



## match though wildcard

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## match (Bulkstat)

To configure a filter set for an object in the Bulkstat Simple Network Management Protocol (SNMP) data set during collection, use the **match** command in Bulkstat filter configuration mode. To remove a filter set from the data set, use the **no** form of this command.

**match** *object-name* {**eq**|**start**|**not**|{**eq**|**start**}} {*line*}

**no match** *object-name*

### Syntax Description

<i>object-name</i>	Object name for which the filter is applied. The name must match the name of the object configured in the <b>bulkstat data</b> command.
<b>eq</b>	Matches numeric and string values defined in the object.
<b>start</b>	Matches only the string value defined in the object. If there is a numeric data type in the object, this may result in the filter not operating.
<b>not</b>	Performs a logical NOT operation on the conditions set.
<i>line</i>	Comma-separated value list. If the list is a string, specify the string in quotation marks.

### Command Default

By default, a filter set is not configured in the Bulkstat SNMP data set.

### Command Modes

Bulkstat filter configuration (config-bs-filter)

### Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

### Usage Guidelines

More than one value can be specified for an object and more than one object can have match values. Currently this configuration is supported only for SNMP objects.

**Note**

The object for which a filter is applied, should be a name configured with the **bulkstat data** command.

**Examples**

The following example shows how to configure a Bulkstat filter set for an object:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat filter ifType
Device(config-bs-filter)# match ifType eq 131,132,100
```

**Related Commands**

Command	Description
<b>bulkstat data</b>	Configures a Bulkstat data set for command, expression, and Simple Network Management Protocol (SNMP) elements.
<b>bulkstat filter</b>	Configures a Bulkstat filter set.

# object (Bulkstat data-group)

To process a Bulkstat data-group object and configure object specific parameters, use **object** command. To remove object specific parameters, use the **no** form of this command.

**object** *object-name* **sample** {**absolute**| **delta**}

**no object** *object-name*

## Syntax Description

<i>object-name</i>	Name of the object
<b>sample</b>	Specifies whether the processing is done on absolute or delta values.
<b>absolute</b>	Processes absolute values for this object.
<b>delta</b>	Processes delta values for this object.

## Command Default

By default, object specific parameters of a Bulkstat data-group are not configured.

## Command Modes

Bulkstat data group process configuration (config-bs-dg-proc)

## Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

## Examples

The following example shows how to process absolute values for the Bulkstat data-group object:

```
Device> enable
Device# configure terminal
Device# bulkstat data-group dg-name
Device(config-bs-dg)# process
Device(config-bs-dg-proc)# object BSObject sample absolute
```

## object (Bulkstat expression)

To configure Bulkstat expression objects, use the **object** command in Bulkstat data set expression configuration mode. To remove the configuration, use the **no** form of this command.

**object** *object-number*

**no object** *object-number*

### Syntax Description

<i>object-number</i>	<p>Object number in a Bulkstat expression.</p> <p><b>Note</b> If the expression is "\$1+\$2", then object 1 refers to the object at \$1. If an object is specified with a number that is not mentioned in the expression, the configuration succeeds, but the object is not used in the evaluation of the expression type.</p>
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### Command Default

By default, Bulkstat expression objects are not configured.

### Command Modes

Bulkstat data set expression configuration (config-bs-ds-expr)

### Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

### Usage Guidelines

If the **object** command is used and the object is already configured, the execution results in setting the context to the existing object, and the command mode switches to the Bulkstat data set expression object configuration mode.

### Examples

The following example shows how to configure an object for a Bulkstat expression using the **object** command:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data interface-util type expression
Device(config-bs-ds-expr)# object 1
```

**Related Commands**

Command	Description
<b>bulkstat data</b>	Configures a Bulkstat data set for command, expression, and SNMP type of elements.

## object (Bulkstat SNMP)

To add an object inside a Bulkstat Simple Network Management Protocol (SNMP) data set, use the **object** command in Bulkstat data set SNMP configuration mode. To remove an object from a Bulkstat SNMP data set, use the **no** form of this command.

**object** *oid* [**alias** *alias-name*]

**no object** *oid*

### Syntax Description

<i>oid</i>	The object identifier. Dotted notation OID format is always expected to be understood by the agent if the object is supported. If the specified object is not understood by the agent, then this command will not be accepted.  The object is defined by cdcDGBaseObjectSubtree.
<b>alias</b> <i>alias-name</i>	(Optional) Specifies an optional name to be associated with the object. Specify an alias-name, if the agent can only understand the dotted notation OID. This name is used to represent the object in the file containing the collected data.

