.[Size GB] <= 1024 THEN 200
```

72

```
WHEN DF.[Size GB] > 1024 AND
```

73

```
DF.[Size GB] <= 2048 THEN 250
```

74

```
WHEN DF.[Size GB] > 2048 AND
```

75

```
DF.[Size GB] <= 4096 THEN 250
```

76

```
WHEN DF.[Size GB] > 4096 AND
```

77

```
DF.[Size GB] <= 8192 THEN 500
```

78

```
ELSE 500
```

79

```
END AS [Max T/P Per File MiB/s]
```

80

```
FROM DatabaseFiles AS DF
```

81

```
ORDER BY DF.[Database Name],
```

82

```
DF.[File Type];
```

83

```
END;
```

84

GO

85

86

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I love pushing Business Intelligence in unexpected directions. I apply software development principles to Data Engineering, Business Intelligence & Analytics. Where possible we automate everything with CI & CD.

You always find me translating between programmers, data engineers, system administrator, project managers and business leaders.

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