### Command Default

By default, an object in the SNMP data set is not configured.

### Command Modes

Bulkstat data set snmp configuration (config-bs-ds-snmp)

### Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

### Usage Guidelines

If the object is already present in the data set, execution of the **object** command in Bulkstat data set SNMP configuration mode replaces the old object configuration with the new configuration.

## Examples

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data interface-stats type snmp
Device(config-bs-ds-snmp)# object 1.3.6.1.2.1.2.2.1.10 alias ifInOctets
```

## Related Commands

Command	Description
<b>bulkstat data</b>	Configures a Bulkstat data set.



# process

To configure process-related parameters for a Bulkstat data group, use the **process** command in Bulkstat data group configuration mode. To remove process-related parameters, use the **no** form of this command.

**process**

**no process**

## Syntax Description

This command has no keywords or arguments.

## Command Default

By default, process-related parameters are not configured for a Bulkstat data group.

## Command Modes

Bulkstat data group configuration (config-bs-dg)

## Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

## Usage Guidelines

Execution of the **process** command results in a configuration change and replaces any existing configuration.

## Examples

The following example shows how to configure process-related parameters for a Bulkstat data group:

```
Device> enable
Device# configure terminal
Device# bulkstat data-group dg-name
Device(config-bs-dg) # process
```

## Related Commands

Command	Description
<b>collect</b>	Configures collection parameters for a Bulkstat data group.
<b>context</b>	Configures the context for a Bulkstat data group.
<b>discard</b>	Discards raw data for a Bulkstat data group.
<b>interval</b>	Configures interval parameters for a Bulkstat data group.

process

# profile

To schedule data collection on Bulkstat profiles, use the **profile** command in Bulkstat schedule configuration mode. To stop data collection, use the **no** form of this command.

**profile** *bulkstat-profile-name* {**start** {**oneshot**| **recurring**}}| **stop**}

**no profile** *bulkstat-profile-name*

## Syntax Description

<i>bulkstat-profile-name</i>	Bulkstat profile name, which is created using the <b>bulkstat profile</b> command.
<b>start</b>	Specifies that data collection should start for a particular Bulkstat profile.
<b>oneshot</b>	Specifies that data collection occurs only once.
<b>recurring</b>	Specifies that data collection occurs repeatedly according to the conditions set.
<b>stop</b>	Specifies that data collection should stop for a particular Bulkstat profile.

## Command Default

By default, data collection is not enabled on Bulkstat profiles.

## Command Modes

Bulkstat schedule configuration (config-bs-schedule)

## Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

## Usage Guidelines

Use the **profile** command to start scheduled data collection for specific Bulkstat profiles. You can enable multiple profiles for data collection.

## Examples

The following example shows how to start and stop data collection on multiple Bulkstat profiles using the **profile** command:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat schedule mycal at 08:00 feb 05 oneshot
Device(config-bs-schedule)# profile snmp_profile start recurring
```

```
Device(config-bs-schedule)# profile cli_profile start recurring
Device(config-bs-schedule)# profile exp_profile start recurring

Device(config)# bulkstat schedule mycal at 22:00 feb 05 oneshot
Device(config-bs-schedule)# profile snmp_profile stop
Device(config-bs-schedule)# profile cli_profile stop
Device(config-bs-schedule)# profile exp_profile stop
```

## Related Commands

Command	Description
<b>bulkstat profile</b>	Configures a Bulkstat profile.
<b>bulkstat schedule</b>	Configures a Bulkstat calendar scheduler to enable data collection.

# range

To configure a range instance for a Bulkstat Simple Network Management Protocol (SNMP) instance set, use the **range** command in the Bulkstat Simple Network Management Protocol (SNMP) instance set configuration mode. To remove a range instance from Bulkstat SNMP instance set, use the **no** form of this command.

**range** *start oid end oid*

**no range** *start oid end oid*

## Syntax Description

<b>start</b> <i>oid</i>	Specifies the start of a range instance.  Object identifier. This object is defined by cdcDGInstanceOid (Cisco Data Collection Data Group Instance Oid).
<b>end</b> <i>oid</i>	Specifies the end of a range instance.  Object identifier. This object is defined by cdcDGInstanceOid (Cisco Data Collection Data Group Instance Oid).

## Command Default

By default, a range instance is not configured for a Bulkstat SNMP instance set.

## Command Modes

Bulkstat instance snmp configuration (config-bs-is-snmp)

## Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

## Usage Guidelines

You can configure multiple of ranges in the same instance set. However, overlapping instances should be avoided because the system will not check for overlapping instance configurations and all instances within the range, including the start and end will be collected.

## Examples

The following example shows how to configure a range instance using the **range** command:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat instance exact type snmp
Device(bs-is-snmp) # range start 1.2.3.4 end 1.2.3.6
```

## Related Commands

Command	Description
<b>bulkstat data</b>	Configures a Bulkstat data set for SNMP.
<b>exact</b>	Configures an exact instance in a Bulkstat SNMP instance set.
<b>wildcard</b>	Configures a wildcard instance in a Bulkstat SNMP instance set.

# repetition

To configure a repetition instance for a Bulkstat Simple Network Management Protocol (SNMP) instance set, use the **repetition** command in Bulkstat instance SNMP configuration mode. To remove the repetition instance, use the **no** form of this command.

**repetition oid *oid* max *max\_repetition\_value***

**no repetition oid *oid***

## Syntax Description

<b>oid</b> <i>oid</i>	Specifies an object identifier (OID) in dotted decimal notation. The object is defined by cdcDGInstanceOid..
<b>max</b> <i>max_repetition_value</i>	Specifies the maximum number of repetitions. Maximum repetition value. The range is from 1 to 2147483647. This object is defined by cdcDGInstanceNumRepetitions.

## Command Default

By default, repetition instance values are not configured.

## Command Modes

Bulkstat instance snmp configuration (config-bs-is-snmp)

## Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

## Usage Guidelines

You can configure multiple repetitions of the same instance set, but they should be avoided because the system will not check for overlapping instance configurations.

## Examples

The following example shows how to configure a repetition instance using the **repetition** command:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat instance exact type snmp
Device(config-bs-is-snmp)# repetition oid 1.2.3.4 max 12
```

**Related Commands**

Command	Description
<b>exact</b>	Configures an exact instance in an instance set.
<b>range</b>	Configures a range instance in an instance set.
<b>wildcard</b>	Configures a wildcard instance in an instance set.



## sample (Bulkstat)

To configure an object value to be used in evaluating expression MIB output, use the **sample** command in Bulkstat data set expression object configuration mode. To remove the configuration, use the **no** form of this command.

**sample** {absolute| changed| delta}

**no sample**

### Syntax Description

<b>sample</b>	Specifies the sampling type—absolute or changed or delta. Object is defined by expObjectSampleType in <i>RFC 2982, Distributed Management Expression MIB</i> .
<b>absolute</b>	Returns a value of the MIB object at the time it is sampled.
<b>changed</b>	Returns a Boolean value that indicates whether the object has changed value since the last sampling.
<b>delta</b>	Returns a difference in value from one sampling to the next sampling.

### Command Default

This command has no default behavior.

### Command Modes

Bulkstat data set expression object configuration (config-bs-ds-expr-obj)

### Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

### Examples

The following example shows how to configure object value to be used in evaluating expression output MIB using the **sample** command:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data-set expression
Device(config-bs-ds-expr)# object 1
Device(config-bs-ds-expr-obj)# sample delta
```

**Related Commands**

Command	Description
<b>conditional object</b>	Configures conditional evaluation of a data set of expression output.
<b>discontinuity object</b>	Configures discontinuity behaviors for Bulkstat data set expression output.
<b>id</b>	Configures an object ID for expression output.
<b>wildcard</b>	Computes the expression for all instances of an object.

# show bulkstat data-group

To display the details of the Data Collection Manager (DCM) data-group configured by the user, use the **show bulkstat data-group** command in privileged EXEC mode.

**show bulkstat data-group** [**process** | [**object** *object-name*| **index** *index-value*| **distribution**| **summary**| **percentile** *value*]]

## Syntax Description

<i>data-group-name</i>	Specifies the name of the data-group.
<b>process</b>	Displays processing data.
<b>object</b> <i>object-name</i>	Displays processed data of the specified object.
<b>index</b> <i>index-value</i>	Displays processed data of the specified object's index or instance.
<b>distribution</b>	Displays distribution data.
<b>summary</b>	Displays summary data.
<b>percentile</b> <i>value</i>	Displays percentile data and percentile value for a specified number.

## Command Modes

Privileged EXEC (#)

## Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

## Examples

The following example shows the results of the **show bulkstat data-group** command for the data-group *BSDDataGroup* configured by the user:

```
Device> enable
Device# show bulkstat data-group BSDDataGroup process distribution
```

```

Data-Group BSDataGroup Process data
Objectname       : 1.3.6.1.2.1.2.2.1.16
Number of samples: 9
Distribution Data:
* Buckets with no data are not shown

Instance      Number of  Range      Range
              buckets   start      end
-----
436752384     250       0          4294967295

Bucket      Bucket      Bucket      Count
Index      Start      End
-----
1           0.000     17179869.180    9

```

The table below describes the significant fields shown in the output.

**Table 1: show bulkstat data-group Field Descriptions**

Field	Description
Objectname	Indicates the name of the object configured in DCM.
Number of samples	Indicates the number of samples polled.
Instance	Indicates the object instance for the above object name.
Number of buckets	Indicates the number of buckets configured in which the values of the object are saved when distribution or percentile processing is performed.
Range start	Indicates the start range in which the objects value can lie.
Range end	Indicates the end range in which the objects value can lie.
Bucket Index	Indicates the bucket number.
Bucket Start	Indicates the start range of the bucket.
Bucket End	Indicates the end range of the bucket.
Count	Indicates the number of samples in the bucket.

## Related Commands

Command	Description
<b>bulkstat profile</b>	Enables or disables the profile collection and transfer from privileged EXEC mode.
<b>show bulkstat pre-defined</b>	Displays the details of pre-defined data-sets, data-groups, and instance-sets in DCM

Command	Description
show bulkstat profile	Displays the details of user-created profiles in DCM.

# show bulkstat pre-defined

To display the details of the Data Collection Manager (DCM) predefined data-sets, data-groups, and instance-sets, use the **show bulkstat pre-defined** command in privileged EXEC mode.

**show bulkstat pre-defined** [**data** *data-set-name*| **data-group** *data-group-name*| **instance** *instance-set-name*]

## Syntax Description

<b>data</b> <i>data-set-name</i>	Specifies the name of the data-set.
<b>data-group</b> <i>data-group-name</i>	Specifies the name of the data-group.
<b>instance</b> <i>instance-set-name</i>	Specifies the name of the instance set.

## Command Modes

Privileged EXEC (#)

## Command History

Release	Modification
Cisco IOS XE Release 3.3SE	This command was introduced.

## Examples

The following is sample output from the **show bulkstat predefined** command. The output is self-explanatory.

```
Device> enable
Device# show bulkstat predefined

bulkstat data _pd_ClientDS type snmp
  object cldcClientWlanProfileName
  object cldcClientProtocol
  object cldcClientWgbStatus
  object cldcClientWgbMacAddress
  object cldcClientCurrentTxRateSet
  object cldcClientLoginTime
  object cldcClientDataRetries
  object cldcClientRtsRetries
bulkstat data _pd_MobileStationDS type snmp
  object bsnMobileStationMacAddress
  object bsnMobileStationIpAddress
  object bsnMobileStationUserName
  object bsnMobileStationAPMacAddr
  object bsnMobileStationAPIfSlotId
  object bsnMobileStationEssIndex
  object bsnMobileStationSsid
  object bsnMobileStationAID
  object bsnMobileStationStatus
  object bsnMobileStationReasonCode
  object bsnMobileStationStatusCode
  object bsnMobileStationMobilityStatus
  object bsnMobileStationAnchorAddress
  object bsnMobileStationAuthenticationAlgorithm
  object bsnMobileStationDeleteAction
  object bsnMobileStationPolicyManagerState
  object bsnMobileStationSecurityPolicyStatus
```

```

object bsnMobileStationInterface
object bsnMobileStationWepState
object bsnMobileStationVlanId
object bsnMobileStationPolicyType
object bsnMobileStationEncryptionCypher
object bsnMobileStationEapType
bulkstat data _pd_MobileStationStatsDS type snmp
object bsnMobileStationRSSI
object bsnMobileStationSnr
object bsnMobileStationBytesSent
object bsnMobileStationBytesReceived
object bsnMobileStationPacketsSent
object bsnMobileStationPacketsReceived
bulkstat instance _pd_wildcardIS type snmp
wildcard
bulkstat data-group _pd_ClientDG
collect type snmp data _pd_ClientDS instance _pd_wildcardIS
interval polling 300
bulkstat data-group _pd_MobileStationDG
collect type snmp data _pd_MobileStationDS instance _pd_wildcardIS
interval polling 300
bulkstat data-group _pd_MobileStationStatsDG
collect type snmp data _pd_MobileStationStatsDS instance _pd_wildcardIS
interval polling 300

```

## Related Commands

Command	Description
<b>show bulkstat data-group</b>	Displays the details of user-created data-groups in DCM.
<b>show bulkstat profile</b>	Displays the details of user-created profiles in DCM.

# show bulkstat profile

To display the details of the Data Collection Manager (DCM) profile configured by the user, use the **show bulkstat profile** command in privileged EXEC mode.

**show bulkstat profile** [**file**] **name** *bulkstat-profile-name*

## Syntax Description

<b>file</b>	Specifies that the details of the file are to be displayed.
<b>name</b> <i>bulkstat-profile-name</i>	Specifies the name of the profile.

## Command Modes

Privileged EXEC (#)

## Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

## Examples

The following example displays the details of the profile *pf2* created by the user:

```
Device> enable
Device# show bulkstat profile

Profile Name      : pf2
Admin Status     : Enabled
Enable Reason    : Config
Oper Status      : Active

Data-group's in profile:
Name              Oper State    Repetitions Left
-----
_pd_MobileStationStatsDG  Active      -
```

The following example displays the file details of the profile *pf2* created by the user:

```
Device> enable
Device# show bulkstat profile file name pf2

Profile Name           : pf2
Curr file size         : 436(bytes)
Time left for raw data transfer : 66(secs)
```

The table below describes the significant fields shown in the output.



**Table 2: show bulkstat profile Field Descriptions**

Field	Description
Profile Name	Indicates the name of the profile
Admin Status	Indicates the administrative status of the profile.
Enable Reason	Indicates if the profile is enabled from global configuration mode or privileged EXEC mode.
Oper Status	Indicates the operating status of the profile created by the user.
Name	Indicates the name of the profile
Repetitions Left	Indicates the number of repetitive collections left when you enable the Bulkstat profile using the <b>bulkstat profile</b> command from privileged EXEC mode with <b>repeat</b> option.
Curr file size	Indicates the size of the file.
Time left for raw data transfer	Indicates the time left for file transfer.

**Related Commands**

Command	Description
<b>bulkstat profile</b>	Enables or disables the profile collection and transfer from privileged EXEC mode.
<b>show bulkstat data-group</b>	Displays the details of user-created data-groups in DCM.
<b>show bulkstat pre-defined</b>	Displays the details of pre-defined data-sets, data-groups, and instance-sets in DCM.

## snmp-server enable

To enable notifications for Bulkstat, use the **snmp-server enable** command in global configuration mode. To remove notification configurations, use the **no** form of this command.

**snmp-server enable** [**collection**| **transfer**]

### Syntax Description

<b>collection</b>	Enables the cdcVFileCollectionErrorEnable object for all profiles.
<b>transfer</b>	Enables the cdcFileXferConfSuccessEnable and cdcFileXferConfFailureEnable objects for all profiles.

### Command Default

Notifications are not enabled.

### Command Modes

Global configuration (config)

### Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

### Examples

The following example shows how to configure notifications for Bulkstat configuration:

```
Device# configure terminal
Device(config)# snmp-server enable traps bulkstat collection transfer
Device(config)# snmp-server enable traps bulkstat transfer
```

## value type

To specify the type of bulkstat expression to use during object sampling, use the **value type** command in Bulkstat expression configuration mode. To disable the specified value type, use the **no** form of this command.

**value type** [**counter32**| **unsigned32**| **timeticks**| **integer32**| **ipaddress**| **octetstring**| **objectid**| **counter64**]  
**no value type**

### Syntax Description

<b>counter32</b>	(Optional) Specifies a counter32 value. Counter32 specifies a value that represents a count. The value ranges from 0 to 4,29,49,67,295.
<b>unsigned32</b>	(Optional) Specifies an unsigned integer value. Unsigned32 specifies a value that includes only non-negative integers. The value ranges from 0 to 4294967295.
<b>timeticks</b>	(Optional) Specifies a value based on timeticks. Timeticks represents a non-negative integer value that specifies the elapsed time between two events, in units of hundredth of a second.  When objects in the MIB are defined using the subset of Abstract Syntax Notation One (ASN.1), the description of the object type identifies this reference period.
<b>integer32</b>	(Optional) Specifies an integer32 value. The Integer32 represents 32-bit signed integer values for the Simple Network Management Protocol (SNMP). The value range includes both negative and positive numbers.
<b>ipaddress</b>	(Optional) Specifies a value based on the IP address. The IP address is a string of four octets. The IP address value type is generally an IPv4 address. This value is encoded as four bytes in the network byte order.
<b>octetstring</b>	(Optional) Specifies a value based on octetstring. The octetstring specifies octets of binary or textual information. The octet string length ranges from 0 to 65535 octets.
<b>objectid</b>	(Optional) Specifies a value based on the object identifier of an object. Each object type in a MIB is identified by an object identifier value assigned by the administrator. The object identifier identifies the value type that has an assigned object identifier value.
<b>counter64</b>	(Optional) Specifies a counter64 value that represents a count. However, the counter64 value ranges from 0 to 18446744073709551615. This value type is used when a 32-bit counter rollover occurs in less than an hour.

**Command Default**

By default, the value type is not configured.

**Command Modes**

expression configuration (config-expression)

Bulkstat data set expression configuration (config-bs-ds-expr)

**Command History**

Release	Modification
12.4(20)T	This command was introduced.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
12.2(50)SY	This command was integrated into Cisco IOS Release 12.2(50)SY.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS Release XE 3.8S	This command was integrated into Cisco IOS Release XE 3.8S.

**Usage Guidelines**

The **value type** command specifies a value for expression evaluation.

**Examples**

The following example shows how to specify the counter32 value type:

```
Device> enable
Device# configure terminal
Device(config)# snmp mib expression owner owner1 name ExpressionA
Device(config-expression)# value type counter32
```

The following example shows how to specify the counter32 value type for Bulkstat expression data set:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data interface-util type expression
Device(config-bs-ds-expr)# expression 100*$1+$2
Device(config-bs-ds-expr)# value type counter32
```

**Related Commands**

Command	Description
<b>snmp mib expression owner</b>	Specifies the owner for an expression.
<b>bulkstat data</b>	Configures Bulkstat data set for expression type.

# wildcard

To configure a wildcard instance, use the **wildcard** command in Bulkstat instance SNMP configuration mode. To remove a wildcard instance, use the **no** form of this command.

**wildcard** [**oid** *oid*] **interface** *interface-id* [**sub-if**]

**no wildcard** [**oid** *oid*] **interface** *interface-id* [**sub-if**]

## Syntax Description

<b>oid</b> <i>oid</i>	Wildcard instance identifier in object identifier format. Object defined by cdcDGInstanceOid.
<b>interface</b> <i>interface-id</i>	Specifies the interface name. Choose the interface ID from the list of interface names provided. Use this option only if the objects being retrieved are indexed by ifIndex. This option is provided so that the user need not worry about the persistence of an ifindex value for an interface.
<b>sub-if</b>	(Optional) Specifies that the sub-interfaces under the specified main interface are also included.

## Command Default

By default, wildcard instances are not configured for a Bulkstat SNMP data set.

## Command Modes

Bulkstat instance snmp configuration (config-bs-is-snmp)

## Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

## Usage Guidelines

Execution of the **wildcard** command results in the addition of an instance to an existing instance set.

## Examples

The following example shows how to specify a wildcard instance for an Ethernet interface:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat instance exact type snmp
Device(config-bs-is-snmp)# wildcard interface Ethernet0/0 sub-if
```

## Related Commands

Command	Description
<b>bulkstat data</b>	Configures a Bulkstat data set.

## wildcard (Bulkstat expression)

To configure wildcard instances of a Bulkstat expression object, use the **wildcard** command in Bulkstat expression data set configuration mode. To remove the command, use the **no** form of this command.

**wildcard**

**no wildcard**

**Syntax Description** This command has no keywords or arguments.

**Command Default** This command is enabled by default.

**Command Modes** Bulkstat data set expression object configuration (config-bs-ds-expr-obj)

Command History	Release	Modification
	15.3(1)T	This command was introduced.
	15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
	Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

**Examples** The following example shows how to configure a wildcard instance using the **wildcard** command:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data interface-util type expression
Device(config-bs-ds-expr)# object 2
Device(config-bs-ds-expr-obj)# wildcard
```

Related Commands	Command	Description
	<b>conditional object</b>	Defines a conditional object when evaluating an expression.
	<b>discontinuity object</b>	Configures the discontinuity properties for evaluation of a Bulkstat object.
	<b>id</b>	Configures the OID for an expression MIB output.
	<b>sample</b>	Configures an object value to be used in evaluating an expression MIB output.

wildcard (Bulkstat expression)